

**COUNTY OF EL DORADO, CALIFORNIA  
COMMUNITY DEVELOPMENT AGENCY  
TRANSPORTATION DIVISION**

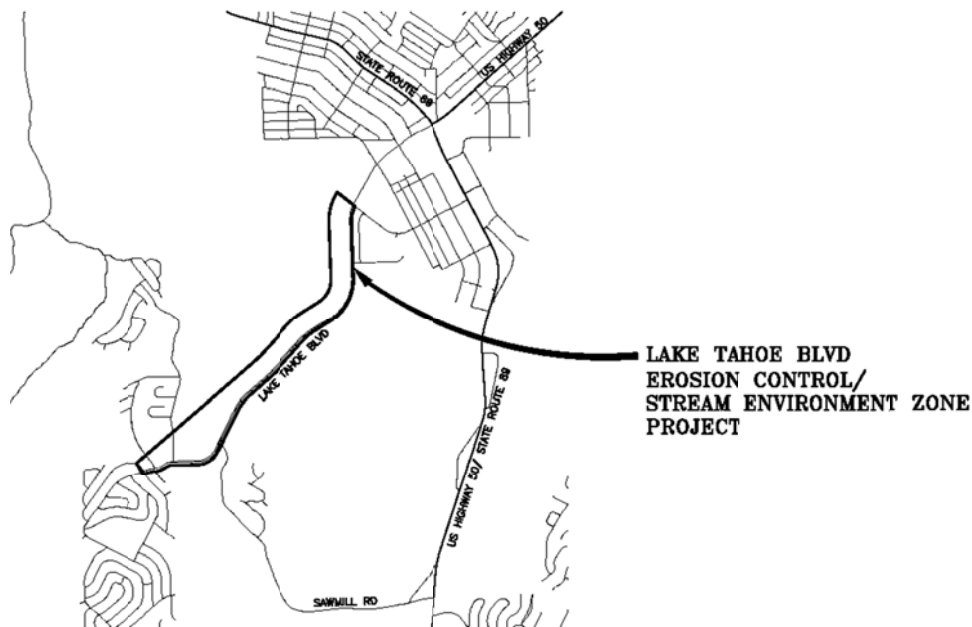
**CONTRACT DOCUMENTS**

**INCLUDING**

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

**LAKE TAHOE BLVD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT**

**CONTRACT No. PW 14-31076 / CIP Nos. 95163/95175**



**FOR USE WITH**

**STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION,  
2010 STANDARD SPECIFICATIONS, 2010 STANDARD PLANS, AND  
AMENDMENTS TO 2010 STANDARD SPECIFICATIONS AND STANDARD PLANS**

**BID OPENING DATE: July 17, 2015**

**COUNTY OF EL DORADO, CALIFORNIA  
COMMUNITY DEVELOPMENT AGENCY  
TRANSPORTATION DIVISION**

**CONTRACT DOCUMENTS**

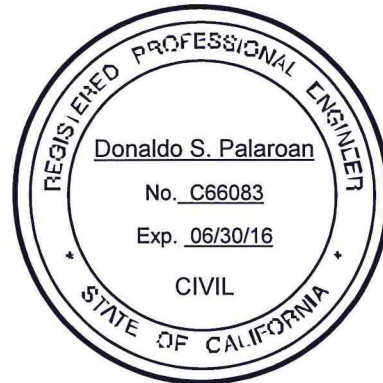
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**LAKE TAHOE BLVD EROSION CONTROL/  
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The various portions of the Contract Documents have been prepared under the direction of the following registered Civil Engineer, in accordance with California Business and Professions Code § 6735.



Donald S. Palaroan, RCE No. C66083

Date 05/15/15

**COUNTY OF EL DORADO, STATE OF CALIFORNIA  
COMMUNITY DEVELOPMENT AGENCY  
TRANSPORTATION DIVISION**

**LAKE TAHOE BLVD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT**

CONTRACT NO. PW 14-31076, CIP NOS. 95163/95175

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**COUNTY OF EL DORADO, CALIFORNIA  
COMMUNITY DEVELOPMENT AGENCY  
TRANSPORTATION DIVISION**

**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:

**LAKE TAHOE BLVD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT**

**CONTRACT NO. PW 14-31076, CIP NOS. 95163/95175**

will be received at the El Dorado County, Community Development Agency, Transportation Division office at 924B Emerald Bay Road, South Lake Tahoe, until **July 17 at 2 PM**, at which time bids will be publicly opened and read by the County of El Dorado Community Development Agency, Transportation Division.

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 must be executed in accordance with the instructions given and forms provided in the Contract Documents furnished by the County of El Dorado Community Development Agency, Transportation Division through Quest Construction Data Network (Quest). The Proposal including the Bidder's Security shall be submitted in a sealed envelope clearly marked:

**“PROPOSAL FOR LAKE TAHOE BLVD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT”**

**CONTRACT NO. PW 14-31076, CIP NOS. 95163/95175**

**TO BE OPENED AT 2 P.M. - ON JULY 17, 2015**

**LOCATION/DESCRIPTION OF THE WORK:** The project is located along Lake Tahoe Blvd from Clear View Drive/ Mule Deer Circle to Industrial Avenue, in eastern El Dorado County, in the Tahoe Basin. The Work to be done is shown on the Plans, and generally consists of, but is not limited to:

- A. Construction of erosion control improvements including sediment traps, drainage inlets, culverts, concrete headwall, pavement removal, signing, and pavement markings. Other items or details not mentioned above, that are required by the plans, Standard Plans, Standard Specifications, or these Special Provisions must be performed, constructed or installed.
- B. Bids are required for the entire Work described herein.
- C. The contract time is FORTY (40) WORKING DAYS.
- D. For bonding purposes the anticipated project cost is less than \$350,000.
- E. A pre-bid meeting is scheduled for this project on **Wednesday July 8<sup>th</sup> at 2:00 PM** at the County of El Dorado Community Development Agency, Transportation Division, 924B Emerald Bay Road, South Lake Tahoe, CA. Attendance at the pre-bid meeting is not mandatory.
- F. This project is being formally bid in accordance with Public Contract Code 22032 and County of El Dorado Ordinance Code section 3.14.040.

**OBTAINING OR VIEWING CONTRACT DOCUMENTS:** The Contract Documents, including the Project Plans, may be viewed and/or downloaded from the Quest website at <http://www.questcdn.com>. Interested parties may also access the Quest website by clicking on the link next to the Project Name or entering the Quest project # on the Community Development Agency, Transportation Division's website at <http://www.edcgov.us/Government/DOT/BidsHome.aspx>.

Lake Tahoe Blvd Erosion Control/  
Stream Environment Zone Project  
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County of El Dorado  
**Notice to Bidders**  
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Interested parties may view the Contract Documents, including the Project Plans, on the Quest website at no charge. The digital Contract Documents, including the Project Plans, may be downloaded for \$10.00 by inputting the Quest project #3797296 on the websites' Project Search page. Please contact QuestCDN.com at (952) 233-1632 or info@questcdn.com for assistance in free membership, registration, downloading, and working with this digital project information. To be included on the planholders list, receive notification of addenda, and to be eligible to bid, interested parties must download the Contract Documents, including the Project Plans, from Quest. **Those downloading the Contract Documents, including the Project Plans, assume responsibility and risk for completeness of the downloaded Contract Documents.**

The Contract Documents, including the Project Plans, may be examined in person at the Community Development Agency Transportation Division office at 924B Emerald Bay Road, South Lake Tahoe, CA and 2850 Fairlane Court, Placerville CA. However the Community Development Agency, Transportation Division will no longer sell paper copies of the Contract Documents.

The following Supplemental Project Information/Information Handout will be provided in pdf format as part of the Contract Documents on Quest's website to all planholders who acquire the Contract Documents digitally through Quest:

2010 Revised Standard Plans (RSP)

**CONTRACTORS LICENSE CLASSIFICATION:** Bidders must be properly licensed to perform the Work pursuant to the Contractors' State License Law (Business and Professions Code Section 7000 et seq.) and must 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 must 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 will constitute a failure to execute the Contract and will 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 County of El Dorado without possessing a County business license unless exempt under County Ordinance Code Section 5.08.070. The Bidder to whom an award is made must 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.

**CONTRACTOR REGISTRATION:** No contractor or subcontractor may bid on any public works project, be listed in a bid proposal for any public works project, or engage in the performance of any contract for public work unless registered with the Department of Industrial Relations pursuant to Labor Code sections 1725.5 and 1771.1.

An inadvertent error in listing a subcontractor who is not registered pursuant to Section 1725.5 in a bid proposal shall not be grounds for filing a bid protest or grounds for considering the bid nonresponsive if the requirements of Labor Code section 1771.1 are met.

**SUBCONTRACTOR LIST:** Each Proposal must 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 must also describe in the Subcontractor List the work to be performed by each subcontractor listed. The work to be performed by the subcontractor must 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 (not to exceed 100%) 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 Donald Palaroan, County of El Dorado Community Development Agency, Transportation Division, email- donaldo.palaroan@edcgov.us, Fax-(530) 541-7049 by 4:00 p.m. on the first business day after the bid opening. The email or fax must 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 must 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.

An inadvertent error in listing the California Contractor license number on the Subcontractor List will not be grounds for Lake Tahoe Blvd Erosion Control/  
Stream Environment Zone Project  
**Contract No. PW 14-31076, CIP Nos. 95163/95175**  
May 2015

County of El Dorado  
**Notice to Bidders**  
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filing a bid protest or grounds for considering the bid non-responsive if the Bidder submits the corrected contractor's license number to Donaldo Palaoan via fax or email as noted above within 24 hours after the bid opening, provided the corrected contractor's license number corresponds to the submitted name and location for that subcontractor.

**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, and the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21).

**NONDISCRIMINATION:** Comply with Chapter 5 of Division 4 of Title 2, California Code of Regulations and the following.

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

Comply with Section 7-1.02I(2), "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.

Comply with the additional nondiscrimination and fair employment practices provisions in the *Draft Agreement* contained in these Contract Documents that will apply to this federal-aid Contract.

The Community Development Agency, Transportation Division 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. 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/OPRL/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 Community Development Agency, Transportation Division'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 constitutes a legal day's work upon all work done hereunder, and Contractor and any subcontractor employed under this Contract must conform to and be bound by the provisions of Labor Code Sections 1810 through 1815.

This project is subject to the requirements of Title 8, Chapter 8, Subchapter 4.5 of the California Code of Regulations including the obligation to furnish certified payroll records directly to the Compliance Monitoring Unit under the Labor Commissioner within the Department of Industrial Relations Division of Labor Standards Enforcement in accordance with Section 16461.

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. Comply with Exhibit D of the Draft Agreement and 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 must pay not less than the higher wage rate. The Community Development Agency, Transportation Division 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 must pay not less than the federal minimum wage rate which most closely approximates the duties of the employees in question.

**TRAINING:** For the Federal training program, the number of trainees or apprentices is 0.

**BID SECURITY:** A bid security must be provided with each bid. Bid security must be in an amount of not less than ten percent (10%) of the total amount of the Bid for bid and must 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 Community Development Agency, Transportation Division will 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, this is the procedure:

The Community Development Agency, Transportation Division 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 fax number designated in the Proposal, of its recommendation including for award or rejection of bids (“All Bidders Letter”).

1. Within five (5) business days from the date of the “All Bidders Letter,” the Bidder protesting the recommendation for award must submit a letter of protest to and must be received by the County of El Dorado, Community Development Agency, Transportation Division, Attention Donaldo Palaroan, 924B Emerald Bay Road, South Lake Tahoe, CA 96150, 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.

2. If Community Development Agency, Transportation Division finds the protest to be valid, it may modify its award recommendations and notify all bidders of that decision. If the Community Development Agency, Transportation Division does not agree with the protest, or otherwise fails to resolve the protest, the Community Development Agency, Transportation Division 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 Community Development Agency, Transportation Division will also include in its report to the Board of Supervisors the details of the bid protest.

3. 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

The decision of the Board of Supervisors on the bid protest will be final.

**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 the Agreement by the County. Failure to meet this requirement constitutes 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.

**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 are limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.

**PROJECT ADMINISTRATION:** Submit all Requests for Information (RFI) during the bid period on the Quest website under the Quest #3797296 under "Project Q&A". If the response does not require an addendum, a response will be posted on the Quest website under the RFI under "Project Q&A". It is the bidders' responsibility to check this website under "Project Q&A" for responses to bidders' inquiries during the bid period. Addenda will be uploaded in pdf format to Quest's website and Quest will issue an automatic email notification to all planholders that have acquired the Contract Documents digitally through Quest. The list of planholders will be available on Quest's website under "View Planholders".

No oral responses to any questions concerning the content of the Contract Documents will be given. All responses will be in the form of written addenda to the Contract Documents or written responses to bidders' inquiries. Responses to bidders' inquiries and addenda will be posted on the website as described above. 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. These inquiries or questions, submitted after bid opening will not be treated as a bid protest.

**BY ORDER OF** the Director of the Community Development Agency, County of El Dorado, State of California.

Authorized by the Board of Supervisors on June 23<sup>rd</sup>, 2015, at Placerville, California.

By \_\_\_\_\_  
Steven M. Pedretti, Community Development Agency  
Director

COUNTY OF EL DORADO, CALIFORNIA  
COMMUNITY DEVELOPMENT AGENCY  
TRANSPORTATION DIVISION

LAKE TAHOE BLVD EROSION CONTROL/ STREAM ENVIRONMENT ZONE PROJECT

PW 14-31076

## ORGANIZATION

Special provisions are under headings that correspond with the main-section headings of the *Standard Specifications*. A main-section heading is a heading shown in the table of contents of the *Standard Specifications*.

Each special provision begins with a revision clause that describes or introduces a revision to the *Standard Specifications* as revised by any revised standard specification.

Any paragraph added or deleted by a revision clause does not change the paragraph numbering of the *Standard Specifications* for any other reference to a paragraph of the *Standard Specifications*.

## STANDARD PLANS LIST

The standard plan sheets applicable to this Contract include those listed below. The applicable revised standard plans (RSPs) listed below are included in the project supplemental information.

### ABBREVIATIONS, LINES, SYMBOLS AND LEGEND

**A10A**            Abbreviations (Sheet 1 of 2)

**RSP A10B**       Abbreviations (Sheet 2 of 2)

### PAVEMENT MARKERS, TRAFFIC LINES, AND PAVEMENT MARKINGS

**A20A**            Pavement Markers and Traffic Lines, Typical Details

**A20D**            Pavement Markers and Traffic Lines, Typical Details

**RSP A24A**       Pavement Markings - Arrows

**RSP A24C**       Pavement Markings - Symbols and Numerals

### PIPE CULVERT HEADWALLS, ENDWALLS, WINGWALLS AND JUNCTION STRUCTURE

**D89**             Pipe Culvert Headwalls - Straight and "L"

### TEMPORARY TRAFFIC CONTROL SYSTEMS

**RSP T9**           Traffic Control System Tables for Lane and Ramp Closures

**RSP T11**         Traffic Control System for Lane Closure on Multilane Conventional Highways

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

**TEMPORARY WATER POLLUTION CONTROL**

- T58 Temporary Water Pollution Control Details (Temporary Construction Entrance)**
- T59 Temporary Water Pollution Control Details (Temporary Concrete Washout Facility)**
- T60 Temporary Water Pollution Control Details (Temporary Reinforced Silt Fence) (Modified per Section 13-6.03H)**
- T62 Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)**
- T65 Temporary Water Pollution Control Details [Temporary Fence (Type ESA)]**

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# SPECIAL PROVISIONS

## DIVISION I GENERAL PROVISIONS

### 1 GENERAL

Add to section 1-1.01:

#### Non-Standard Bid Items and Applicable Sections

Item code	Item description	Applicable section
072007	EXCAVATION SAFETY	7
130670A	TEMPORARY REINFORCED SILT FENCE, MODIFIED	13
141000A	TEMPORARY FENCE (TYPE ESA) (TREE TRUNK PROTECTION)	14
150204A	ABANDON CULVERT (RCP)	15
150770A	REMOVE ASPHALT CONCRETE PAVEMENT (RESTORATION)	15
160102A	TREE REMOVAL	16
190101A	ROADWAY EXCAVATION (SEDIMENT BASIN)	19
194001A	DITCH EXCAVATION (BLANKET LINED CHANNEL)	19
210011A	HUMUS	21
210012A	MULCH	21
210013A	TACKIFIER	21
510502A	MINOR CONCRETE (MINOR STRUCTURE) (COLLAR AND ENCASEMENT)	51
510502B	DRAINAGE INLET – TYPE 3	51
510502C	MINOR CONCRETE (MINOR STRUCTURE) (CONCRETE COLLAR)	51
641107A	18" PLASTIC PIPE (HDPE)	64
641113A	24" PLASTIC PIPE (HDPE)	64
685100A	18" PERFORATED PLASTIC PIPE UNDERDRAIN	68
731504A	MINOR CONCRETE (CURB AND GUTTER)	73
707125A	48" PRECAST CONCRETE MANHOLE	70
721026A	ROCK SLOPE PROTECTION (BACKING NO. 1, METHOD A)	72

Add to section 1-1.07B:

**APN:** Assessor's Parcel Number.

**AT&T:** Communications utility company.

**Replace the definition of Bid Item List in section 1-1.07B with:**

**Bid Item List:** List of bid items and the associated quantities. The Proposal Pay Items and Bid Price Schedule in the Proposal section is the Bid Item List. The verified Bid Item List is Exhibit A Contractor's Bid and Bid Price Schedule in the fully-executed contract for the project.

Add to section 1-1.07B:

**BMP:** Best Management Practices

**CCC:** California Conservation Corps

**Charter:** Charter Communications

Lake Tahoe Blvd Erosion Control  
Stream Environment Zone Project  
Contract No. PW 14-31076, CIP Nos. 95163/95175  
May 2015

County of El Dorado  
Special Provisions  
SP-1

**Replace the corresponding definitions in section 1-1.07B with:**

**Contract acceptance:** County Clerk/Recorder's recordation of the executed written Notice of Acceptance of a completed Contract.

**Add to section 1-1.07B:**

**Contract approval:** Execution of the Contract by the County of El Dorado.

**Contract award package:** The Notice of Award of Contract letter, two originals of the Agreement, Payment and Performance bond forms, and other forms the successful Bidder must complete for Contract Execution.

**Contract Documents:** See Article 2 "Contract Documents" of the Draft Agreement.

**County:** County of El Dorado, a political subdivision of the State of California.

**CSP:** Corrugated Steel Pipe

**CTC:** California Tahoe Conservancy

**Replace the corresponding definitions in section 1-1.07B with:**

**Department or Department of Transportation:** The Transportation Division in the Community Development Agency of the County of El Dorado or Department of Transportation as defined in St & Hwy Code § 20 and authorized in St & Hwy Code § 90; its authorized representatives.

**Engineer:** The Director of Transportation for County of El Dorado, or authorized representative (Resident Engineer) responsible for the Contract's administration; the Resident Engineer's authorized representatives.

**Delete estimated cost in section 1-1.07B.**

**Replace informal-bid contract in section 1-1.07B with:**

**Informal-bid contract:** Contract that is noted as informally bid in the *Notice to Bidders*.

**Add to section 1-1.07B:**

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

**Liberty:** Liberty Utilities

**Office Engineer:** The Office Engineer in the County of El Dorado Community Development Agency, Transportation Division or, depending on context, Caltrans Office Engineer.

**Proposal:** The Proposal section of the Contract Documents book, or the Bidder's bid.

**PUE:** Public Utility Easement.

**RSP:** Revised standard plans.

**RWQCB:** Regional Water Quality Control Board, Lahontan Region

**SEZ:** Stream Environment Zone.

**Replace the corresponding definitions in section 1-1.07B with:**

**2. revised standard specifications:** New or revised standard specifications. These specifications are in a section titled *Revised Standard Specifications* of a book titled *Contract Documents including Notice to Bidders, Special Provisions, Proposal, and Contract*.

**3. special provisions:** Specifications specific to the project. These specifications are in a section titled *Special Provisions* of a book titled *Contract Documents including Notice to Bidders, Special Provisions, Proposal, and Contract*.

**State:** The State of California, including its agencies, departments, or divisions, whose conduct or action is related to the work, or County of El Dorado, a political subdivision of the State, and its Community Development Agency, Transportation Division.

**Structure Design:** The Community Development Agency, Transportation Division, for County of El Dorado or Offices of Structure Design of the Department of Transportation.

**Add to section 1-1.07B:**

**STPUD:** South Tahoe Public Utility District.

**TCE:** Temporary Construction Easement.

**TRM:** Turf Reinforcement Mat.

**TRPA:** Tahoe Regional Planning Agency.

**USDA:** United States Department of Agriculture.

**USFS:** United States Forest Service; also known as the USDA Forest Service; an agency of the United States Department of Agriculture.

**Add to section 1-1.09:**

This project is in a freeze-thaw area.

**Add to section 1-1.11**

Reference or agency or department unit	Web site	Address	Telephone no.
County of El Dorado Community Development Agency, Transportation Division	<a href="http://www.edcgov.us/DOT/">http://www.edcgov.us/DOT/</a>	924B Emerald Bay Road South Lake Tahoe, CA 96150	(530) 573-7900
County of El Dorado Community Development Agency, Transportation Division, Office Engineer		924B Emerald Bay Road South Lake Tahoe, CA 96150	(530) 573-7900

**Replace section 1-1.12 with:**

Make checks payable to County of El Dorado. Use the bond forms provided in the book titled *Contract Documents including Notice to Bidders, Special Provisions, Proposal, and Contract*.



AA

## 2 BIDDING

**Delete 2nd paragraph of section 2-1.01 of the RSS dated 2-21-14.**

**Replace section 2-1.06A of the RSS dated 2-21-14 with:**

The Contract Documents book and project plans may be viewed by subscribers at:

1. El Dorado Builders' Exchange at [www.goodbuilders.org](http://www.goodbuilders.org)
2. McGraw-Hill Construction Dodge at [www.fwdodge.com](http://www.fwdodge.com)
3. Construction Bid Board at [www.ebidboard.com](http://www.ebidboard.com)
4. Quest Construction Data Network's website as described in the *Notice to Bidders*.

The Notice to Bidders can be viewed at <http://www.edcgov.us/Government/DOT/BidsHome.aspx>

The *Notice to Bidders* includes how and where to obtain the Contract Documents book, the project Plans, and the Supplemental Project Information.

The Contract Documents book includes the *Notice to Bidders*, *revised standard specifications*, *special provisions*, *Proposal*, and *Contract*.

**Replace 3rd paragraph of section 2-1.06B of the RSS dated 2-21-14 with:**

If an *Informational Handout* or cross sections are available you may view and/or download them as described in the *Notice to Bidders*.

**Add to section 2-1.06B:**

Availability of and requests for rock cores, other supplemental project information, and bridge as-built drawings described in this section apply only to projects on the State Highway System.

**Add to section 2-1.06B:**

The Department makes the following supplemental project information available:

### Supplemental Project Information

Means	Description
Included in <i>Information Handout</i>	Applicable RSPs
Available for inspection at the Tahoe Engineering Office Telephone No. (530) 573-7900	Storm Water Pollution Prevention Plan (SWPPP), Meadow Lakes Subdivision Unit No. 1 Improvement Plans (partial set) dated April 1969

**Replace "Reserved" in section 2-1.08 of the RSS dated 2-21-14 with:**

### 2-1.08 FEDERAL LOBBYING RESTRICTIONS

Section 2-1.08 applies to a federal-aid contract.

Under 31 USC § 1352:

None of the funds appropriated by any Act may be expended by the recipient of a Federal contract, grant, loan, or cooperative agreement to pay any person 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:

- (1) The awarding of any Federal contract.
- (2) The making of any Federal grant.
- (3) The making of any Federal loan.
- (4) The entering into of any cooperative agreement.
- (5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

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

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 constitutes signature of the Certification.

The certification and disclosure of lobbying activities must be included in each subcontract and any lower-tier contracts exceeding \$100,000. Submit all disclosure forms regardless of tier, but not certifications.

You, your subcontractors, and any lower-tier contractors must 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 you, your subcontractors, and any lower-tier contractors previously filed. 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.

**Replace 2nd paragraph of section 2-1.10 of the RSS dated 2-21-14 with:**

The Subcontractor List in the Proposal must show the name, contractor's license number, and address and work portions to be performed by each subcontractor listed. The work portion to be performed must 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 (not to exceed 100%) calculated by dividing the work to be performed by the subcontractor by the respective bid item amount(s) (not by the total bid price).

An inadvertent error in listing the California Contractor license number on the Subcontractor List will not be grounds for filing a bid protest or grounds for considering the bid non-responsive if the Bidder submits the corrected contractor's license number to Donaldo Palaroan via fax (530) 541-7049 or email

donaldo.palaoan@edcgov.us within 24 hours after the bid opening, provided the corrected contractor's license number corresponds to the submitted name and location for that subcontractor.

**Add to section 2-1.12B(1):**

You must also carry out applicable requirements of 7 CFR 3016 in the award and administration of this UNITED STATES DEPARTMENT OF AGRICULTURE (USDA)-assisted Contract. The requirements of 7 CFR 3016.36 (e) are:

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

(1) You 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 must 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.

**Delete "the" after "that" in the 5th paragraph of section 2-1.12B(1) of the RSS dated 2-21-14.**

**Replace section 2-1.15 "Disabled Veterans Business Enterprise" with:**

**2-1.15 RESERVED**

**Replace section 2-1.18 "Small Business and Non-Small Business Subcontractor Preferences" with:**

**2-1.18 RESERVED**

**Replace section 2-1.27 "California Companies" with:**

**2-1.27 RESERVED**

**Replace section 2-1.29 “Opt Out of Payment Adjustments for Price Index Fluctuations” of the RSS dated 2-21-14 with:**

**2-1.29 RESERVED**

**Replace section 2-1.33 of the RSS dated 2-21-14 with:**

Except as noted below, complete the pages of the Proposal in the Contract Documents book and submit the completed Proposal with the Bidder’s Security as noted in the *Notice to Bidders*.

Submit the forms from the Proposal and form information at the times shown in the following table:

Contract type	Forms to be submitted at the time of bid	Forms to be submitted and received no later than 24 hours after bid opening <sup>a</sup>	Forms to be submitted and received no later than 4 p.m. on the 4th business day after bid opening <sup>a</sup>
All contracts	All Proposal forms including Business name and address; bid item number and bid item description of subcontracted work on the Subcontractor List	<ul style="list-style-type: none"> <li>Subcontractor name bid item number, bid item description shown on the Subcontractor List submitted with Proposal, and the percentage of each bid item <sup>b</sup></li> <li>Correction for incorrect Contractor License # on Subcontractor List submitted with Proposal</li> </ul>	--
Federal-aid contracts only		--	<ul style="list-style-type: none"> <li>Local Agency Bidder - DBE – Commitment (Exhibit 15-G)</li> <li>DBE Information-Good Faith Efforts (Exhibit 15-H) and Documentation <sup>c</sup></li> </ul>
<p><sup>a</sup>The percentage of each bid item and the 15-G and 15-H forms may be submitted at the time of bid.</p> <p><sup>b</sup>If the information is not submitted at the time of bid email or fax to Office Engineer, email-<a href="mailto:donaldo.palaoan@edcgov.us">donaldo.palaoan@edcgov.us</a>, Fax-(530) 541-7049. This after-bid submittal does not apply to an informal-bid contract. For an informal bid contract, submit the completed form at the time of bid.</p> <p><sup>c</sup>If not submitted at the time of bid, applicable only to the apparent low bidder, 2nd low bidder, and 3rd low bidder. Submit via email or fax to Office Engineer, email-<a href="mailto:donaldo.palaoan@edcgov.us">donaldo.palaoan@edcgov.us</a>, Fax-(530) 541-7049.</p>			

Failure to submit the forms and information as specified results in a nonresponsive bid.

If an agent other than the authorized corporation officer or a partnership member signs the bid, submit a Power of Attorney authorizing the agent to sign on behalf of the principal with the bid. Otherwise, the bid may be disregarded as irregular or unauthorized.

**Replace 4th item of 1st paragraph of section 2-1.34 with:**

4. Bidder's bond signed by an authorized representative of a surety insurer who is licensed in California. The authorized representative's signature must be notarized and authorization documentation must be provided.

**Delete 5th item of 1st paragraph of section 2-1.34 of the RSS dated 2-21-14.**

**Delete second to last paragraph of section 2-1.34 of the RSS dated 2-21-14.**

**Replace last paragraph of section 2-1.34 with:**

If using a bidders bond, you must complete the Bidder's bond form included in the Contract Documents following the Proposal and submit it with your proposal.

**Replace section 2-1.40 of the RSS dated 2-21-14 with:**

An authorized agent may withdraw a bid before the bid opening date and time by submitting a written bid withdrawal request at the location where the bid was submitted. Withdrawing a bid does not prevent you from submitting a new bid.

After the bid opening time, you cannot withdraw a bid.

**Replace "Reserved" in section 2-1.44 with:**

**2-1.44 BID PROTEST PROCEDURE**

The protest procedure is intended to handle and resolve disputes related to the bid award for this project pursuant to Title 7 Code of Federal Regulations Chapter XXX Part 3016 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 7 CFR Chapter XXX Part 3016. 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 will 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 you wish to protest the award, this is the procedure:

1. The Department will review the bids received in a timely fashion under the terms and conditions of the *Notice to Bidders*, and notify you in writing, at the fax number designated in the Proposal, of its recommendation including for award or rejection of bids ("All Bidders Letter").
2. Within five (5) business days from the date of the "All Bidders Letter," the Bidder protesting the recommendation for award must submit a letter of protest to and must be received by Office

Engineer, Attention Donald Palaroan, 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 finds the protest to be valid, it may modify its award recommendations and notify all bidders of that decision. If the Department does not agree with the protest, or otherwise fails to resolve the protest, the Department 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 will 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. If 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

The decision of the Board of Supervisors on the bid protest will be final.

**Replace the 1<sup>st</sup> sentence in section 2-1.46 with:**

County Board of Supervisors' decision on the bid award is final.

**Replace the 1<sup>st</sup> sentence in the 2<sup>nd</sup> paragraph section 2-1.46 with:**

County Board of Supervisors may reject:

**Replace section 2-1.47 with:**

**2-1.47 BID RELIEF**

County Board of Supervisors may grant bid relief under Pub Cont Code § 5100 et seq. Submit any request for bid relief to Office Engineer, email-[donaldo.palaroan@edcgov.us](mailto:donaldo.palaroan@edcgov.us), Fax-(530) 541-7049. Requests for bid relief must be in writing within 5 business day of the bid opening and must demonstrate:

1. A mistake was made in your bid.
2. The mistake made the bid materially different than what you intended.
3. The mistake was made in filling out the bid and not due to an error in judgment or to carelessness in inspecting the site of work or in reading the plans or specifications.

**Delete section 2-1.49.**

^^

**3 CONTRACT AWARD AND EXECUTION**

**Delete 1st paragraph of section 3-1.02B of the RSS dated 2-21-14.**

**Delete 1st paragraph of section 3-1.04.**

**Replace 2nd and 3rd paragraphs of section 3-1.04 with:**

The Department will consider bids for award. County 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

County. 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. This award, if made, will be made within sixty (60) days after the opening of the bids. This period will be subject to extension 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 will be the Bidder submitting the lowest additive total of all the bid items and meeting all other requirements. In the event of a discrepancy between the unit price bid and the extended unit total as stated on the Proposal, the Department uses the amount bid for the unit price in calculating the additive total of the bid items for purposes of award, including revisions by Addenda, and as specified in the Proposal instructions.

**Delete the paragraph added to the end of section 3-1.04 of the RSS dated 10-19-12.**

**Replace section 3-1.05 with:**

**3-1.05 CONTRACT BONDS (PUB CONT CODE § 7103)**

The successful Bidder must furnish two bonds:

1. Payment bond to secure the claim payments of laborers, workers, mechanics, or materialmen providing goods, labor, or services under the Contract. This bond must be in a sum not less than one hundred percent (100%) of the total amount payable by the terms of the contract, naming the County as obligee.
2. Performance bond to guarantee faithful performance of the Contract. This bond must be in a sum not less than one hundred percent (100%) of the total amount payable by the terms of the contract, naming the County as obligee.

The Payment and Performance Bond forms are included with the Draft Agreement section of the Contract Documents book. The Department furnishes the successful Bidder bond forms with the Contract award package.

**Replace 1st paragraph and 1st item of 2nd paragraph of section 3-1.06 with:**

For a federal-aid contract, you must be properly licensed as a contractor from contract award (Pub Cont Code § 20103.5) through completion and acceptance of the Work, including the guarantee period. Failure to obtain proper and adequate licensing for an award of a Contract constitutes a failure to execute the Contract and results in the forfeiture of the security of the Bidder.

1. You must be properly licensed as a contractor from bid opening (Bus & Prof Code § 7028.15) through completion and acceptance of the Work, including the guarantee period. Failure to obtain proper and adequate licensing constitutes a failure to execute the Contract and results in the forfeiture of the security of the Bidder.

**Replace section 3-1.08 “Small Business Participation Report” with:**

**3-1.08 RESERVED**

**Replace section 3-1.11 with:**

**3-1.11 COUNTY PAYEE DATA RECORD FORM**

Complete and sign the County *Payee Data Record* form included in the Contract award package.

**Delete section 3-1.12.**

**Replace section 3-1.18 with:**

**3-1.18 CONTRACT EXECUTION**

The successful Bidder must sign the *Agreement*.

Deliver to Office Engineer:

- 1. Two Original Signed *Agreements*
- 2. Contract Bonds
- 3. Drug-Free Certification form
- 4. Documents identified in section 3-1.07 and 7-1.06
- 5. County *Payee Data Record* form
- 6. California Form 590-Withholding Exemption Certificate
- 7. Documents identified in and marked as specified in section 3-1.14, if applicable.

Office Engineer must receive these documents within the five (5) business days of the date of the Notice of Award of Contract letter.

The Bidder's security may be forfeited for failure to execute the Contract, furnish any bond, or provide the required insurance documents within the time specified.

The Department does not provide hard copies of the Contract Documents, including the Project Plans to the successful bidder.

**Replace section 3-1.19 with:**

**3-1.19 BIDDERS' SECURITIES (Pub Cont Code § 20129)**

The Department returns the securities of the unsuccessful Bidders within sixty (60) days Contract award. The Department returns the successful Bidder's security within sixty (60) days of Contract execution.

^^

**4 SCOPE OF WORK**

**Delete section 4-1.07C.**

^^

**5 CONTROL OF WORK**

**Replace 5th paragraph of section 5-1.01 with:**

Ensure the Department's, TRPA, CTC, USFS, RWQCB, Liberty Utilities, Southwest Gas, Charter Communications, STPUD, and AT&T safe access to the work. Furnish facilities necessary for the Department's, TRPA, CTC, USFS, RWQCB, Liberty Utilities, Southwest Gas, Charter Communications, STPUD, and AT&T inspection.

**Delete section 5-1.09.**



**Replace 6th paragraph of section 5-1.13A with:**

Each subcontract must include the provisions of this contract and each subcontractor must comply with the applicable terms and conditions of this contract.

**Replace 7th paragraph of section 5-1.13A with:**

The Department encourages you to and, for USFS federal-aid assisted projects, you must include a dispute resolution process in each subcontract.

**Replace section 5-1.13B “Disadvantaged Business Enterprises” with:**

**5-1.13B RESERVED**

**Replace section 5-1.13C “Disabled Veterans Business Enterprise” with:**

**5-1.13C RESERVED**

**Replace section 5-1.13D “Non-Small Business” with:**

**5-1.13D RESERVED**

**Add to section 5-1.20B(1):**

The Department has obtained and included in Appendix C:

1. Tahoe Regional Planning Agency Permit No. **EIPC20XX-00XX (pending)**.
2. California Regional Water Quality Control Board, Lahontan Region, Board Order No. **R6T-XXXX-XXXXX (pending)**.
3. U.S Department of Agriculture, Forest Service Special Use Permit.

**Replace section 5-1.20B(4) with:**

Before procuring material, disposing of material, or otherwise using non-highway property, obtain a written agreement from the property owner.

**Replace section 5-1.20E with:**

**5-1.20E COORDINATION WITH PROPERTY OWNERS**

You must make every effort to communicate with adjacent property owners and tenants to inform them of required access for construction activities, and must give forty-eight (48) hours’ notice to the property owners and tenants when work is to be performed on their property or affecting access to their property.

**Replace 7th paragraph of section 5-1.23B(2) with:**

Allow five (5) days for review.

**Replace 2nd sentence of 8th paragraph of section 5-1.23B(2) with:**

Allow review time specified plus five (5) days for each additional set.

**Replace 1st sentence of 10th paragraph of section 5-1.23B(2) with:**

For complete resubmitted drawings, allow five (5) days for review.

**Replace section 5-1.24 with:**

**5-1.24 COST PRINCIPLES**

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

- A. You and your subcontractors must comply with 2 CFR Part 225 (formerly OMBA-87), Cost Principles for State, Local and Indian Tribal Governments; with Federal administrative procedures pursuant to 7 CFR 3016, 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. This provision applies to every sub-recipient receiving funds as a Contractor or subcontractor under this Contract.
- B. Any expenditures for costs for which you have received payment or credit that are determined by subsequent audit to be unallowable under 2 CFR Part 225 or 48 CFR Parts 31 et seq., are subject to repayment 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 you incur and pay for those costs.
- D. Notwithstanding any other provision of the Contract Documents to the contrary, payments for mileage, travel or subsistence expenses, if applicable, for your staff or your subcontractors claimed for reimbursement must 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, you are responsible for the cost difference, and you must reimburse County for any overpayments inadvertently within thirty (30) days of County's demand.
- E. You and your subcontractors must establish and maintain accounting systems and records that properly accumulate and segregate funds received under this Agreement by line item. Your and your subcontractor's accounting systems must conform to Generally Accepted Accounting Principles (GAAP), must enable the determination of incurred costs at interim points of completion, and must provide support for reimbursement of payment vouchers or invoices.

**Replace section 5-1.25 with:**

**5-1.25 AS-CONSTRUCTED PLANS**

You must submit a set of "As-Constructed Plans". The "As-Constructed Plans" must contain changes made to the Plans to reflect actual construction of the proposed improvements. The "As-Constructed Plans" must be current and updated in a timely manner so the Plans and its information are made available to the Engineer for review during the weekly meetings. You will make "As-Constructed Plans" corrections and additions using red ink. Corrections and additions are, but not limited to: changes to pipes, channels, drainage structures, and other drainage details; corrected typical sections, base, and surfacing details; changes in vertical and horizontal alignment; establish or re-establish right-of-way markers, monuments, and bench marks; new, replaced, removed or abandoned utilities, especially underground; and, any other construction details or appurtenances not shown on the Plans. When Engineer has made the final inspection as provided in Section 5-1.46, then you must submit the complete set of "As-Constructed Plans".

**Replace item 2 of 2nd paragraph of section 5-1.26 with:**

- 2. On a *Request for Construction Staking* form.

**Add item 3 to 1st paragraph of section 5-1.27B:**

- 3. All other pending matters under this Contract are closed.

**Replace opening phrase of 2nd paragraph of section 5-1.27B with:**

For at least 4 years after the later of these, retain cost records, including records of:

**Replace Section 5-1.27C with:**

**5-1.27C Record Inspection, Copying, and Auditing**

Make your records available for inspection, copying, and auditing by the USFS, the Comptroller General of the United States, the State, CTC, County, or their duly authorized representatives for the same time frame specified under section 5-1.27B. The records of subcontractors and suppliers must be made available for inspection, copying, and auditing by the USFS, the Comptroller General of the United States, the State, CTC, County, or their duly authorized representatives for the same period. Make records available for examination during normal business hours at your principal place of business in California, for audit during normal business hours at this place of business. Provide office space, photocopies and other assistance to enable audit or inspection representatives to conduct these audits or inspections.

Incorporate this provision in any subcontract entered into as a result of this Contract. Require subcontractors to agree to cooperate with the listed agencies by making all appropriate and relevant Project records available to those agencies for audit and copying.

**Replace section 5-1.27E with:**

**5-1.27E Change Order Bills**

Maintain separate records for change order work costs. Submit paper copy change order bills.

**Delete 2nd and 3rd paragraphs of section 5-1.32.**

**Add item 10 to 1st paragraph of section 5-1.36A.**

10. Right-of-way or property corner monuments

**Add to 3rd paragraph of section 5-1.36D.**

Underground Service Alert Phone: 811

**South Tahoe Public Utility District  
(water & sewer)**

**24 Hr # (530) 544-6474**

Attn: Randy Curtis

(530) 544-4964

FAX (530) 544-6359

1275 Meadow Crest Drive

So. Lake Tahoe, CA 96150

**Charter Communications**

Attn: Jake Newnham

(775) 588-1077

FAX (775) 588-0508

PO Box 11019

Zephyr Cove, NV 89448

**Southwest Gas**

**24 Hr # (800) 772-4555**

Attn: Chris Peters

(530) 543-3225

1740 D Street, Unit No. 4

South Lake Tahoe, CA 96150

**AT&T**

**24 Hr # (866) 346-1168**

Attn: Astrid Willard, PW Mgr.

3675 "T" Street, Room 170

Sacramento, CA 95816

(916) 453-6136

FAX (916) 451-8504

**Liberty Utilities**

**24 Hr # (800) 782-2506**

Attn: Jeff Matthews

(530) 543-5297

FAX (530) 544-4811

933 Eloise Avenue

So. Lake Tahoe, CA 96150

Installation of the utilities shown in the following table requires coordination with your activities. Make the necessary arrangements with the utility company through the Engineer and submit a schedule:

1. Verified by a representative of the utility company
2. Allowing at least the time shown for the utility owner to complete its work

**Utility Relocation and Contractor-Arranged Time for the Relocation**

Utility	Utility address	Location	Days
Charter	See above	Sheet P-6; Lake Tahoe Blvd	3
Charter	See above	Sheet P-7; Lake Tahoe Blvd	3
Charter	See above	Sheet P-8; Lake Tahoe Blvd	3

**Replace 1st and 2nd sentences of 2nd paragraph of section 5-1.46 with:**

When the Engineer determines that the work is complete, the Engineer recommends to the Board of Supervisors that the contract be accepted and the Notice of Acceptance be recorded to accept the contract. Immediately after the acceptance by the Board of Supervisors, you are relieved from:

^^

## 6 CONTROL OF MATERIALS

**Replace 1st sentence of 3rd paragraph of section 6-3.05C with:**

The Department provides an inspection request form and procedures for its submittal.

**Replace 3rd paragraph of section 6-3.05G with:**

Submit material to be tested with a *Sample Identification Card* provided by the Department.

^^

## 7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

**Add to section 7-1.02A:**

County is relying on federal assistance or grants for all of the funding for the Work to be provided under this Contract. As a requirement of County's use of federal funds, County is required to comply with certain federal contracting requirements and to extend those requirements to its third party contracts. You must comply and must require your subcontractors to comply with all applicable provisions of federal regulations, including those required by USFS 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 7 CFR 3016, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments. You must further comply with all Title 23 Federal requirements and all applicable state and federal laws, regulations and policy; procedural or instructional memoranda. The following Office of Management and Budget (OMB) Circulars, as applicable, and as implemented by various parts of the Code of Federal Regulations (CFR), are incorporated by reference and made a part of these Contract Documents:

2 CFR Part 225, "Cost Principles for State, Local, and Indian Tribal Governments (formerly OMB Circular A-87)"

*Circular A-102*, as amended August 29, 1997, "Grants and Cooperative Agreements with State and Local Governments"

*Circular A-133*, revised June 26, 2007, "Audits of States, Local Governments, and Non-Profit Organizations"

Copies of OMB Circulars are available on the Internet at:  
[http://www.whitehouse.gov/omb/grants\\_default](http://www.whitehouse.gov/omb/grants_default).

Failure to comply with any federal or state provision may be the basis for withholding payments and for such other remedies as may be appropriate including termination of this Contract. You must 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 your subcontracts, if any, associated with this Contract. You must 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.

**Replace section 7-1.02C "Emission Reduction" with:**

**Section 7-1.02C Emission Reduction**

Sign the Emissions Reduction Certification in the Article 13 "Emission Reduction" of the Agreement.

**Add section 7-1.02D:**

**7-1.02D REPORTING [7 CFR 3016.36 (i) (7) & 7 CFR 3016.40]**

In order to monitor the progress of projects funded in whole or in part by federal funds, federal agencies rely heavily on inspection data. Inspections by the County will be performed on a regular basis and data compiled in report form, as necessary. Supply reporting information to County when requested.

Incorporate this provision in any subcontract entered into as a result of this contract.

**Add section 7-1.02E:**

**7-1.02E COPYRIGHTS, TRADEMARKS, AND PATENTS [7 CFR 3016.34 & 7 CFR 3016.36 (i) (8) & (9)]**

This project will be funded, in part, with federal funds. The USFS reserves 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.

Incorporate this provision in any subcontract entered into as a result of this contract.

**Add section 7-1.02F:**

**7-1.02F CLEAN AIR ACT AND CLEAN WATER ACT [7 CFR 3016.36 (i) (12)]**

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).

Incorporate this provision in any subcontract entered into as a result of this contract.

**Add section 7-1.02G:**

**7-1.02G ENERGY POLICY AND CONSERVATION ACT [7 CFR 3016.36 (i) (13)]**

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. L. 94-163, 89 Stat. 871).

Incorporate this provision in any subcontract entered into as a result of this contract.

**Replace item 1 of 2nd paragraph of section 7-1.02K(2) with:**

1. At the County of El Dorado Community Development Agency Transportation Division's principal office, and are available upon request.

**Add to section 7-1.02K(2):**

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 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. Comply with Exhibit D of the Draft Agreement 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, you and your subcontractors must 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 you and your subcontractors, Contractor and subcontractors must pay not less than the federal minimum wage rate which most closely approximates the duties of the employees in question.

**Delete paragraphs 5 through 9 of section 7-1.02K(3).**

**Add to section 7-1.02K(4)**

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

**Add to section 7-1.02K(6)(b):**

Interpret "signature" to mean signed and sealed by a registered professional engineer in California.

The following excavations require the use of sheeting, shoring and bracing, or equivalent method rather than sloping the sides of the excavation:

<b>SHEET</b>	<b>STRUCTURE DESCRIPTION</b>	<b>APPROX. STATION</b>
P-3	CSP Inlet	STA 19+02 Lt
P-4	Drainage Inlets	STA 26+75 Lt/ Rt
	Plastic Pipe	

SHEET	STRUCTURE DESCRIPTION	APPROX. STATION
P-6	CSP Inlet	STA 36+07 Lt
	Storm drain manhole	STA 36+07
P-7	CSP Inlet	STA 43+33
	CSP Inlet	STA 43+76
	Perf plastic pipe	STA 43+33
P-8	CSP Inlet	STA 54+98 Lt
	CSP Inlet	STA 81+12 Rt
	Perf plastic pipe	STA 43+33
	CSP Inlet	STA 81+55 Rt
	Plastic pipe	STA 11+16 to STA 12+24

Unless sloping the sides of the trench or excavation causes no disturbance to adjacent slopes and vegetation, does not increase pavement removal, does not disturb monuments, and does not extend beyond County right-of-way or ESA fence, you must shore or brace for all other trenches and excavations.

**7-1.02K(6)(b)(i) Payment**

The Department pays for preparing and submitting protection system shop drawings and installing, maintaining, and removing sheeting, shoring and bracing, sloping the sides of excavations, or equivalent method for excavations 5 feet deep and greater. The Engineer has the discretion to reduce payment where the need for excavation protection is indicated on the Plans but not required in the field.

**Replace section 7-1.05 “Indemnification” with:**

**7-1.05 INDEMNIFICATION**

Comply with Article 5 “Indemnity” of the Agreement.

**Replace section 7-1.06 “Insurance” with:**

**7-1.06 INSURANCE**

**7-1.06A GENERAL INSURANCE REQUIREMENTS**

County will not execute this Contract and you are not entitled to any rights, unless certificates of insurances, or other sufficient proof satisfactory to County of El Dorado Risk Management Division that the following provisions have been complied with, and these certificate(s) are filed with the County.

Without limiting your indemnification required by Article 5 “Indemnity” of the Draft Agreement, you must procure and maintain and must require any of your subcontractors to procure and maintain for the duration of the Contract, including the one-year guarantee period, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder and the results of that work by you, your agents, representatives, employees or subcontractors. Coverage must be at least as broad as:

Workers’ Compensation as required by law in the State of California, with Statutory Limits, and Employer’s Liability Insurance with a limit of no less than \$1,000,000 per accident for bodily injury or disease.

Commercial General Liability Insurance of not less than Four Million Dollars (\$4,000,000) aggregate limit and 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 \$2 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.

Automobile Liability Insurance of not less than One Million Dollars (\$1,000,000) is required in the event motor vehicles are used by you in performance of the Contract.

In the event you are 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).

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.

#### **7-1.06B PROOF OF INSURANCE REQUIREMENTS**

Furnish proof of coverage satisfactory to the County of El Dorado Risk Management Division as evidence that the insurance required herein is being maintained. The insurance must 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.

The County of El Dorado, its officers, officials, employees, and volunteers; and the California Tahoe Conservancy (CTC) and CTC's officers, officials, employees, and volunteers must be included as additional insureds, but only insofar as the operations under this Contract are concerned. This provision applies to all general liability and excess liability policies. Proof that the County and CTC is named additional insured must be made by providing the Risk Management Division with a certified copy, or other acceptable evidence, of an endorsement to your insurance policy naming the County and CTC additional insured.

If you cannot provide an occurrence policy, 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.

Any deductibles or self-insured retentions must be declared to and approved by the County. At the option of the County, either: the insurer must reduce or eliminate such deductibles or self-insured retentions as respects the County, its officers, officials, employees and volunteers; or you must procure a bond guaranteeing payment of losses and related investigations, claim administration and defense expenses.

Require each of your 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 you must insure the activities of your subcontractors in your policy in like amounts. You must also require each of your subcontractors to name you and County of El Dorado, its officers, officials, employees, and volunteers as additional insureds.

#### **7-1.06C INSURANCE NOTIFICATION REQUIREMENTS**

You agree no cancellation or material change in any policy will become effective except upon prior written notice to the Community Development Agency, Administrative and Finance Division, 2850 Fairlane Court, Placerville, CA 95667.

You agree that the insurance required herein will be in effect at all times during the term of this Contract. If this insurance coverage expires at any time or times during the term of this Contract, you must immediately provide a new certificate of insurance as evidence of the required insurance coverage. If you fail 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 this event. New certificates of insurance are subject to the approval of the Risk Management Division.



**7-1.06D ADDITIONAL STANDARDS**

Certificates must 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.

**7-1.06E COMMENCEMENT OF PERFORMANCE**

You must not commence performance of this Contract unless and until compliance with every requirement of the insurance provisions is achieved.

**7-1.06F MATERIAL BREACH**

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

**7-1.06G REPORTING PROVISIONS**

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

**7-1.06H PRIMARY COVERAGE**

Your insurance coverage must be primary insurance as respects the County, its officers, officials, employees and volunteers; and CTC, its officers, officials, employees and volunteers. Any insurance or self-insurance maintained by the County, its officers, officials, employees or volunteers will be in excess of your insurance and will not contribute with it.

**7-1.06I PREMIUM PAYMENTS**

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

**7-1.06J CONTRACTOR'S OBLIGATIONS**

Your indemnity and other obligations are not limited by the insurance required herein and must survive the expiration of this Contract.

^^

**8 PROSECUTION AND PROGRESS**

**Replace item 2.1. of the list in 3rd paragraph of section 8-1.02B(2) with:**  
Contract number and CIP number.

**Replace item 8 of section 8-1.02B(2) with:**  
1. Start milestone date as Notice of Award letter date.

**Replace 1st and last sentences of 1st paragraph of section 8-1.03 with:**  
At the Tahoe Engineering Office, 924B Emerald Bay Road, South Lake Tahoe, attend a pre-construction conference with key personnel, including all major superintendents for the work and major subcontractors. The pre-construction conference will be scheduled after the project is awarded and before the issuance of the Notice to Proceed. At this conference, submit the names of two employees who will be the superintendents on the project. The second name serves as an alternate in the absence of the first designee. The document must be signed by the officers of the corporation, if applicable. The superintendent must be on the job site at all times that work is in progress.

With the exception of preparing and obtaining Department's acceptance of the Critical Path Method (CPM) baseline schedule, work performed in advance of the date stated in the Notice to Proceed is at your risk and as a volunteer.

**Delete "DBE and DVBE" and "Partnering" from the table in section 8-1.03.**

**Add to section 8-1.03.**

You must attend weekly meetings to discuss construction issues and scheduling.

**Replace section 8-1.04B with:**

The contract working days start on the date stated in the Notice to Proceed.

The Engineer will issue Notice to Proceed within ten (10) days of Contract approval.

Do not start job site activities until the Department authorizes or accepts your submittal for:

1. Shoring and Excavation Plan in compliance with section 7-1.02K(6)(b).
2. CPM baseline schedule in compliance with section 8-1.02.
3. Name and address of authorized representative who is to receive all written notices under this Contract.
4. Certificates of compliance.
5. Traffic Control Plan in compliance with section 12-1.01.
6. Driveway Access Plan in compliance with section 12-4.01.
7. Signed endorsement and certification page from the SWPPP in compliance with section 13-3.01A.
8. Any revisions to the SWPPP in compliance with section 13-3.01A.
9. Temporary Erosion Control Plan in compliance with section 13-3.01B(1).
10. Spill Contingency Plan in compliance with section 13-4.03B.
11. Dust Control Plan in compliance with section 14-9.03A(2).
12. Equipment to be used for mulch and tackifier application in compliance with sections 21-1.02F and 21-1.03M.
13. Job mix formula for asphalt concrete in compliance with section 39.
14. Shop drawings for drainage inlets and storm drain manhole in compliance with sections 5-1.23 and 51-7.01A.
15. Shop drawings for corrugated steel pipe inlets in compliance with sections 5-1.23 and 70-2.03.
16. Concrete mix designs for all concrete used for the work in compliance with sections 90-1.01C(6) and 90-2.01C.
17. Stain manufacturer's product data and application instructions in compliance with section 59-7.01.

You may enter the job site only to measure controlling field dimensions and locating utilities.

Do not start other job site activities until all the submittals from the above list are authorized or accepted and the following information is received by the Engineer:

1. *Notice of Materials to Be Used.*

**Replace 1st paragraph of section 8-1.05 with:**

Contract time starts on the day specified in section 8-1.04B.

Contract working hours are between the hours of 8:00 a.m. to 6:30 p.m. unless otherwise authorized.

**Add to end of section 8-1.06 as revised by the RSS:**

The Engineer may suspend work due to environmental permit restrictions and/or inclement weather.

During the suspension, the Department pays for winterization costs or costs associated with water pollution control within the County's project area under section 13-2.04 or 13-3.04, as applicable. The Department pays for any other contract work required to be performed within the County's project area during the suspension under the applicable bid item.

**Delete revision made to section 8-1.10D in the RSS.**

**Replace section 8-1.13 "Contractor's Control Termination" with:**

Refer to Article 10 "Termination By County for Cause" of the Agreement.

**Replace section 8-1.14 "Contract Termination" with:**

Refer to Article 9 "Termination By County for Convenience" of the Agreement.

^^

**9 PAYMENT**

**Add to end of section 9-1.03:**

The Department pays 6 percent annual interest for the period of the retention for penalty withholds later determined not owed.

**Replace last paragraph of section 9-1.03 with:**

Pay your subcontractors within seven (7) days of receipt of each progress payment unless otherwise agreed to in writing (Bus & Prof Code § 7108.5). Violation of this section subjects you to the penalties, sanctions and other remedies of Bus and Prof § 7108.5. This section must not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to you in the event of a dispute involving late payment or nonpayment by you, deficient subcontract performance, or noncompliance by a subcontractor.

**Replace section 9-1.07 with:**

**9-1.07 RESERVED**

**Replace last sentence of 3rd paragraph of section 9-1.16E(2) with:**

These amounts are shown on the *Pay Estimate*.

**Replace last sentence of 1st paragraph of section 9-1.16E(3) with:**

The documents include schedule, safety submittals, traffic control plan, shop drawings, water pollution control submittals, erosion control submittals, and dust control submittals.

**Add to 1st paragraph of section 9-1.16E(3):**

If you fail to comply with water pollution control, erosion control, or dust control specifications, the Department withholds part of the progress payment.

**Replace 2nd paragraph of section 9-1.16E(4) with:**

Stop notice information may be obtained from the Engineer.

**Replace section 9-1.16F with:**

**9-1.16F Retentions**

**9-1.16F(1) General**

The Department will retain 5% of the value of each progress payment (excluding mobilization payments) from each progress payment. After the Engineer determines that the project is substantially complete, the Department may, at the Engineer's sole discretion, release half of all retention previously withheld and reduce any subsequent retentions withheld from subsequent progress payments to 2.5% of the value of any subsequent progress payments (excluding mobilization payments). The retained funds will be retained until thirty five (35) days after recordation of the Notice of Acceptance. (Pub Cont Code §9203)

You 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 (Pub Cont Code 22300). Securities eligible for deposit hereunder are limited to those listed in Section 16430 of the Government Code, or bank or savings and loan certificates of deposit.

Funds retained 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 your failure to fulfill a contract requirement.

**9-1.16F(2) Prompt Payment of Retained Funds to Subcontractors**

Section 9-1.16F(1) describes retainage, acceptances, and release of retainage to you based on these acceptances. You and/or your subcontractor must return all monies withheld in retention from subcontractors within 30 days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the contract work by the Department. Any delay or postponement of payment over 30 days may take place only for good cause and with the Department's prior written approval (49 CFR 26.29). Violation of this section subjects you to the penalties, sanctions and other remedies of Bus and Prof § 7108.5. This section must not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to you in the event of a dispute involving late payment or nonpayment by you, deficient subcontract performance, or noncompliance by a subcontractor.

**Replace section 9-1.22 "Arbitration" with:**

**9-1.22 DISPUTES RESOLUTION**

As permitted by Public Contract Code section 20104, the County has elected to resolve any claims between you and the County pursuant to Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2 of the Public Contract Code. Sections 5-1.43 and 9-1.17 describe the contract claim procedure. The provisions of these sections 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 sections 5-1.43 and 9-1.17. Step two is the filing of a timely Government Code Section 910 et seq. claim in accordance with the California Government Code. Any



**Replace section 10-4 with:**

**10-4 WATER USAGE**

Section 10-4 includes general specifications for your use of water for construction activities.

The Department encourages you to conserve water in all construction activities.

The Engineer notifies you of any (1) water shortage or (2) mandate from a local water authority to ration water. Within 10 days of the notification, submit a water conservation plan. The plan must include:

1. List of construction activities that require water;
2. Measures you will implement for each activity to conserve water;
3. Method for curing concrete other than the water method if included in the work; and,
4. Dust palliative you will use for dust control.

Any unavailability of water that delays a controlling activity is a material shortage.

Contractor is advised there is currently a Stage 1 water warning in the South Tahoe Public Utility District Service Area. Contractor is responsible for contacting the local water authorities to determine any impacts the water warnings will have on various items of work.

Payment for any water conservation plan is included in the payment for the various items of work.

^^

**12 TEMPORARY TRAFFIC CONTROL**

**Add to section 12-1.01:**

You must submit a Traffic Control Plan for review and approval. The Department's Traffic Control Plan as shown has been prepared as a guide for you to use in preparation of a complete Traffic Control Plan and to aid in your planning for staging/storage of materials and equipment. Your Traffic Control Plan must include detailed controls, including flaggers, lane closures, and signs for all items of road work which will require alteration of existing traffic patterns. Your Traffic Control Plan must include signing required on intersecting streets within the area that will require traffic control and must address traffic control related to truck traffic associated with the project construction.

Submit your Traffic Control Plan as early as ten (10) working days after the receipt of the Notice of Award but no later than five (5) working days of receipt of Notice to Proceed. No work will start on County roads until the Traffic Control Plan is approved. Violation of the Traffic Control requirements is justification for the Engineer to stop work until the requirements are met.

**Replace the 1st paragraph in section 12-1.03 with:**

The Department pays for all flagging costs under Traffic Control System.

**Replace Item 1.3 of 1st paragraph of section 12-3.01A(3) with:**

Contract number, CIP number, county, County Road name.

**Add to section 12-3.06A(1):**

Construction area signs will not be used until they are needed and when no longer needed they become your property and must be removed from the area of work.

Damaged signs must be repaired or, if determined by the Engineer to be irreparable, replaced by you at your expense.

All construction area signs must conform to the dimensions, color, legends, and reflectorization or lighting requirements of the California Manual on Uniform Traffic Control Devices. All sign panels must be the product of a commercial sign manufacturer but need not be new. Used sign panels in good repair may be furnished with approval.

Construction area signs will be erected at the locations shown on the approved Traffic Control Plan.

**Add to section 12-3.06B(2):**

Stationary signs as shown or described in these special provisions, or as directed for placement, will be attached to 4 inch by 4 inch wood posts with 5/16 inch galvanized carriage bolts and washers. The posts will be securely set a minimum of 30 inches in the ground and such that the bottom of the sign panel will be seven (7) feet above the pavement.

Sign panels for stationary mounted signs must consist of high quality reflective sheeting applied to a base of aluminum or plywood. Base material will be exterior grade plywood not less than 3/8 inch thick, or sheet aluminum not less than 0.063 inch thick for widths up to 42 inches and not less than 0.080 inch thick for widths of 48 inches or greater.

**Add to section 12-3.06B(3):**

The sign standard or framework must be capable of supporting the size of the sign specified.

**Replace 6th paragraph of section 12-3.06C(1) with:**

Clean construction area sign panels when installed and as often thereafter as the Engineer determines to be necessary, but at least once every month.

**Replace section 12-3.12D with:**

The Department pays for Portable changeable message sign under Traffic Control System.

**Add to section 12-4.01:**

When entering or leaving roadways carrying traffic, your equipment, whether empty or loaded must in all cases yield to traffic.

Project-related vehicles will observe the posted speed limit on hard-surfaced road and 15 miles per hour speed limit on unpaved roads during travel in the project area.

Local and emergency traffic must be allowed to pass through construction zones at all times with as little inconvenience as possible. At the end of the day's work or if construction is suspended, roadways must be opened for traffic in both directions.

If work is in progress, at least one 10-foot minimum lane must be opened to traffic. Otherwise, two 10-foot lanes of traffic must be maintained.

You must provide access to driveways at all times. No driveways will be out of service unless arrangements are made with the property owner(s). Notify the County 48 hours in advance of work that will affect an owner's driveway. You must submit a plan that describes how you will provide operating driveways with no damage to the curb and gutter. Your Driveway Access Plan must be submitted for acknowledgment at least one (1) week before work affecting driveways.

Equipment actively engaged in construction must be confined to the work corridor marked by delineators spaced at 30-foot intervals, and will not be allowed to travel or encroach on the travel lane(s) used to convey local traffic through the project, unless traffic is controlled by an adequate number of flaggers.

As an alternative to the provisions of section 10-1, at the end of each working day, the edge of the excavations adjacent to the travel lane for aggregate base shoulder will be delineated with traffic cones or flexible delineators. Excavations for corrugated steel pipe inlets or drainage inlets not backfilled at the end of the work day must be covered with trench plates and delineated with traffic cones or flexible delineators and flashing barricades. You must not excavate more than can be installed and backfilled in one working day. If the backfill for the culvert installation is placed but not compacted by the end of the work day, the trench must be plated, or otherwise prepared to safely provide a minimum of two ten-foot travel lanes.

If traffic cones or delineators are used to delineate a temporary edge of travel lane, the line of cones or delineators will be considered to be the edge of travel lane, however, you must not reduce the width of the travel lane to less than 10 feet within County right-of-way without written approval.

If work is not in progress on a trench or other excavation that requires reduction or closure of the travel lane, the traffic cones or portable delineators used for the travel lane reduction or closure will be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators must be not more than the spacing used for the lane closure.

If rain or other causes, either within or beyond your control, forces delay of the work, you will in no way be relieved of your responsibility for maintaining traffic through the job site. You will at all times keep on the job site such material, force, equipment as necessary to keep the roads within the project open to traffic and in good repair, and must expedite the passage of traffic using such labor and equipment as may be necessary.

Personal vehicles of your employees must not be parked on the traveled way or shoulders, including sections closed to traffic. You must make your own arrangements relative to keeping the work area clear of parked vehicles, whether belonging to your employees or to private individuals.

**Add to section 12-4.02A:**

The full width of the traveled way must be open to traffic if there are no active construction activities in the traveled way or within 6 feet of the traveled way and on:

1. Fridays after 3:00 p.m.
2. Saturdays
3. Sundays
4. Designated holidays

Designated holidays are shown in the following table:

**Designated Holidays**

Holiday	Date observed
New Year's Day	January 1st
Washington's Birthday	3rd Monday in February
Memorial Day	Last Monday in May
Independence Day	July 4th
Labor Day	1st Monday in September
Veterans Day	November 11th
Thanksgiving Day	4th Thursday in November
Christmas Day	December 25th



If a designated holiday falls on a Sunday, the following Monday is a designated holiday. If November 11th falls on a Saturday, the preceding Friday is a designated holiday.

**Replace RSS dated 7-19-13 for section 12-4.03 with:**

### **12-4.03 CLOSURE SCHEDULE AND CONDITIONS**

#### **12-4.03A Closure Schedule**

Road Closures, if allowed, require Board of Supervisors Approval.

Every Monday by noon, submit a closure schedule request of planned closures for the next week period. The next week period is defined as Sunday noon through the following Sunday noon.

Submit a closure schedule request not less than 25 days and not more than 125 days before the anticipated start of any activity that reduces:

1. Horizontal clearances of traveled ways, including shoulders, to 2 lanes or less due to activities such as temporary barrier placement and paving
2. Vertical clearances of traveled way, including shoulders, due to activities such as pavement overlays, overhead sign installation, falsework, or girder erection

Submit closure schedule amendments, including adding additional closures, by noon at least 3 business days before a planned closure.

Cancel closure requests at least 48 hours before the start time of the closure.

The Engineer may reschedule a closure cancelled due to unsuitable weather.

If a closure is not opened to traffic by the specified time, suspend work. No further closures are allowed until the Engineer has reviewed and authorized a work plan submitted by you that ensures that future closures will be opened to traffic by the specified time. Allow 2 business days for review of your proposed work plan. The Department does not compensate you for your losses due to the suspension of work resulting from the late opening of closures.

Notify the Engineer of delays in your activities caused by:

1. Your closure schedule request being denied although your requested closures are within the specified time frame allowed for closures. The Department does not compensate you for your losses due to amendments to the closure schedule that are not authorized.
2. Your authorized closure being denied.

If you are directed to remove a closure before the time designated in the authorized closure schedule, you will be compensated for the delay.

#### **12-4.03B Contingency Plan**

Section 12-4.03B applies if a contingency plan is specified in the special provisions or if a contingency plan is requested.

If a contingency plan is requested, submit the contingency plan within 1 business day of the request.

The contingency plan must identify the activities, equipment, processes, and materials that may cause a delay in the opening of a closure to traffic. The plan must include:

1. List of additional or alternate equipment, materials, or workers necessary to ensure continuing activities and on-time opening of closures if a problem occurs. If the additional or alternate

equipment, materials, or workers are not on the job site, specify their location, the method for mobilizing these items, and the required time to complete mobilization.

2. General time-scaled logic diagram displaying the major activities and sequence of planned operations. For each activity, identify the critical event when the contingency plan will be activated.

Based on the Engineer's review, additional materials, equipment, workers, or time to complete activities from that specified in the contingency plan may be required.

Submit revisions to a contingency plan at least 3 business days before starting the activity requiring a contingency plan. Allow 2 business days for review of the revised contingency plan.

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## 13 WATER POLLUTION CONTROL

**Delete paragraph added to section 13-1.01A of the RSS dated 11-15-13.**

### **Add to section 13-1.01A:**

This project includes construction activities that will result in land disturbance within the Lake Tahoe Hydrologic Unit. Comply with the Lake Tahoe regional general permit issued by the Lahontan Regional Water Quality Control Board for *Board Order No. R6T-2011-0019, National Pollutant Discharge Elimination System General Permit No. CAG616002 for Discharges of Storm Water Runoff Associated with Construction Activity Involving Land Disturbance in the Lake Tahoe Hydrologic Unit – El Dorado, Placer, and Alpine Counties*. The Lake Tahoe regional general permit governs stormwater and nonstormwater discharges resulting from construction activities in the Lake Tahoe Hydrologic Unit. The Lake Tahoe regional general permit may be viewed at the website for the State Water Resources Control Board, Storm Water Program, Lahontan Region General Permits.

### **Add item 4. to the list in 1st paragraph of section 13-1.03C**

4. Inspect sanitary and septic waste storage and monitor disposal procedures weekly.

### **Replace the headings and paragraphs in section 13-3 with:**

#### **13-3 STORM WATER POLLUTION PREVENTION PLAN**

##### **13-3.01 GENERAL**

##### **13-3.01A Summary**

Section 13-3 includes specifications for implementing a SWPPP for project where soil disturbance from work activities will occur as a result of this Project.

Implementation of a SWPPP includes implementing the SWPPP and correcting water pollution control practices.

Discharges of stormwater from the project must comply with the *National Pollutant Discharge Elimination System General Permit No. CAG616002 for Discharges of Storm Water Runoff Associated with Construction Activity Involving Land Disturbance in the Lake Tahoe Hydrologic Unit – El Dorado, Placer, and Alpine Counties referred to herein as "Permit"*.

The project is risk level 3.

### **13-3.01B Submittals**

#### **13-3.01B(1) General**

Reserved.

#### **13-3.01B(2) Storm Water Pollution Prevention Plan**

##### **13-3.01B(2)(a) General**

The Department has prepared a storm water pollution prevention plan (SWPPP) and obtained permits from the RWQCB. After you have reviewed the SWPPP, sign the endorsement and certification page enclosed in the document and any amendments. Submit your signed endorsement and certification page as early as ten (10) working days after the receipt of the Notice of Award but no later than five (5) working days of receipt of Notice to Proceed. Submit your acknowledgment of amendments as they occur.

#### **13-3.01B(3) Temporary Erosion Control Plan**

##### **13-3.01B(3)(a) General**

You are to prepare and submit a Temporary Erosion Control Plan that includes the locations and descriptions of erosion control measures and daily clean up measures in compliance with federal, state, and local agency regulations, the Plans, the SWPPP, and these special provisions. You may use the temporary erosion control measures and details shown in preparing your Temporary Erosion Control Plan. However, your Plan will show specifically where filter fence, weighted fiber rolls or gravel-filled rolls, and gravel bags will be applied, where the tire wash and concrete wash areas will be located, and additional temporary erosion control required due to your method of operation or required to comply with TRPA and Lahontan permits. Your Temporary Erosion Control Plan will also detail specifically what temporary erosion control measures will be applied and where the temporary erosion control measures will be placed in areas used to store materials, equipment, and supplies. Temporary erosion control measures, their implementation, and maintenance must conform to the Plans and the provisions of the SWPPP. You will not propose or use alternative temporary erosion control measures unless the Contract Documents specify where and which alternatives may be used. Submit your Temporary Erosion Control Plan as early as ten (10) working days after the receipt of the Notice of Award but no later than five (5) working days of receipt of Notice to Proceed. Your Temporary Erosion Control Plan is subject to TRPA review and approval.

#### **13-3.01C Quality Control and Assurance**

##### **13-3.01C(1) General**

The County will provide personnel to collect water quality samples as required by the permit.

##### **13-3.01C(2) Numeric Effluent Limits**

Water quality numerical effluent limits must comply with the following values:

**TRPA and Lahontan Water Quality Limits**

Constituent	Surface Waters		Infiltration Systems	
	Lahontan	TRPA	Lahontan	TRPA
Total Nitrogen as N	0.5 mg/l		5 mg/l	
Dissolved Nitrogen as N		0.5 mg/l		5 mg/l
Total Phosphate as P	0.1 mg/l		1 mg/l	
Dissolved Phosphate as P		0.1 mg/l		1 mg/l
Total Iron	0.5 mg/l		4 mg/l	
Dissolved Iron		0.5 mg/l		4 mg/l
Turbidity	20 NTU		200 NTU	
Suspended Sediment		250 mg/l		
Grease & Oil	2 mg/l	2 mg/l	40 mg/l	40 mg/l

Source: Storm Water Quality Improvement Committee document

Note: Surface Water values also apply to discharges to SEZs

The Engineer will take periodic turbidity readings of the effluent discharging from all filtering devices. If the effluent levels fall below the allowable limits listed above, you must take appropriate measures to bring the effluent levels within the allowable limits. These measures include removing deposited sediment from filter fencing, and other filter materials (e.g. weighted fiber rolls, gravel-filled rolls, rice straw fiber rolls, or corrugated steel pipe inlet sump) after each storm and cleaning or replacing filter materials. Sediment disposal must comply with section 14-10.01.

**13-3.03 Construction**

**13-3.03A General**

Continue SWPPP implementation during suspension of work activities.

If the Engineer determines that resources sufficient to bring you into compliance with section 13 have not been allocated, the Engineer may redirect any of your resources available at the job site toward this effort. If the Engineer redirects resources due to your non-compliance with the provisions of section 13, the County will not be responsible for delays to your schedule resulting from the reallocation, and no compensation will be made for these delays.

**13-3.04 Payment**

The Department pays for implementation of the SWPPP under the various specific bid items.

**Add to section 13-4.03B:**

You are to submit a Spill Contingency Plan in compliance with the information requested in Appendix B, Spill Contingency Plan, of the SWPPP within five (5) working days of receipt of Notice to Proceed.

**Add to section 13-4.03D(3):**

Temporary Concrete Washouts must comply with section 13-9.

**Replace 4th paragraph of section 13-4.03D(5) with:**

On-site storage of liquid waste containers will not be allowed.

**Add to section 13-4.03E(3):**

Washing tires of earth moving equipment and vehicles and washing of concrete equipment will be allowed only in the areas shown. Cleaning of vehicles or construction equipment for other purposes will not be allowed within the job site.

No vehicles or heavy equipment will be allowed in any SEZ, or wet area, except as authorized. All construction equipment authorized to work in or near SEZs must be steam cleaned before mobilization to the SEZ and maintained in clean and good working order with maintenance logs made available upon request.

Submit receipts for steam cleaning to the Department before mobilization to the SEZ, when applicable.

**Replace 5th paragraph of section 13-4.03F with:**

Disposal of materials removed from the sweeper must comply with section 14-10.01.

**Add to 3rd paragraph of section 13-4.03F:**

3. 8 hours of predicted rain

**Add to section 13-5.01:**

Temporary soil stabilization provisions will be strictly enforced. It is your responsibility to determine the effect that temporary soil stabilization measures will have on construction activities, and to fully account for this effect in the bid price for the work.

Temporary soil stabilization must continue to be effective through the completion of work and must be maintained as required during the course of work.

Temporary soil stabilization measures must comply with TRPA's "Best Management Practices and Ordinances" and permits for this project, the RWQCB Board Order pertaining to the project, and the California Tahoe Conservancy requirements. Straw bales must not be used for temporary soil stabilization measures.

**A fine of \$100/day will be levied against you for each day you delay in responding to the Engineer's request to install new temporary soil stabilization devices and/or maintain existing temporary soil stabilization devices.**

**Add to section 13-5.02F:**

To contain sediment and control erosion in an emergency (such as a heavy rainstorm), you must have at the job site enough of the fabric or sheeting material to cover all spoils.

**Replace section 13-5.03L with:**

**13-5.03L Gravel-Filled Bags**

Gravel-filled bags must be repaired or replaced on the same day damage occurs. Damage to the gravel bag resulting from your vehicles, equipment, or activities will be repaired or replaced at your expense. Gravel-filled bags must be replaced if the bag material or roll material is ruptured or if the yarn has failed, allowing the gravel to spill out.

**Delete 1st sentence of section 13-5.04 and replace 2nd paragraph of section 13-5.04 with:**

The Department pays for temporary soil stabilization for stockpiles under Job Site Management. The Department pays for temporary soil stabilization for other than stockpiles under all bid items.

**Add to section 13-6.01:**

You must attend a pre-grade inspection meeting with TRPA before the start of any work, other than temporary sediment control installation. Temporary sediment control facilities as shown must be in place before any soil disturbance or excavation.

In addition to the temporary sediment control facilities shown, you must provide additional temporary sediment control facilities as necessary to prevent adverse water quality impacts.

Throughout the entire construction period you will be responsible for insuring that no material eroded from the work area leaves the job site via the conveyance system. You must provide adequate sediment barriers at storm drain pipe outlets, drainage inlets, and other collection points and provide adequate erosion control at channels and swales that have been graded but fabric or salvaged sod, as applicable, has not been installed.

Temporary sediment control measures must comply with TRPA's "Best Management Practices and Ordinances" and permits for this project, the RWQCB Board Order pertaining to the project, and the California Tahoe Conservancy requirements.

**A fine of \$100/day will be levied against you for each day you delay in responding to the Engineer's request to install new temporary sediment control devices and/or maintain existing temporary sediment control devices.**

**Add to section 13-6.02A:**

Sediment barriers must comply with the details shown and include weighted fiber rolls, gravel-filled bags or gravel-filled rolls, modified reinforced silt fence, and rice straw fiber rolls. Straw bales must not be used for temporary sediment control measures.

Sediment control at swales and channels must comply with the detail shown and consist of 6 mil polyethylene plastic sheeting held in place with gravel bags or gravel-filled rolls.

Gravel-filled rolls must be wrapped in woven high-density polyethylene with heat welded seams and must contain 1/4 inch gravel.

Remove temporary sediment control measures only if all permanent structural and permanent erosion control measures have been implemented and, if applicable, approval by TRPA is obtained.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary erosion control measures must be backfilled and compacted.

**Replace 1st paragraph of section 13-6.03C with:**

Provide temporary drainage inlet protection for CSP inlets, CSP risers, and drainage inlets as changing conditions require. Temporary drainage inlet protection must be as shown, Type 2, Type 3A, or a combination, as appropriate. Weighted fiber rolls are a suitable substitute for gravel-filled bags.

**Add to section 13-6.03E:**

Temporary rice straw fiber rolls must be repaired or replaced on the same day damage occurs. Damage to the temporary fiber rolls resulting from your vehicles, equipment, or activities will be repaired at your expense. If replacement of temporary rice straw fiber rolls is required due to your vehicles, equipment, or activities, replacement will be at your expense.

**Add to section 13-6.03H:**

Temporary reinforced silt fence must be Type 2 with steel post. Omit anchor and guy wire.

TRPA or Lahontan may require that temporary reinforced silt fence be used at additional locations.

Areas where you temporarily stockpile excavated materials may require reinforced silt fence for temporary sediment control.

Temporary reinforced silt fence must be removed after construction is completed.

Temporary reinforced silt fence must be repaired or replaced on the same day damage occurs. Damage to the silt fence resulting from your vehicles, equipment, or activities will be repaired or replaced at your expense.

**Replace section 13-6.03K with:**

**13-6.03K Weighted Fiber Rolls and Gravel-Filled Rolls**

Install weighted fiber rolls and gravel-filled rolls under section 13-10.03J.

**Replace section 13-6.03L with:**

**13-6.03L Polyethylene Sheeting**

Install polyethylene sheeting under section 13-10.03K.

**Replace section 13-6.03M with:**

**13-6.03M Disposal**

Disposal of material removed from temporary erosion control devices during maintenance must comply with section 14-10.02.

**Replace 2nd and 3rd paragraphs of section 13-6.04 with:**

The Department pays for temporary sediment control under the various specific bid items. Payment quantity for Temporary Reinforced Silt Fence and Temporary Fence (Type ESA) does not include overlap. Disposal of material removed during maintenance of the temporary erosion control devices is paid for under Job Site Management.

**Replace "Reserved" in section 13-7.02D with:**

**13-7.02D Temporary Fiber Rolls**

Temporary rice straw fiber rolls must be at least eight inches in diameter and be an Earth Savers wattle as manufactured by R.H. Dyck, Inc. or Rice Straw Fiber Roll as manufactured by Kristar or approved equal. Wood stakes for securing rice straw fiber rolls must be untreated fir, redwood, cedar, or pine, cut from sound timber, and must be straight and free of loose or unsound knots and other defects which would render them unfit for the purpose intended.

**Replace "Reserved" in section 13-7.02E with:**

**13-7.02E Weighted Fiber Rolls and Gravel-Filled Rolls**

Weighted fiber rolls or gravel-filled rolls must be a minimum length of 5 feet.

Weighted fiber rolls must be eight inches in diameter and consist of a machined mat or blanket of shaved aspen wood curled excelsior with a weighted inner core contained in a photodegradable, extruded, high visibility netting tube with a handle on each end. Eighty percent of the excelsior material must consist of fibers at least 6 inches in length. The fiber roll must be contained in a tubular orange-colored netting knotted at each end made from 85% high-density polyethylene and 14% ethyl vinyl acetate with titanium oxide for UV inhibition.

**Replace "Reserved" in section 13-7.02F with:**

**13-7.02F Polyethylene Sheeting**

Polyethylene sheeting must be 6 mil polyethylene.

**Add to section 13-7.03D:**

Tracking control applies to streets within the job site area as well as streets adjacent that have the potential to be impacted by tracking from the work.

**Sweeping is a temporary erosion control measure or BMP. A fine of \$100/day will be levied against you for each day you delay in responding to the Engineer's request to implement this temporary erosion control measure.**

**Replace section 13-7.04 with:**

The Department pays for street sweeping under Street Sweeping.

**Replace section 13-9.04 with:**

The Department pays for temporary concrete washouts and material disposal under Job Site Management.

**Replace first paragraph of section 13-10.02B with:**

Fiber rolls will be Type B in compliance with section 21-1.02P, except wheat straw will not be accepted.

**Replace “Reserved” in section 13-10.03J with:**

**13-10.03J Weighted Fiber Rolls and Gravel-Filled Rolls**

Weighted fiber rolls or alternatively, gravel-filled rolls will be used only in areas of compacted soil, concrete, or paved surfaces. The spacing intervals as shown must be maintained and new sections of weighted fiber rolls or gravel-filled rolls added as the installations of these improvements progress.

In addition to placement at the specified spacing intervals, you will place weighted fiber rolls or gravel-filled rolls at the location where each installation is temporarily discontinued. This section of weighted fiber rolls or gravel-filled rolls will be reused to satisfy the specified intervals once the installation that had been temporarily discontinued is completed. However, payment for the installation and maintenance of this section of weighted fiber rolls or gravel-filled rolls will be made only once. The configuration for the use of weighted fiber rolls or gravel-filled rolls at the sawcut areas is intended to filter sediment from runoff before the runoff enters inlets.

Areas where you store equipment or material on pavement may require the use of weighted fiber rolls or gravel-filled rolls. If a section of weighted fiber rolls or gravel-filled rolls is used in storage/staging more than once, or reset at a single location more than once, payment for installation and maintenance will be made only once.

Weighted fiber rolls or gravel-filled rolls must be maintained to disperse concentrated water runoff and to reduce runoff velocities. Split, torn, or unraveling rolls must be repaired or replaced. Locations where rills and other evidence of concentrated runoff have occurred beneath the rolls must be corrected. Weighted fiber rolls or gravel-filled rolls must be repaired or replaced on the same day damage occurs. Damage to the temporary fiber rolls resulting from your vehicles, equipment, or activities will be repaired at your expense. If replacement of weighted fiber rolls or gravel-filled rolls is required due to your vehicles, equipment, or activities, replacement will be at your expense.

**Replace “Reserved” in section 13-10.03K with:**

**13-10.03K Polyethylene Sheeting**

Temporary polyethylene plastic sheeting will be weighted with gravel-filled bags or gravel-filled rolls.

**Replace section 13-10.04 with:**

The Department pays for temporary linear sediment barriers for stockpiles under Job Site Management.

The Department pays for temporary linear sediment barriers for other than stockpiles under the various specific bid items.



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## 14 ENVIRONMENTAL STEWARDSHIP

### Add to section 14-1.02A:

You must provide protection for roots over 1 1/2 inch diameter cut during construction activities. Coat cut faces with emulsified asphalt or other acceptable coating formulated for use on damaged plant tissue. You must temporarily cover exposed roots with wet burlap to prevent roots from drying out and cover with earth as soon as possible. You must repair or replace trees and vegetation shown to remain which are damaged by construction activities. Repair or replacement will be at your expense and in a manner acceptable to the Engineer.

### Delete 3rd paragraph of section 14-1.03A(1).

### Add to section 14-1.03A(1):

You will perform construction activities outside the road right-of-way within the construction limits staked by the Engineer and delineated with Type ESA temporary fence installed by you.

The area within which you will be working will be within the limits of the Type ESA temporary fence. At trees, the width of the work area may be reduced to protect the trees. You will review each such location to determine what equipment can be used to install the improvements at these locations or if hand work will be necessary.

**A fine of \$100/day will be levied against you for each day you delays in responding to the Engineer's request to install new temporary erosion control devices and/or maintain existing temporary erosion control devices.**

If tree protection fencing cannot be placed at the dripline of the tree, wooden tree trunk protection described in section 14-1.04 will be installed.

Type ESA temporary fence will remain in place until equipment access is no longer necessary in the area and TRPA approval is obtained.

### Replace section 14-1.04 with:

#### 14-1.04 WOOD TREE TRUNK PROTECTION

##### 14-1.04A General

Trees as marked within work areas will require wooden tree trunk protection.

##### 14-1.04B Materials

The materials for wooden tree trunk protection are as shown.

##### 14-1.04C Construction

For trees within the work area, tree trunks will be wrapped with wooden tree trunk protection as shown.

The 2"x4"x8' wooden boards are to be tied together by wire or rope laced through staples attached to boards. Wooden fence must be bound to tree with wire or rope at three locations minimum. Type ESA temporary fence material must be wrapped around the tree trunk before wrapping the wooden boards around the trunk.

Boards for wooden tree trunk protection must not be nailed to trees.

**A fine of \$100/day will be levied against you for each day you delay in responding to the Engineer's request to install new temporary erosion control devices and/or maintain existing temporary erosion control devices.**

Wooden tree trunk protection will remain in place until equipment access is no longer necessary in the area and TRPA approval is obtained.

**14-1.04D Payment**

The Department pays for wooden tree trunk protection under Temporary Fence (Type ESA)(Tree Trunk Protection).

**Replace section 14-8.02A with:**

The maximum allowable noise for exposure for work is identified in Chapter 68: Noise Limitations in the TRPA Code of Ordinances.

The noise level requirements apply to the equipment on the job site or related to the project measured at the affected building facade, including trucks, transit mixers or transient equipment that you may or may not own. Avoid the use of loud sound signals in favor of light warnings except those required by safety laws for the protection of personnel.

For public safety and/or public convenience, the allowable noise levels may be waived.

Implement appropriate additional noise mitigation measures, including changing the location of stationary construction equipment, shutting off idling equipment, rescheduling your 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.

**Add to section 14-9.02:**

Comply with applicable State and County Air Quality Management District (AQMD) rules and regulations regarding reduction of construction related impacts on air quality, including the implementation of the following measures:

- Use low-emission on-site mobile construction equipment.
- Maintain equipment in tune per manufacturer's specifications.
- Retard diesel engine injection timing by two to four degrees unless not recommended by manufacturer (due to lower emission output in-place).
- Use reformulated low-emission diesel fuel. Substitute electric and gasoline-powered equipment for diesel-powered equipment if possible.
- Use catalytic converters on gasoline-powered equipment.
- Do not leave inactive construction equipment idling for prolonged periods (i.e., more than 2 minutes).
- Support and encourage ridesharing and transit for the construction workers.
- All construction vehicles and equipment must be fitted with working mufflers.

**Replace section 14-9.03 with:**

**14-9.03 DUST CONTROL**

**14-9.03A GENERAL**

**14-9.03A(1) Summary**

Section 14-9.03 includes specifications relating to dust control.

Provide an acceptable plan for preventing the generation of dust due to your activities in construction zones, along haul or traveled routes, or in equipment parking zones. Your Dust Control Plan and daily dust control activities will not conflict with requirements of any agency having jurisdiction in the project area. You are required to have a water truck at the job site at all times during construction.

In the event the control of dust is not satisfactory to the Engineer, the Engineer will take measures as necessary to insure satisfactory dust control and will deduct the cost of those measures from payments due you.

**Dust control is a temporary erosion control measure or BMP. A fine of \$100/day will be levied against you for each day you delay in responding to the Engineer's request to implement this temporary erosion control measure.**

You will post a publicly visible sign at the staging areas shown. The sign will contain the telephone number and name of person to contact for complaints and/or inquiries on dust control and other air quality problems resulting from construction activities.

**14-9.03A(2) Submittals**

You are to prepare and submit a Dust Control Plan that includes daily clean up measures that comply with federal, state, and local agency regulations, the Plans, the SWPPP, and these special provisions. Submit your Dust Control Plan as early as ten (10) working days after the receipt of the Notice of Award but no later than five (5) working days of receipt of Notice to Proceed.

**14-9.03B Materials**

Not used.

**14-9.03C Construction**

Dust will be controlled through a combination of sweeping and use of the water truck.

Control dust using measures that include the following:

1. Stabilize unpaved areas subject to vehicular traffic by keeping adequately wetted, treated with a chemical dust palliative, or covered with material that contains less than 0.25 percent asbestos.
2. The speed of vehicles and equipment traveling across unpaved areas must not be more than 15 mph unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment going faster from causing dust that is visible from crossing job site limits.
3. Stockpiles and disturbed areas not subject to vehicular traffic must be located in the plan and stabilized by being kept adequately wetted, treated with a chemical dust palliative, or covered with material that contains less than 0.25 percent asbestos.
4. Conduct activities so that no dirt or mud tracking is visible on any paved roadway open to the public.
5. Use rock track out pads and wheel wash stations at all points of egress from unpaved construction areas.

- 6. Use a dedicated water truck for each piece of earthmoving equipment (e.g., scrapers, dozers, excavators, loaders, haul trucks, backhoes, compactors, graders, etc).
- 7. Pre-wet excavations to depths of cuts.

Dust control measures that will be required to mitigate dust may impact your productivity during construction activities.

**14-9.03D PAYMENT**

The Department does not pay for impacts to your productivity from mitigating dust from your activities.

**Add to section 14-10.01:**

Unsuitable material and material removed from the sweeper, temporary erosion control devices, and facilities must be disposed of outside the Lake Tahoe Basin. Materials may be disposed of in the Lake Tahoe Basin providing you obtain and submit approvals from all applicable state, local, and federal agencies.

At no time will the material be disposed of or stockpiled in such a way as to allow erosion of the material or to pose a threat of adverse water quality impact.

**Replace section 14-10.02 with:**

**14-10.02 SOLID WASTE DISPOSAL AND RECYCLING**

Before start of construction prepare and obtain County approval of Solid Waste Diversion and Recycling Plan that complies with County Ordinance Chapter 8.43- "Construction and Demolition Debris Recycling within El Dorado County" that demonstrates the diversion and recycling of salvageable and re-useable wood, metal, plastic, and paper products during construction.

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**15 EXISTING FACILITIES**

**Add to section 15-1.01:**

Asphalt concrete and concrete must be disposed of outside the Lake Tahoe Basin. Asphalt concrete and concrete may be disposed of in the Lake Tahoe Basin providing you obtain and submit approvals from all applicable state, local, and federal agencies.

**Add to 2nd paragraph of section 15-2.02B(1) of the RSS dated 07-19-13:**

Asphalt concrete sawcut limits as shown include the 12 inch "T" patch on each side of pipe trenches. Sawcut to these limits just before final paving of the pipe trench.

**Replace 3rd and 4th paragraphs of section 15-2.02B(2) with:**

For pavement removal, obliterate by rooting, plowing, or scarifying to the bottom of the aggregate base or, if there is no base material, to the depth of the asphalt. Remove the loosened road materials and scarify the native material to a depth of 6 inches.

Grade the area so that it blends with the surrounding terrain but leave a roughened, uneven surface; compact the native material 85 to 90 percent relative compaction.

Following compaction of the native material, place and compact a minimum 3 inches of topsoil mix and complete revegetation efforts as shown. Topsoil mix will comply with section 21-1.02D. Mulch and tackifier will comply with sections 21-1.02E and 21-1.02F.

**Replace 1st sentence of the 1st paragraph of section 15-2.02B(4)(a) with:**

Remove the subbase, base, and bituminous surfacing to the subgrade depth of the proposed structural section. Preparation of subgrade will comply with section 19-5.03C.

**Add to the 1st paragraph of section 15-2.02B(4)(a):**

Includes the removal of both aggregate base and cement treated base, where applicable.

**Delete 3rd paragraph of section 15-2.02B(5)(a) of the RSS dated 07-19-13.**

**Replace “Reserved” in section 15-2.02B(7) of the RSS dated 07-19-13 with:**

The Department pays for sawcutting and removal of asphalt concrete pavement and base under Remove Asphalt Concrete Pavement. Scarifying, grading, topsoil placement, and compaction are also paid for under Remove Asphalt Concrete Pavement. Payment for mulch and tackifier, are paid for under those specific bid items.

**Replace “Reserved” in section 15-2.03A(2)(b) with:**

The Department’s salvage location is the Corporation Yard at 1121 Shakori Drive, South Lake Tahoe, California. Coordinate timing and drop location with the Department’s staff.

**Replace “Reserved” in section 15-2.03A(4) with:**

The Department pays for salvaging the frames, grates, and lids under Drainage Inlet – Type 3, 36” Corrugated Steel Pipe Inlet, and 48” Corrugated Steel Pipe Inlet.

**Replace “Reserved” in section 15-2.04D with:**

You must protect the existing guardrail during removal and reconstruction. All original hardware will be used to re-install the guardrail.

**Delete 4th paragraph of section 15-3.01 of the RSS dated 7-19-13.**

AA

**DIVISION III GRADING**

**16 CLEARING AND GRUBBING**

**Add to section 16-1.03A:**

Trees must be removed in such a way as to cause no damage to the road, drainage facilities, adjacent property or utilities, or the public.

**Replace 4th paragraph of section 16-1.03A with:**

Areas will be cleared and grubbed to the minimum limits required for installation of improvements.

**Replace 1st paragraph of section 16-1.03B with:**

Construction areas to receive improvements must be cleared of logs, trees, stumps, roots, brush, grass, weeds, fencing, forest debris, and all other deleterious material.

**Delete 2nd paragraph of section 16-1.03B.**

**Add to section 16-1.03C:**

Grubbing consists of the removal of buried roots, stumps, logs, and any foreign objects encountered within a radius of one foot beyond the proposed structure.

To minimize the exposure of bare soil, stumps will not be removed in areas that will be graded until just before the beginning of grading or excavating activities.

**Replace 2nd paragraph of section 16-1.03D with:**

Unless designated otherwise, all cleared and grubbed and waste material will become your property and will be disposed of outside the Tahoe Basin or at a site approved by all applicable state, local, and federal agencies.

**Add section 16-1.03E:**

**16-1.03E Backfill**

Once stumps are removed, backfill the void and compact in compliance with section 19. Grade to blend in with the surrounding terrain.

**Add section 16-1.03F:**

**16-1.03F TIMBER REMOVAL**

During tree removal activities, comply with the following:

1. Before timber harvest, temporary erosion control devices must be in place.
2. Care must be taken to minimize damage to trees and other vegetation not marked for removal. If such occurs, damaged vegetation will be removed at your expense. Revegetation of the area will comply with sections 10-1.02 and 14-1.02A.
3. You will be liable for damage to utility service lines, fences or other structures.
4. Trees must be felled in a way that minimizes disturbance to surrounding vegetation and traffic flow.
5. If applicable, you will be responsible for traffic control during timber harvest. Traffic control must comply with the California MUTCD and include two flaggers in constant eye or radio contact. Additional traffic control measures may be required. You will also coordinate traffic control with the emergency service providers.
6. Trees noted to be removed must be cut to a height sufficient for subsequent stump removal.
7. Within an SEZ, trees to be removed must be felled, bucked to firewood length, and the green wood covered tightly with plastic and left in place, if not removed within 48 hours. Tree removal from the area must occur when soil is dry and stable. Lengths must be winched out, lifted with a cherry picker, or carried by hand. No mechanical equipment for tree removal will be operated within an SEZ.
8. All wood material for resale must be removed from the job site before resale.
9. All trees marked for removal must be removed from the job site within 48 hours to reduce the spread of insects. Logs infested with insects must be covered with clear plastic sheeting and sealed at the ground until the wood is disposed of.
10. You are responsible for complete cleanup, including slash disposal. No slash may be stored or burned on site.

Other Requirements:

1. You must obtain a Timber Operator's License from the California Department of Forestry and Fire Protection (CAL FIRE) before starting work if the fuel wood or timber is to be sold.
2. You must comply with all County requirements for comprehensive and liability insurance before starting work.

^^

**17 WATERING**

**Add to section 17-2.01A:**

You must contact South Tahoe Public Utility District (STPUD) as to the availability and use of water sources for the Project work.

^^

**19 EARTHWORK**

**Replace 2nd paragraph of section 19-1.03B with:**

Notify the Engineer before removing unsuitable material. If directed, you will excavate below the lower limit of grading plane shown.

All unsuitable material must be removed from the Tahoe Basin in compliance with section 14-10.01.

**Replace 1st paragraph of section 19-1.04 with:**

The payment quantity of unsuitable material removed is based on average end areas and the distance between them, as measured by the Engineer.

**Replace 2nd, 3rd, and 4th paragraphs of section 19-2.03B with:**

Dispose of surplus material. Ensure enough material is available to complete the project before disposing of it. If suitable, excess excavated material can be considered salvaged soil and incorporated into the topsoil mix.

Excess excavated material used for fill or backfill will contain less than 2% by volume nondecomposed organic material and material no larger than 1 1/2 inches in the largest dimension.

**Add to section 19-3.02D:**

Submit a certificate of compliance within ten (10) working days of the Contract start date or within three (3) working days before the slurry cement is to be used, whichever is sooner.

**Add to 1st paragraph of section 19-3.03B(1):**

4. Salvaging and stockpiling salvaged soil for topsoil mix.

**Replace 7th paragraph of section 19-3.03D with:**

If rock is encountered in the bottom of a pipe trench or corrugated steel pipe inlet excavation, you will immediately notify the Engineer.

If the design cannot be modified and the removal of the rock is necessary, the following will apply:

If a point load on the pipe is created by the rock, the rock will be removed to a depth of 6 inches below the trench bottom and the 6 inches will be backfilled with Class 3 permeable material.

If rock is encountered at the bottom of the excavation for an open bottom corrugated steel pipe inlet and infiltration could be achieved if the rock were removed, the rock will be removed and the void backfilled with Class 3 permeable material. Alternatively, the Engineer may allow you to install a sealed base over the rock for the corrugated steel pipe inlet.

Payment for excavating and backfilling below the planned elevation of the bottom of the pipe trench or corrugated steel pipe inlet and the rock removal and disposal will be included in the applicable bid item, unless the rock removal meets the criteria for payment under section 19-4.

**Replace 1st paragraph of section 19-3.03E(1) with:**

Place structure backfill in uniform layers. Bring backfill up uniformly on all sides of structures. Backfill layers must be at most 8 inches thick before compacting. Compaction by ponding and jetting is not allowed.

**Delete 5th paragraph of section 19-3.03E(1).**

**Add to end of 2nd sentence of the 7th paragraph of section 19-3.04 of the RSS dated 01-18-13:**

An adjustment from the depth shown due to rock excavation or removal of unsuitable material is paid for under as change order work.

**Replace "Reserved" in section 19-4 with:**

**19-4 ROCK EXCAVATION**

**19-4.01 GENERAL**

**19-4.01A Summary**

You are advised that hard non-rippable rock may be encountered that will require alternative excavation techniques, including the use of hydraulic rock breaking equipment, coring (for drilling activities), and/or chemical splitting agents.

Any rock that prohibits the proposed function of improvements or prohibits the installation of improvements to the grades shown and that can't be removed after a reasonable effort with the equipment being used on the job site will be fractured and removed.

The following illustrates the minimum effort that can reasonably be expected from you if rock is encountered and must be removed:

Should you have larger equipment on site, you must make a reasonable effort with the larger equipment to remove the rock and compensation will not be made under this bid item but be included in the item for which the rock was encountered.

**19-4.02 MATERIALS**

Not Used.

**19-4.03 CONSTRUCTION**

You must notify the Engineer immediately if rock is encountered that meets the definition described in section 19-4.01A. The Engineer will consider whether the lines and grades can be adjusted to avoid fracturing and removing the rock. If the Engineer determines adjustments are not possible, and that the rock meets the definition described, and that you have made a reasonable effort to remove, fracture and remove, or scrape and remove the rock with the minimum equipment specified above, then the removal and disposal of the rock will be performed with the following methods:



You may use hydraulic splitters, pneumatic hammers, or other authorized roadway excavation techniques to fracture rock and construct stable final rock cut faces. Blasting is not allowed.

If a cracking agent is used, the cracking agent must be soundless chemical demolition agent such as Bentonamit or Fract.Ag, or approved equal. The non-detonating rock breaking equipment must be Boulder Buster, NoneX, or an approved equal.

Fracture the rock in compliance with the manufacturer's instructions.

You are responsible for any damage to persons, private property, the work, existing structures, or utilities.

You and the Engineer will agree to the number of cubic yards of rock fractured and removed immediately after the removal of the rock from the excavation.

If the fractured rock cannot be used in the construction of other improvements, it is considered unsuitable material and must be disposed of in compliance with section 14-10.01.

The void created by the rock removal will be backfilled in compliance with section 19-3.03D.

#### **19-4.04 PAYMENT**

Work performed under this section is change order work.

##### **Add to section 19-5.01A:**

The Department will, at its expense, except as noted in section 6-3, provide compaction testing to verify that you have achieved the required compaction.

Relative compaction will be based on the maximum dry unit weight as determined by ASTM D1557. Corrections to the Unit Weight for Soil Containing Oversize Particles will comply with ASTM 4718.

Compaction testing will be performed on subgrade, fill, backfill, topsoil mix, and, if applicable, permeable material. You will provide a 24-hour notice to the Engineer stating when you will be completed with an activity that requires compaction testing to allow the Engineer time to schedule testing before you start the next activity. The Department will make every effort to collect native samples and to provide moisture-density curves in a timely manner. However, should you choose to proceed with the work before compaction criteria for native soil or fill material can be verified, you assume the risk of having to remove this work at your expense if subgrade compaction is later found to be inadequate.

All compaction will be accomplished with mechanical compaction.

Subgrade, fill, or backfill that exhibits pumping will not be accepted.

##### **Add to section 19-5.03B:**

The void resulting from the removal of unsuitable material will be backfilled with Class 3 permeable material and compacted to a minimum relative compaction of 95%, except if unsuitable material is overexcavated from the bottom of a sediment basin. In this case a maximum of 90% relative compaction and a minimum of 85% relative compaction will be required.

##### **Add to section 19-5.03C:**

With the exception of perforated pipe trenches, CSP inlets, drainage inlets and concrete manholes, areas where asphalt concrete, Portland cement concrete, aggregate base, Class 1 Type B and Class 3 permeable material, fill, backfill, or No. 1 backing is to be placed over native material, the native material will be scarified a minimum of 6 inches, thoroughly mixed with water to the optimum moisture for compaction, and compacted to a minimum of 90% relative compaction before placement of fill or other material.

All fill and backfill using native material or excess excavated material will be thoroughly mixed with water to the optimum moisture for compaction. Lifts will be a maximum of 8 inches thick, loose, before compaction. Unless otherwise specified, fill and backfill will be compacted to a minimum relative compaction of 90%. These provisions also apply to imported fill or backfill.

Topsoil and amendment placed behind the drainage inlet for salvaged sod will be compacted to a maximum of 90% relative compaction and a minimum of 85% relative compaction.

If undisturbed native material becomes disturbed during excavation, the native material will be scarified a minimum of 6 inches, thoroughly mixed with water to the optimum moisture for compaction, and compacted to a minimum of 90% relative compaction before placement of fill or other material as shown.

Permeable material to be placed over native material will be compacted to a minimum of 90% relative compaction. The void created by rock removed from the bottom of a pipe trench or corrugated steel pipe inlet excavation will be backfilled with Class 3 permeable material and compacted to 90% relative compaction. Compaction of permeable material will be verified by an established method agreed upon by you and the Engineer.

The void created by stump removal, culvert removal, or rock removal will be filled with native material and compacted to a minimum of 90% relative compaction. Other material may be approved if suitable for the location relative to the improvements.

The mixture of salvaged soil and humus (i.e. topsoil mix) will be compacted to a maximum of 90% relative compaction and a minimum of 85% relative compaction. Compaction of topsoil mix will be verified by an established method agreed upon by you and the Engineer.

**Replace section 19-7.01A with:**

Section 19-7 includes specifications for obtaining local and imported borrow material.

**Add to section 19-7.01C:**

You will notify the Engineer of the imported borrow site location 72 hours before you pick-up the material.

**Add to section 19-7.02A:**

- 3. Imported borrow will be a silty sand material designated by SM in the Unified Soil Classification System (USCS).

^^

## 21 EROSION CONTROL

**Replace section 21-1.02D with:**

**21-1.02D Topsoil Mix**

Topsoil mix consists of a blend of salvaged soil and humus. Following clear and grub, you will excavate and stockpile the excess native soil and undecomposed plant material from the drainage inlets, pipes, trenches, and corrugated steel pipe inlets. Imported material must comply with section 19-7.

The humus will consist of an amendment that is the result of an aerobic composting process maintaining temperatures greater than 135 degrees Fahrenheit and less than 165 degrees Fahrenheit, for a minimum of ten (10) days. Nitrogen introduction will be derived from dairy manure. The compost feedstock must consist of a minimum of 50% by volume indigenous forest vegetation from the Lake Tahoe Basin. The humus must be 50% Humus Fines (3/8 inch minus) and 50% wood "overs" (3/8 inch to 3 inch). Full Circle

Compost (humus is called “Integrated 50%”) in Minden, NV, and Tahoe Sand and Gravel in South Lake Tahoe, CA, produce a humus that complies with these specifications.

Submit a certificate of compliance for the humus and certification that the humus is weed free.

**Replace section 21-1.02E with:**

**21-1.02E Mulch**

The mulch must be the product of an aerobic composting process maintaining temperatures greater than 130 degrees Fahrenheit and less than 165 degrees Fahrenheit for a minimum of ten (10) days. Nitrogen introduction will be derived from dairy manure. The compost feedstock must consist of a minimum of 50% by volume indigenous forest vegetation from the Lake Tahoe Basin. The resulting finished compost must consist of 75% wood “overs” (from 3/8 inch to 3 inch in size) and 25% humus (fines) (3/8 inch minus). Full Circle Compost (Mulch is called “Integrated 25%”) in Minden, NV, and Tahoe Sand and Gravel in South Lake Tahoe, CA, produce a mulch that complies with these specifications.

You must notify the Engineer of the proposed location of the source of imported humus 72 hours before you plan to pick-up the material so the Engineer can verify the suitability of the material.

Submit a certificate of compliance for the mulch and certification that the mulch is weed free.

**Replace section 21-1.02F with:**

You will apply tackifier to all areas where mulch has been applied.

The term “tackifier” used here will mean tackifier with wood-cellulose fiber mulch.

The fiber mulch must consist of degradable green-dyed wood-cellulose fiber or 100%-recycled long-fiber pulp (recycled newspaper), free from weeds or other foreign matter toxic to seed germination.

The tackifier material must be of an organic, plant-derived substance containing psyllium, guar gum, cornstarch such as PT-TAC, Reclamare 2400, M-Binder, Eco-tak, Fisch-Stick, or approved equal.

The material will form a transparent 3-dimensional film-like crust permeable to water and air and containing no agents toxic to seed germination.

Submit a certificate of compliance.

The mulch applied under section 21-1.03M must be anchored with tackifier within 48 hours of application.

A hydroseeder with a paddle wheel agitator will be used to evenly apply the tackifier mixture at the following rates under suspension unless otherwise approved. The tackifier will be mixed and applied in compliance with the following:

Wood-cellulose fiber mulch:	500 lbs/acre
Tackifier:	130 lbs/acre
Water:	As needed

Tackifier must be applied using a commercial hydraulic mulcher with a built-in agitation system that has sufficient capacity to agitate, suspend, homogenize, and apply materials at the indicated rates.

Notify the Engineer of the equipment you propose to use no later than ten (10) days before application.

Hydraulic applications of tackifier must not be conducted during windy conditions greater than 8 mph.

Application of the mulch described in section 21-1.03M and tackifier will consist of a continuous operation where tackifier placement follows the mulch placement. The materials will be applied to individual

identified areas on the same day the seed has been placed. One application will be not completed independent of the other.

**Replace first paragraph of section 21-1.02I with:**

Straw for straw bales must be stalks from rice furnished in air-dry condition.

**Replace section 21-1.03D with:**

**21-1.03D Topsoil Mix**

Topsoil mix will be a blend of humus and salvaged soil in a ratio of 3:1 (soil to humus). Humus and salvaged soil will be mixed together in a separate stockpile at the job site. Do not mix these materials at the locations where the topsoil mix will be placed.

You must notify the Engineer of the proposed location of the source of imported humus 72 hours before you plan to pick-up the material so the Engineer can verify the suitability of the material.

Compaction of the topsoil mix will comply with section 19-5.03C.

You will place and compact the topsoil mix (2 inch compacted thickness unless noted otherwise below) at the following improvements:

- Revegetation not associated with improvements;
- 0.30' compacted thickness over the top of pipe backfill;
- A minimum 3 inch compacted thickness on the blanket lined channel and sediment basin.

**Replace section 21-1.03M with:**

**21-1.03M Mulch**

Apply a 1 inch thick layer of mulch over the compacted topsoil mix after seeding by the CCC is completed and over disturbed areas beyond new facilities but within the silt fence and ESA fence.

Mulch can be applied by non-motorized means or by means of a pneumatic conveying system capable of blowing the mulch at rates between 10 and 15 cubic yards per hour and must be capable of blowing the mulch a distance of 300 feet as necessary to access slopes. If selected, the conveying equipment must have a self-contained dust suppression system.

Notify the Engineer of your mulch application method and equipment that you propose to use no later than ten (10) days before application.

Pneumatic applications of mulch must not be conducted during windy conditions greater than 8 mph.

Application of the mulch and tackifier described in section 21-1.02F will consist of a continuous operation where tackifier placement follows the mulch placement. The materials will be applied to individual identified areas on the same day the seed has been placed. One application will be not completed independent of the other.

The CCC under the direction of the Engineer will provide flagging on the slopes or other means to identify the location of mulch to be supplied and applied by you.

**Add to section 21-1.04:**

Furnishing and placing humus and mulch are paid for under Humus and Mulch. Salvaging and stockpiling salvaged soil is paid for under various items of work involving excavation. Mixing the salvaged soil with humus and placing and compacting the topsoil mix will be paid for in the various items of work requiring topsoil mix.

AA

**DIVISION IV SUBBASES AND BASES**

**26 AGGREGATE BASES**

**Replace the 2nd paragraph of section 26-1.02A with:**

Use 3/4 inch aggregate grading.

**Add to section 26-1.02A:**

Class 2 Aggregate Base applies to this project.

Submit a certificate of compliance within ten (10) working days of the Contract start date or within three (3) working days before the aggregate base is to be used, whichever is sooner.

**Add to section 26-1.03D:**

The Department will, at its expense, except as noted in section 6-3, provide compaction testing to verify that you have achieved the required compaction.

Relative compaction will be based on the maximum dry unit weight as determined by ASTM D1557. Corrections to the Unit Weight for Soil Containing Oversize Particles will comply with ASTM 4718.

Compaction testing will be performed on aggregate base. You will provide a 24-hour notice to the Engineer stating when you will be completed with an activity that requires compaction testing to allow the Engineer time to schedule testing before you start the next activity.

All compaction will be accomplished with mechanical compaction.

Aggregate base that exhibits pumping will not be accepted.

AA

**DIVISION V SURFACINGS AND PAVEMENTS**

**39 HOT MIX ASPHALT**

**Add to section 39-1.01A:**

Produce and place HMA Type A under the Method construction process.

**Add to section 39-1.02C:**

Asphalt binder used in HMA Type A must be PG 64-28 or PG 64-28PM.

**Add to section 39-1.02E:**

Aggregate used in HMA Type A must comply with the 1/2 inch HMA Type A and B gradation.

**Replace item 2. of the first paragraph of section 39-1.03C with:**

2. Proposed JMF dated within 6 months of submittal.

**Add to section 39-1.09C:**

Paint binder must be asphaltic emulsion SS-1.



## DIVISION VI STRUCTURES

### 51 CONCRETE STRUCTURES

**Replace 3rd paragraph of section 51-7.01A with:**

Drainage inlets will be CIP. A PC unit with CIP top section (2 feet deep minimum measured from the top of grate) to receive grate and frame will be an acceptable alternative to CIP drainage inlets. Drainage inlets that are entirely PC will not be acceptable.

Corrugated steel pipe inlet bases may be PC to the dimensions shown.

Concrete collars will be CIP to the dimensions shown.

Submit shop drawings for each drainage inlet within five (5) working days of the Notice to Proceed for review.

**Delete reference to 2nd paragraph of section 51-7.01B of the RSS dated 10-19-12.**

**Add to section 51-7.01B:**

Concrete for concrete base for corrugated steel pipe inlets must comply with the specifications for minor concrete.

Concrete for concrete encasement must comply with the specifications for slurry cement backfill.

**Replace 1st and 2nd sentences of 1st paragraph of section 51-7.01C with:**

It is your responsibility to verify the top of grate elevation shown before excavation and to notify the Engineer of discrepancies.

**Add to section 51-7.01C:**

A mechanical power driven internal vibrator will be used for concrete consolidation.

Reinforcing steel in the drainage inlet walls of the PC section must extend into the CIP section in the same way as if it were entirely PC.

**Replace section 51-7.01D with:**

“Drainage Inlet – Type 3” is measured and paid per each.

Removal of sediment accumulated in the drainage inlets during construction is paid for under Drainage Inlet Type 3. Sediment must be removed just before demobilization. Disposal of sediment accumulated in the drainage inlets during construction is paid for under job site management. Disposal of sediment must comply with section 14-10.01.

Payment for the Class 1 Type B permeable material under the drainage inlets is paid for under Drainage Inlet – Type 3.

The Department pays for concrete bases for corrugated steel pipe inlets as shown under 36” Corrugated Steel Pipe Inlet and 48” Corrugated Steel Pipe Inlet.

The Department pays for miscellaneous iron and steel for metal frames, lids, grates, and hoods under the type of Drainage Inlet, the type of metal Pipe Inlet, or Precast Concrete Manhole.

^^

## 52 REINFORCEMENT

**Replace 1st and 2nd paragraphs of section 52-1.02B of the RSS dated 10-19-12 with:**  
Reinforcing bars must be deformed bars complying with ASTM Designation A615 Grade 60.

**Replace section 52-1.04 with:**  
Payment for reinforcement is included in the various items of work requiring reinforcement.

^^

## 56 SIGNS

**Replace 2nd paragraph of section 56-2.01A(1) with:**  
Signs must comply with the *California Sign Specifications* and the federal *Standard Highway Signs and Markings Book*. Those publications and related publications are available on the Caltrans Traffic Operations Web site under signs and work zones.

**Add to section 56-2.01B(5):**  
Exposed aluminum surfaces on sign panels must be painted. The end finish coat color must match color no. 30059 of FED-STD-595.

**Replace 1st item of 7th paragraph of section 56-2.01B(2) with:**  
1. Phrase "Property of El Dorado County".

**Add to section 56-2.01C:**  
Clean and prepare aluminum surfaces under SSPC SP-1. One coat of primer must be applied by spraying to produce a uniform wet film on the surface.

**Add to section 56-2.01D:**  
Payment for cleaning and painting the exposed surfaces of sign panels is included in the payment for the types of furnish single sheet aluminum sign work involved.

^^

## 59 PAINTING

**Replace 4th paragraph of section 59-3.03 with:**  
The 2nd finish coat color must match color no. 30059 of FED-STD-595.

**Replace section 59-3.04 with:**  
Payment for painting galvanized surfaces is included in the various items of work requiring paint.

**Add to section 59-7.03:**

The final color of the stained concrete must produce a brownish earth tone color that will match concrete with existing treated concrete approved by Tahoe Regional Planning Agency (TRPA) along US Highway 50 at Santa Fe Road (post mile 71.2) in the Community of Meyers in the Tahoe Basin.

The color of the sealing compound must match the stain as closely as possible.

**Replace section 59-7.04 with:**

Payment for staining the concrete headwall is included in the payment for Minor Concrete (Minor Structure).

^^

**DIVISION VII DRAINAGE**

**61 CULVERT AND DRAINAGE PIPE JOINTS**

**Add to section 61-1.01A:**

For this project, culverts and drainage pipes will have soil tight gasketed joints.

^^

**64 PLASTIC PIPE**

**Add to section 64-1.01A:**

Excavation, backfill, and shaped bedding must comply with section 19-3.

**Replace 1st sentence of section 64-1.02A with:**

Plastic pipe must be Type S corrugated polyethylene pipe with smooth interior.

**Add to section 64-1.03C:**

The interior of the pipe will be cleaned as the work progresses.

**Add to section 64-1.04:**

The Department pays for furnishing and installing concrete collars and encasement at the existing pipe connections, bridging over an existing waterline and CSP risers as shown under Minor Concrete (Minor Structure)( Collar and Encasement).

^^

**68 SUBSURFACE DRAINS**

**Replace 1st paragraph of section 68-2.02D with:**

Perforated plastic pipe must be Type SP corrugated polyethylene pipe with smooth interior in compliance with AASHTO M 294 with Class 1, 3/8 inch diameter perforations. The pipe and fittings must be made from HDPE virg in PE compounds.



**Add to section 68-2.02F(1):**

Submit a certificate of compliance within ten (10) working days of the Contract start date or within three (3) working days before the permeable material is to be used, whichever is sooner.

**Add to section 68-2.02F(4):**

The percentage composition by weight of Class 3 permeable material in place must meet the grading requirements of 0 percentage passing a No. 100 sieve.

**Delete 2nd sentence of 1st paragraph of section 68-2.03.**

**Add to section 68-2.03:**

The interior of the pipe will be cleaned as the work progresses.

Compaction of permeable material will comply with section 19-5.03C.

**Add to section 68-2.04:**

The Department pays for furnishing and placing permeable material and filter fabric under 18” Perforated Plastic Pipe Underdrain. Payment for furnishing and installing concrete collars and concrete encasement as shown is under Minor Concrete (Minor Structure)(Collar and Encasement).

^^

**70 MISCELLANEOUS DRAINAGE FACILITIES**

**Add to section 70-1.03:**

After the installation of steel drainage facilities and appurtenances but before backfilling to finish grade, the visible surfaces will be painted the following TRPA approved color: No. 30059 of FED-STD-595.

Painting and its preparation will comply with section 59-3.

The CSP structures will be painted in the field. Covers and flared end sections may be painted during prefabrication. A painted surface that is damaged will be sanded and repainted.

**Add to section 70-1.04:**

The Department pays for furnishing and installing concrete collars as shown under Minor Concrete (Minor Structure)(Collar and Encasement).

Payment for grouting the rock on the sides and over the top of flared end sections is included in the payment the type of flared end section involved.

**Replace 1st sentence of section 70-2.02 with:**

Corrugated metal pipe must be fabricated from 12 gauge (0.109”) zinc-coated steel sheet.

**Replace section 70-2.03 with:**

You must cut the holes to receive culverts in the field and, if shown, weld stubs to the vertical CMP for the culverts in the field to allow for adjustments if necessary. The lids, lid assemblies, and grates may be prefabricated. Should you elect to prefabricate all elements (other than CMP lengths, grates, lids, and lid assemblies) of the CSP inlets and risers, any modifications required in the field that are the result of providing prefabricated elements will be performed by you at your expense.

You must submit shop drawings for all prefabricated elements of the CSP inlets and risers within five (5) working days of the Notice to Proceed for review.



**Rock Grading for Method A Placement**

No. 1 Backing:	<u>Rock Size</u>	<u>Percent Smaller Than</u>
	16"	100
	12"	75-100
	8"	0-20
	6"	0
1/4 Ton:	<u>Rock Size</u>	<u>Percent Smaller Than</u>
	25"	100
	16"	0

Percentage is based on the number of rocks per size range versus the total number of rocks in any 100 SF area. Rock size will be measured along the smallest dimension of each rock.

**Add to Section 72-2.02A:**

Rock must be angular with no fewer than 3 fractured surfaces and of such shape as to form a stable protective structure after placement. The use of rounded cobbles will not be allowed.

All rock color must blend with the surroundings and must not consist of bright, light colors such as light gray, white, or off-white. At least 50% of the rock must have at least one surface that is weathered (i.e. exhibiting signs of oxidation). Samples of acceptable rock coloring are available for viewing at the County of El Dorado Transportation Division office, 924B Emerald Bay Road, South Lake Tahoe, CA.

**Add to Section 72-2.04:**

No. 1 Backing used in the CSP Inlet Riser is paid for under CSP Inlet item.

No.1 Backing used on the sides and over the top of a Flared End Section is paid for under the respective Flared End Section item.

^^

**73 CONCRETE CURBS AND SIDEWALKS**

**Replace section 73-1.01A of the RSS dated 07-19-13 with:**

Section 73-1 includes general specifications for constructing minor concrete items including concrete curbs, curb end transitions, sidewalks, gutter depressions, valley gutters, driveways, and curb ramps; for installing detectable warning surfaces, and for texturing and coloring concrete surfaces.

Interpret "curb" to mean curb and gutter.

**Replace 1st paragraph of section 73-1.02A with:**

Minor concrete must comply with section 90-2.

**Add between 1st and 2nd sentences of section 73-1.02A:**

For this project, aggregate will be 3/4 inch.

**Replace 1st sentence of 1st paragraph of section 73-1.03A with:**

If you repair any part of a curb, curb end transition, sidewalk, gutter depression, valley gutter, driveway, or curb ramp, remove and replace the entire section between contraction or expansion joints.

**Add to section 73-1.03B:**

The void resulting from the removal of unsuitable material will be backfilled in compliance with section 19-5.03B. Scarify subgrade in compliance with section 19-5.03C.

**Replace 1st sentence of 2nd paragraph of section 73-1.03E with:**

One-half inch preformed expansion joint filler conforming to section 73-1.02A will be placed at right angles to the line of curbs at 200 foot intervals, at curb returns, at the transition from machine extruded curb to formed curb, at locations where curb placement is against existing concrete, and at locations where curb placement or other concrete placement will stop long enough for concrete to set before continuing with additional curb or concrete. Place 3 - #4 by 18 inch rebar at each of these expansion joints.

**Add section 73-1.03G:**

**73-1.03G Backfill**

Native material will be used for backfill behind curb and gutter. Backfill will contain less than 2% by volume nondecomposed organic material and material no larger than 1 1/2 inches in the largest dimension. Placement and compaction will comply with section 19-5.03C.

The Department pays for backfill and compaction behind the curb and gutter under the various specific bid items.

**Add to section 73-2.03A:**

Construction control lines for curb will be set by you based on horizontal control and vertical control staked by the Engineer.

The string line for curb will be set sufficiently in advance of the scheduled pour, but in no case less than two (2) hours to allow the Engineer to check the line against cut sheet grades and field conditions and provide time for adjustment if necessary.

All curb will be water tested and must drain without ponding. If ponding does occur, you will be responsible for removal and replacement of enough curb to eliminate the ponding. Grinding of the flowline will not be allowed.

You are responsible for protecting the lip of the gutter after it is constructed and before AC paving is in place.

**Replace 2nd sentence of 5th paragraph of section 73-2.03A with:**

Space contraction joints at 10 foot intervals.

^^

**75 MISCELLANEOUS METAL**

**Add to section 75-1.02B:**

For this project, drainage inlet frames, grates, and hoods will be steel and painted black. CSP inlet hinged lids will be 1/4 inch checkered plate galvanized steel.

Drainage inlet grates must be of an approved "bicycle-proof" type as shown.

**Replace section 75-1.06 with:**

The Department pays for miscellaneous iron and steel for metal frames, lids, grates, and hoods under the type of Drainage Inlet, the type of metal Pipe Inlet, or Concrete Manhole.

AA

**DIVISION X MATERIALS**

**88 GEOSYNTHETICS**

**Replace section 88-1.02A with:**

The table below specifies the materials for this work.

	<b>APPLICATION</b>	<b>MATERIAL</b>
<b>ROLLED EROSION CONTROL PRODUCT</b>	Blanket lined channel and sediment basin.	Excel CC-4 as manufactured by Western Excelsior or C125BN as manufactured by North American Green, or approved equal.
<b>TURF REINFORCEMENT MAT</b>	Rock bowl, rock dissipator, rock slope protection, and rock spillway.	Landlok 450 as manufactured by Propex or C125 as manufactured by North American Green, or approved equal.
<b>GEOTEXTILE FABRIC (woven)</b>	Between the Class 3 permeable material and soil.	Geotex 200ST as manufactured by Propex, Mirafi 500x as manufactured by Mirafi, or approved equal.
<b>FILTER FABRIC (non-woven)</b>	Perforated pipe trench.	Per section 88-1.02B
<b>FILTER FABRIC (woven)</b>	Silt fence material.	Per section 88-1.02E

**Replace section 88-1.04 with:**

The Department pays for rolled erosion control product, turf reinforcement mat, geotextile fabric (woven), and filter fabric (non-woven) under the various items of work requiring these materials. Payment for filter fabric (woven) is under Temporary Reinforced Silt Fence.

AA

**90 CONCRETE**

**Add to section 90-1.01A:**

Portland cement must be Type II with no mineral admixtures.

An air-entraining agent conforming to section 90-1.02E will be added to the concrete at the rate required to result in an air content of 4-7% in the freshly mixed concrete.

Slump for Portland cement concrete must be no more than 2 inches nor less than 1 inch.

**Add to section 90-1.01C(6):**

You must supply concrete mix designs for all items of work requiring concrete within fifteen (15) working days of the receipt of the Notice to Proceed and at least five (5) working days before the start of the concrete work associated with these items.

**Add to section 90-2.01C:**

You must supply concrete mix designs for all items of work requiring concrete within fifteen (15) working days of the receipt of the Notice to Proceed and at least five (5) working days before the start of the concrete work associated with these items.

**Replace section 90-2.02B:**

Minor concrete must contain at least 564 pounds of cementitious material per cubic yard. Portland cement concrete headwall and drainage inlets must have a compressive strength of a minimum of 4000 PSI at 28 days.

**APPENDIX A**

**REVISED STANDARD SPECIFICATIONS**





**Add to the 1st table in section 1-1.06:**

04-19-13

LCS	Department's lane closure system
POC	pedestrian overcrossing
QSD	qualified SWPPP developer
QSP	qualified SWPPP practitioner
TRO	time-related overhead
WPC	water pollution control

**Delete the abbreviation and its meaning for *UDBE* in the 1st table of section 1-1.06.**

06-20-12

**Delete "Contract completion date" and its definition in section 1-1.07B.**

10-19-12

**Delete "critical delay" and its definition in section 1-1.07B.**

10-19-12

**Replace "day" and its definition in section 1-1.07B with:**

10-19-12

**day:** 24 consecutive hours running from midnight to midnight; calendar day.

1. **business day:** Day on the calendar except a Saturday and a holiday.
2. **working day:** Time measure unit for work progress. A working day is any 24-consecutive-hour period except:
  - 2.1. Saturday and holiday.
  - 2.2. Day during which you cannot perform work on the controlling activity for at least 50 percent of the scheduled work shift with at least 50 percent of the scheduled labor and equipment due to any of the following:
    - 2.2.1. Adverse weather-related conditions.
    - 2.2.2. Maintaining traffic under the Contract.
    - 2.2.3. Suspension of a controlling activity that you and the Engineer agree benefits both parties.
    - 2.2.4. Unanticipated event not caused by either party such as:
      - 2.2.4.1. Act of God.
      - 2.2.4.2. Act of a public enemy.
      - 2.2.4.3. Epidemic.
      - 2.2.4.4. Fire.
      - 2.2.4.5. Flood.
      - 2.2.4.6. Governor-declared state of emergency.
      - 2.2.4.7. Landslide.
      - 2.2.4.8. Quarantine restriction.
    - 2.2.5. Issue involving a third party, including:
      - 2.2.5.1. Industry or area-wide labor strike.
      - 2.2.5.2. Material shortage.
      - 2.2.5.3. Freight embargo.
      - 2.2.5.4. Jurisdictional requirement of a law enforcement agency.
      - 2.2.5.5. Workforce labor dispute of a utility or nonhighway facility owner resulting in a nonhighway facility rearrangement not described and not solely for the Contractor's convenience. Rearrangement of a nonhighway facility includes installation, relocation, alteration, or removal of the facility.
  - 2.3. Day during a concurrent delay.
3. **original working days:**

- 3.1. Working days to complete the work shown on the *Notice to Bidders* for a non–cost plus time based bid.
- 3.2. Working days bid to complete the work for a cost plus time based bid.

Where working days is specified without the modifier "original" in the context of the number of working days to complete the work, interpret the number as the number of original working days as adjusted by any time adjustment.

**Replace "Contract" in the definition of "early completion time" in section 1-1.07B with:**

work

10-19-12

**Replace "excusable delay" and its definition in section 1-1.07B with:**

**delay:** Event that extends the completion of an activity.

10-19-12

1. **excusable delay:** Delay caused by the Department and not reasonably foreseeable when the work began such as:
  - 1.1. Change in the work
  - 1.2. Department action that is not part of the Contract
  - 1.3. Presence of an underground utility main not described in the Contract or in a location substantially different from that specified
  - 1.4. Described facility rearrangement not rearranged as described, by the utility owner by the date specified, unless the rearrangement is solely for the Contractor's convenience
  - 1.5. Department's failure to obtain timely access to the right-of-way
  - 1.6. Department's failure to review a submittal or provide notification in the time specified
2. **critical delay:** Excusable delay that extends the scheduled completion date
3. **concurrent delay:** Occurrence of at least 2 of the following events in the same period of time, either partially or entirely:
  - 3.1. Critical delay
  - 3.2. Delay to a controlling activity caused by you
  - 3.3. Non–working day

**Replace "project" in the definition of "scheduled completion date" in section 1-1.07B with:**

work

10-19-12

**Add to section 1-1.07B:**

**Contract time:** Number of original working days as adjusted by any time adjustment.

10-19-12

**Disadvantaged Business Enterprise:** Disadvantaged Business Enterprise as defined in 49 CFR 26.5.

06-20-12

**Replace "PO BOX 911" in the District 3 mailing address in the table in section 1-1.08 with:**

703 B ST

04-20-12

**Replace the Web site for the Department of General Services, Office of Small Business and DVBE Services in the table in section 1-1.11 with:**

11-15-13

<http://www.dgs.ca.gov/dgs/ProgramsServices/BusServices.aspx>

AA

**2 BIDDING**

02-21-14

**Replace the headings and paragraphs in section 2 with:**

02-21-14

**2-1.01 GENERAL**

Section 2 includes specifications related to bid eligibility and the bidding process.

The electronic bid specifications in section 2 apply if *Electronic Bidding Contract* is shown on the cover of the *Notice to Bidders and Special Provisions*.

**2-1.02 BID INELIGIBILITY**

A firm that has provided architectural or engineering services to the Department for this contract before bid submittal for this contract is prohibited from any of the following:

1. Submitting a bid
2. Subcontracting for a part of the work
3. Supplying materials

**2-1.03–2-1.05 RESERVED**

**2-1.06 BID DOCUMENTS**

**2-1.06A General**

*Standard Specifications* and *Standard Plans* may be viewed at the Bidders' Exchange website and may be purchased at the Publication Distribution Unit.

The *Notice to Bidders and Special Provisions* and project plans may be viewed at the Bidders' Exchange website and at the street address.

*Bid* books may be ordered at the Bidders' Exchange website.

For an informal-bid contract, in addition to viewing and ordering them as specified above, the *Notice to Bidders and Special Provisions*, project plans, and *Bid* book may be obtained at the Bidders' Exchange street address.

The *Notice to Bidders and Special Provisions* includes the *Notice to Bidders*, revised standard specifications, and special provisions.

**2-1.06B Supplemental Project Information**

The Department makes supplemental information available as specified in the special provisions.

Logs of test borings are supplemental project information.

If an *Information Handout* or cross sections are available:

1. You may view them at the Contract Plans and Special Provisions link at the Bidders' Exchange website
2. For an informal-bid contract, you may obtain them at the Bidders' Exchange street address

If rock cores are available, you may view them by sending a request to [Coreroom@dot.ca.gov](mailto:Coreroom@dot.ca.gov).

If other supplemental project information is available for inspection, you may view it by phoning in a request.

Make your request at least 7 days before viewing. Include in your request:

1. District-County-Route
2. Contract number
3. Viewing date
4. Contact information, including telephone number

For rock cores, also include the bridge number in your request.

If bridge as-built drawings are available:

1. For a project in District 1 through 6 or 10, you may request them from the Office of Structure Maintenance and Investigations, fax (916) 227-8357
2. For a project in District 7, 8, 9, 11, or 12, you may request them from the Office of Structure Maintenance and Investigations, fax (916) 227-8357, and they are available at the Office of Structure Maintenance and Investigations, Los Angeles, CA, telephone (213) 897-0877

As-built drawings may not show existing dimensions and conditions. Where new construction dimensions are dependent on existing bridge dimensions, verify the field dimensions and adjust dimensions of the work to fit existing conditions.

#### **2-1.06C–2-1.06D Reserved**

#### **2-1.07 JOB SITE AND DOCUMENT EXAMINATION**

Examine the job site and bid documents.

Bid submission is your acknowledgment that you have examined the job site and bid documents and are satisfied with:

1. General and local conditions to be encountered
2. Character, quality, and scope of work to be performed
3. Quantities of materials to be furnished
4. Character, quality, and quantity of surface and subsurface materials or obstacles
5. Requirements of the contract

#### **2-1.08 RESERVED**

#### **2-1.09 BID ITEM LIST**

Submit a bid based on the bid item quantities the Department shows on the Bid Item List.

#### **2-1.10 SUBCONTRACTOR LIST**

On the Subcontractor List form, list each subcontractor to perform work in an amount in excess of 1/2 of 1 percent of the total bid or \$10,000, whichever is greater (Pub Cont Code § 4100 et seq.).

The Subcontractor List form must show the name, address, and work portions to be performed by each subcontractor listed. Show work portions by bid item number, description, and percentage of each bid item subcontracted.

#### **2-1.11 RESERVED**

#### **2-1.12 DISADVANTAGED BUSINESS ENTERPRISES**

##### **2-1.12A General**

Section 2-1.12 applies to a federal-aid contract.

Under 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).

## **2-1.12B Disadvantaged Business Enterprise Goal**

### **2-1.12B(1) General**

Section 2-1.12B applies if a DBE goal is shown on the *Notice to Bidders*.

To ensure equal participation of DBEs provided in 49 CFR 26.5, the Department shows a goal for DBEs.

Make work available to DBEs and select work parts consistent with available DBE subcontractors and suppliers.

Meet the DBE goal shown on the *Notice to Bidders* or demonstrate that you made adequate good faith efforts to meet this goal.

You are responsible to verify that the at the bid opening date the DBE firm is certified as DBE by the CA Unified Certification Program.

All DBE participation will count toward the Department's federally-mandated statewide overall DBE goal.

Credit for materials or supplies you purchase from DBEs counts toward the goal in the following manner:

1. 100 percent if the materials or supplies are obtained from a DBE manufacturer.
2. 60 percent if the materials or supplies are obtained from a DBE regular dealer.
3. Only fees, commissions, and charges for assistance in the procurement and delivery of materials or supplies, if they are obtained from a DBE that is neither a manufacturer nor regular dealer. 49 CFR 26.55 defines "manufacturer" and "regular dealer."

You receive credit toward the goal if you employ a DBE trucking company that performs a commercially useful function as defined in 49 CFR 26.55(d)(1)–(4), (6).

### **2-1.12B(2) DBE Commitment Submittal**

Submit DBE information under section 2-1.33.

Bidders other than the apparent low bidder, the 2nd low bidder, and the 3rd low bidder are not required to submit the DBE commitment form unless the Department requests it. If the Department requests a DBE commitment form from you, submit the completed form within 4 business days of the request.

Submit written confirmation from each DBE shown on the form stating that it will be participating in the Contract. Include confirmation with the DBE commitment form. A copy of a DBE's quote will serve as written confirmation that the DBE will be participating in the Contract.

### **2-1.12B(3) Good Faith Efforts Submittal**

If you have not met the DBE goal, complete and submit the Good Faith Efforts Documentation under section 2-1.33 showing that you made adequate good faith efforts to meet the goal. Only good faith efforts directed toward obtaining participation by DBEs are considered.

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

The Department may consider DBE commitments of the 2nd and 3rd bidders in determining whether the low bidder made good faith efforts to meet the DBE goal.

## **2-1.13–2-1.14 RESERVED**

## **2-1.15 DISABLED VETERAN BUSINESS ENTERPRISES**

### **2-1.15A General**

Section 2-1.15 applies to a non-federal-aid contract.

Take necessary and reasonable steps to ensure that DVBEs have opportunity to participate in the Contract.

Comply with Mil & Vet Code § 999 et seq.

### **2-1.15B Projects \$5 Million or Less**

Section 2-1.15B applies to a project with an estimated cost of \$5 million or less.

Make work available to DVBEs and select work parts consistent with available DVBE subcontractors and suppliers.

Meet the goal shown on the *Notice to Bidders*.

Complete and submit the Certified DVBE Summary form under section 2-1.33. List all DVBE participation on this form.

If a DVBE joint venture is used, submit the joint venture agreement with the Certified DVBE Summary form.

List each 1st-tier DVBE subcontractor on the Subcontractor List form regardless of percentage of the total bid.

### **2-1.15C Projects More Than \$5 Million**

#### **2-1.15C(1) General**

Section 2-1.15C applies to a project with an estimated cost of more than \$5 million.

The Department encourages bidders to obtain DVBE participation to ensure the Department achieves its State-mandated overall DVBE goal.

If you obtain DVBE participation:

1. Complete and submit the Certified DVBE Summary form under section 2-1.33. List all DVBE participation on this form.
2. List each 1st tier DVBE subcontractor in the Subcontractor List form regardless of percentage of the total bid.

If a DVBE joint venture is used, submit the joint venture agreement with the Certified DVBE Summary form.

#### **2-1.15C(2) DVBE Incentive**

The Department grants a DVBE incentive to each bidder who achieves a DVBE participation of 1 percent or greater (Mil & Vet Code 999.5 and Code of Regs § 1896.98 et seq.).

To receive this incentive, submit the Certified DVBE Summary form under section 2-1.33.

Bidders other than the apparent low bidder, the 2nd low bidder, and the 3rd low bidder may be required to submit the Certified DVBE Summary form if the bid ranking changes. If the Department requests a Certified DVBE Summary form from you, submit the completed form within 4 business days of the request.

#### **2-1.15C(3) Incentive Evaluation**

The Department applies the small business and non–small business preference during bid verification and proceeds with the evaluation specified below for DVBE incentive.

The DVBE incentive is a reduction, for bid comparison only, in the total bid submitted by the lesser of the following amounts:

1. Percentage of DVBE achievement rounded to 2 decimal places of the verified total bid of the low bidder
2. 5 percent of the verified total bid of the low bidder
3. \$250,000

The Department applies DVBE incentive and determines whether bid ranking changes.

A non–small business bidder cannot displace a small business bidder. However, a small business bidder with higher DVBE achievement can displace another small business bidder.

The Department proceeds with awarding the contract to the new low bidder and posts the new verified bid results at the Department's Web site.

## **2-1.16–2-1.17 RESERVED**

## **2-1.18 SMALL BUSINESS AND NON–SMALL BUSINESS SUBCONTRACTOR PREFERENCES**

### **2-1.18A General**

Section 2-1.18 applies to a non-federal-aid contract.

The Department applies small business preferences and non–small business preferences under Govt Code § 14835 et seq. and 2 CA Code of Regs § 1896 et seq.

Any contractor, subcontractor, supplier, or service provider who qualifies as a small business is encouraged to apply for certification as a small business by submitting its application to the Department of General Services, Office of Small Business and DVBE Services.

Contract award is based on the total bid, not the reduced bid.

### **2-1.18B Small Business Preference**

The Department allows a bidder certified as a small business by the Department of General Services, Office of Small Business and DVBE Services, a preference if:

1. Bidder submitted a completed Request for Small Business Preference or Non–Small Business Preference form with its bid
2. Low bidder did not request the preference or is not certified as a small business

The bidder's signature on the Request for Small Business Preference or Non–Small Business Preference form certifies that the bidder is certified as a small business at the date and time of bid or has submitted a complete application to the Department of General Services. The complete application and any required substantiating documentation must be received by the Department of General Services by 5:00 p.m. on the bid opening date.

The Department of General Services determines whether a bidder was certified on the bid opening date. The Department of Transportation confirms the bidder's status as a small business before applying the small business preference.

The small business preference is a reduction for bid comparison in the total bid submitted by the small business contractor by the lesser of the following amounts:

1. 5 percent of the verified total bid of the low bidder
2. \$50,000

If the Department determines that a certified small business bidder is the low bidder after the application of the small business preference, the Department does not consider a request for non–small business preference.

### **2-1.18C Non–Small Business Subcontractor Preference**

The Department allows a bidder not certified as a small business by the Department of General Services, Office of Small Business and DVBE Services, a preference if:

1. Bidder submitted a completed Request for Small Business Preference or Non–Small Business Preference form with its bid
2. Certified Small Business Listing for the Non–Small Business Preference form shows that you are subcontracting at least 25 percent to certified small businesses

Each listed subcontractor and supplier must be certified as a small business at the date and time of bid or must have submitted a complete application to the Department of General Services. The complete application and any required substantiating documentation must be received by the Department of General Services by 5:00 p.m. on the bid opening date.

The non–small business subcontractor preference is a reduction for bid comparison in the total bid submitted by the non–small business contractor requesting the preference by the lesser of the following amounts:

1. 5 percent of the verified total bid of the low bidder
2. \$50,000

**2-1.19–2-1.26 RESERVED**

**2-1.27 CALIFORNIA COMPANIES**

Section 2-1.27 applies to a non-federal-aid contract.

Under Pub Cont Code § 6107, the Department gives preference to a "California company," as defined, for bid comparison purposes over a nonresident contractor from any state that gives or requires a preference to be given to contractors from that state on its public entity construction contracts.

Complete a California Company Preference form.

The California company reciprocal preference amount is equal to the preference amount applied by the state of the nonresident contractor with the lowest responsive bid unless the California company is eligible for a small business preference or a non–small business subcontractor preference, in which case the preference amount is the greater of the two, but not both.

If the low bidder is not a California company and a California company's bid with reciprocal preference is equal to or less than the lowest bid, the Department awards the contract to the California company on the basis of its total bid.

**2-1.28 RESERVED**

**2-1.29 OPT OUT OF PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS**

You may opt out of the payment adjustments for price index fluctuations specified in section 9-1.07. To opt out, submit a completed Opt Out of Payment Adjustments for Price Index Fluctuations form under section 2-1.33.

**2-1.30–2-1.32 RESERVED**

**2-1.33 BID DOCUMENT COMPLETION AND SUBMITTAL**

Complete forms in the *Bid* book.

For a paper bid, submit your bid:

1. Under sealed cover
2. Marked as a bid
3. Identifying the contract number and the bid opening date



For an electronic bid, complete and submit the *Bid* book under the *Electronic Bidding Guide* at the Bidders' Exchange website.

Submit the forms and form information at the times shown in the following table:

<b>Bid Form Submittal Schedule</b>				
Contract type	Forms to be submitted at the time of bid	Forms to be submitted no later than 24 hours after bid opening <sup>a</sup>	Forms to be submitted no later than 4 p.m. on the 2nd business day after bid opening <sup>a</sup>	Forms to be submitted no later than 4 p.m. on the 4th business day after bid opening <sup>a</sup>
All contracts	<ul style="list-style-type: none"> <li>• Bid to the Department of Transportation</li> <li>• Business name and location; description of subcontracted work on the Subcontractor List</li> <li>• Opt Out of Payment Adjustments for Price Index Fluctuations<sup>c</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Bid item nos. and percentage of bid item subcontracted on the SubcontractorList<sup>b</sup></li> </ul>	--	--
Non-federal-aid contracts only	<ul style="list-style-type: none"> <li>• California Company Preference</li> <li>• Request for Small Business Preference or Non-Small Business Preference<sup>c</sup></li> </ul>	--	<ul style="list-style-type: none"> <li>• Certified Small Business Listing for the Non-Small Business Preference<sup>c</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Certified DVBE Summary<sup>d</sup></li> </ul>
Federal-aid contracts only	<ul style="list-style-type: none"> <li>• Small Business Status</li> </ul>	--	--	<ul style="list-style-type: none"> <li>• Caltrans Bidder - DBE - Commitment<sup>e</sup></li> <li>• Good Faith Efforts Documentation - DBE<sup>f</sup></li> </ul>

<sup>a</sup>The forms and information may be submitted at the time of bid.

<sup>b</sup>If the information is not submitted at the time of bid, fax it to (916) 227-6282. This after-bid submittal does not apply to an informal-bid contract. For an informal bid contract, submit the completed form at the time of bid.

<sup>c</sup>Applicable only if the preference or option is chosen.

<sup>d</sup>Not applicable to an informal-bid contract or a project with an estimated cost of more than \$5 million. For an informal bid contract, submit the completed form at the time of bid. For a project with an estimated cost of more than \$5 million, applicable only if you obtain DVBE participation or you are the apparent low bidder, 2nd low bidder, or 3rd low bidder and you choose to receive the specified incentive.

<sup>e</sup>If not submitted at the time of bid, applicable only to the apparent low bidder, 2nd low bidder, and 3rd low bidder.

<sup>f</sup>Applicable only if you have not met the DBE goal.

For an electronic bid:

1. Forms to be submitted at the time of bid must be submitted as described in the *Electronic Bidding Guide* or faxed to (916) 227-6282 before the bid opening date and time.
2. Your authorized digital signature is your confirmation of and agreement to all certifications and statements contained in the *Bid* book.
3. On forms and certifications that you submit through the electronic bidding service, you agree that each form and certification where a signature is required is deemed as having your signature. On forms that you submit after bid opening, sign the forms where a signature is required in ink.

Failure to submit the forms and information as specified results in a nonresponsive bid.

If an agent other than the authorized corporation officer or a partnership member signs the bid, file a Power of Attorney with the Department either before opening bids or with the bid. Otherwise, the bid may be nonresponsive.

#### **2-1.34 BIDDER'S SECURITY**

Submit one of the following forms of bidder's security equal to at least 10 percent of the bid:

1. Cash
2. Cashier's check
3. Certified check
4. Signed bidder's bond by an admitted surety insurer
5. For an electronic bid, electronic bidder's bond by an admitted surety insurer submitted using an electronic registry service approved by the Department.

Submit cash, cashier's check, certified check, or bidder's bond to the Department at the Bidders Exchange before the bid opening time.

Submit electronic bidder's bond with the electronic bid.

If using a bidder's bond, you may use the form in the *Bid* book. If you do not use the form in the *Bid* book, use a form containing the same information.

#### **2-1.35–2-1.39 RESERVED**

#### **2-1.40 BID WITHDRAWAL**

For a paper bid:

1. An authorized agent may withdraw a bid before the bid opening date and time by submitting a written bid withdrawal request at the location where the bid was submitted. Withdrawing a bid does not prevent you from submitting a new bid.
2. After the bid opening time, you cannot withdraw a bid.

For an electronic bid:

1. Bids are not filed with the Department until the date and time of bid opening.
2. A bidder may withdraw or revise a bid after it has been submitted to the electronic bidding service if this is done before the bid opening date and time.

#### **2-1.41–2-1.42 RESERVED**

#### **2-1.43 BID OPENING**

The Department publicly opens and reads bids at the time and place shown on the *Notice to Bidders*.

#### **2-1.44–2-1.45 RESERVED**

#### **2-1.46 DEPARTMENT'S DECISION ON BID**

The Department's decision on the bid amount is final.

The Department may reject:

1. All bids
2. A nonresponsive bid

#### **2-1.47 BID RELIEF**

The Department may grant bid relief under Pub Cont Code § 5100 et seq. Submit any request for bid relief to the Office Engineer. The Relief of Bid Request form is available at the Department's website.

#### **2-1.48 RESERVED**

#### **2-1.49 SUBMITTAL FAILURE HISTORY**

The Department considers a bidder's past failure to submit documents required after bid opening in determining a bidder's responsibility.



**Add to item 1 in the list in the 2nd paragraph of section 3-1.18:**

07-27-12

, including the attached form FHWA-1273

**Delete item 4 of the 2nd paragraph of section 3-1.18.**

10-19-12

^^

**5 CONTROL OF WORK**

11-15-13

**Add between "million" and ", professionally" in the 3rd paragraph of section 5-1.09A:**

10-19-12

and 100 or more working days

**Add to the list in the 4th paragraph of section 5-1.09A:**

10-19-12

9. Considering discussing with and involving all stakeholders in evaluating potential VECPs

**Add to the end of item 1.1 in the list in the 7th paragraph of section 5-1.09A:**

10-19-12

, including VECPs

**Replace the 1st paragraph of section 5-1.09C with:**

10-19-12

For a contract with a total bid over \$10 million and 100 or more working days, training in partnering skills development is required.

**Delete the 2nd paragraph of section 5-1.09C.**

10-19-12

**Replace "at least 2 representatives" in the 5th paragraph of section 5-1.09C with:**

10-19-12

field supervisory personnel

**Replace the 1st and 2nd sentences in the 7th paragraph of section 5-1.13B(1) with:**

06-20-12

If a DBE is decertified before completing its work, the DBE must notify you in writing of the decertification date. If a business becomes a certified DBE before completing its work, the business must notify you in writing of the certification date.

**Replace "90" in the last sentence of the 7th paragraph of section 5-1.13B(1) with:**

30

06-20-12

**Replace "Underutilized" in "Underutilized Disadvantaged Business Enterprises" in the heading of section 5-1.13B(2) with:**

Performance of

06-20-12

**Delete *U* in *UDBE* at each occurrence in section 5-1.13B(2).**

06-20-12

**Replace the 3rd paragraph of section 5-1.13B(2) with:**

06-20-12

Do not terminate or substitute a listed DBE for convenience and perform the work with your own forces or obtain materials from other sources without authorization from the Department.

**Replace item 6 in the list in the 4th paragraph of section 5-1.13B(2) with:**

6. Listed DBE is ineligible to work on the project because of suspension or debarment.

06-20-12

**Add to the list in the 4th paragraph of section 5-1.13B(2):**

06-20-12

8. Listed DBE voluntarily withdraws with written notice from the Contract.
9. Listed DBE is ineligible to receive credit for the type of work required.
10. Listed DBE owner dies or becomes disabled resulting in the inability to perform the work on the Contract.
11. Department determines other documented good cause.

**Add between the 4th and 5th paragraphs of section 5-1.13B(2):**

07-20-12

Notify the original DBE of your intent to use other forces or material sources and provide the reasons. Provide the DBE with 5 days to respond to your notice and advise you and the Department of the reasons why the use of other forces or sources of materials should not occur. Your request to use other forces or material sources must include:

1. 1 or more of the reasons listed in the preceding paragraph
2. Notices from you to the DBE regarding the request
3. Notices from the DBE to you regarding the request

**Add between "terminated" and ", you" in the 5th paragraph of section 5-1.13B(2):**

07-20-12

or substituted

**Replace the paragraphs of section 5-1.13C with:**

11-15-13

Section 5-1.13C applies to a non-federal-aid contract.

Use each DVBE as shown on the *Certified DVBE Summary* form unless you receive authorization from the Department for a substitution. The substitute must be another DVBE unless DVBEs are not available, in which case, you must substitute with a small business. Any authorization for a substitute is contingent upon the Department of General Services' approval of the substitute.

The requirement that DVBEs be certified by the bid opening date does not apply to DVBE substitutions after Contract award.

The Department authorizes substitutions for any of the reasons provided in 2 CA Code of Regs § 1896.73.

Include in your substitution request:

1. Copy of the written notice issued to the DVBE with proof of delivery
2. Copy of the DVBE's response to the notice
3. Name and certification number of the listed DVBE and the proposed substitute

Requests for substitutions of a listed DVBE with a small business must include documentation of the unavailability of DVBEs, including:

1. Contact with the small business/DVBE advocate from the Department and the Department of Veterans Affairs
2. Search results from the Department of General Services' website of available DVBEs
3. Communication with a DVBE community organization nearest the job site, if applicable
4. Documented communication with the DVBE and small businesses describing the work to be performed, the percentage of the total bid, the corresponding dollar amount, and the responses to the communication

The Department forwards your substitution request to the Department of General Services. The Department of General Services issues a notice of approval or denial. The Department provides you this notice.

If you fail to use a listed DVBE without an authorized substitution request, the Department issues a penalty of up to 10 percent of the dollar amount of the work of the listed DVBE.

Maintain records of subcontracts made with DVBEs. Include in the records:

1. Name and business address of each business
2. Total amount paid to each business

For the purpose of determining compliance with Pub Cont Code § 10115 et seq.:

1. Upon work completion, complete and submit *Final Report - Utilization of Disabled Veteran Business Enterprises (DVBE) State Funded Projects Only* form.
2. Upon reasonable notice and during normal business hours, permit access to its premises for the purposes of:
  - 2.1. Interviewing employees.
  - 2.2. Inspecting and copying books, records, accounts and other material that may be relevant to a matter under investigation.

**Replace "Reserved" in section 5-1.20C with:**

10-19-12

If the Contract includes an agreement with a railroad company, the Department makes the provisions of the agreement available in the *Information Handout* in the document titled "Railroad Relations and Insurance Requirements." Comply with the requirements in the document.

**Add between the 2nd and 3rd paragraphs of section 5-1.23A:**

Submit action and informational submittals to the Engineer.

10-19-12

**Add between the 5th and 6th paragraphs of section 5-1.23B(1):**

For a revised submittal, allow the same number of days for review as for the original submittal.

07-19-13

**Delete the 1st sentence in the 10th paragraph of section 5-1.23B(2).**

07-19-13

**Add to the list in the 1st paragraph of section 5-1.36A:**

10. Survey monuments

07-19-13

**Add to section 5-1.36C:**

If the Contract does not include an agreement with a railroad company, do not allow personnel or equipment on railroad property.

07-20-12

Prevent material, equipment, and debris from falling onto railroad property.

**Add to section 5-1.36:**

07-19-13

**5-1.36E Survey Monuments**

Protect survey monuments on and off the highway. Upon discovery of a survey monument not identified and located immediately:

1. Stop work near the monument
2. Notify the Engineer

Do not resume work near the monument until authorized.

**Add between the 1st and 2nd paragraphs of section 5-1.37A:**

Do not remove any padlock used to secure a portion of the work until the Engineer is present to replace it. Notify the Engineer at least 3 days before removing the lock.

10-19-12

**Replace the 1st sentence of the 1st paragraph of section 5-1.39C(2) with:**

Section 5-1.39C(2) applies if a plant establishment period of 3 years or more is shown on the *Notice to Bidders*.

10-19-12

Replace "working days" in the 1st paragraph of section 5-1.43E(1)(a) with:

original working days

10-19-12

^^

**6 CONTROL OF MATERIALS**

07-19-13

Replace section 6-2.05C with:

**6-2.05C Steel and Iron Materials**

04-19-13

Steel and iron materials must be melted and manufactured 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
- 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, materials produced outside the United States may be used if authorized

Furnish steel and iron materials to be incorporated into the work with certificates of compliance and certified mill test reports. Mill test reports must indicate where the steel and iron were melted and manufactured.

All melting and manufacturing processes for these materials, including an application of a coating, must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied.

Replace "Precast concrete members specified section 11-2" in the table in section 6-3.05B with:

Precast concrete members specified as tier 1 or tier 2 in section 90-4.01D(1)

07-19-13

^^

**7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC**

07-19-13

Replace "\$50" in the 1st sentence in the 6th paragraph of section 7-1.02K(2) with:

\$200

07-19-13

Replace "\$25" in the 2nd sentence in the 13th paragraph of section 7-1.02K(3) with:

\$100

07-19-13

Replace "20 days" in the 14th paragraph of section 7-1.04 with:

25 days

09-16-11



**Replace "90 days" in the 14th paragraph of section 7-1.04 with:**

09-16-11

125 days

**Add between the 18th and 19th paragraphs of section 7-1.04:**

09-16-11

Temporary facilities that could be a hazard to public safety if improperly designed must comply with design requirements described in the Contract for those facilities or, if none are described, with standard design criteria or codes appropriate for the facility involved. Submit shop drawings and design calculations for the temporary facilities and show the standard design criteria or codes used. Shop drawings and supplemental calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State.

**Replace the 2nd paragraph of section 7-1.11A with:**

07-27-12

A copy of form FHWA-1273 is included in section 7-1.11B. The training and promotion section of section II refers to training provisions as if they were included in the special provisions. The Department specifies the provisions in section 7-1.11D of the *Standard Specifications*. If a number of trainees or apprentices is required, the Department shows the number on the *Notice to Bidders*. Interpret each FHWA-1273 clause shown in the following table as having the same meaning as the corresponding Department clause:

**FHWA-1273 Nondiscrimination Clauses**

FHWA-1273 section	FHWA-1273 clause	Department clause
Training and Promotion	In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.	If section 7-1.11D applies, section 7-1.11D supersedes this subparagraph.
Records and Reports	If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.	If the Contract requires on-the-job training, collect and report training data.

**Replace the form in section 7-1.11B with:**

07-20-12

**REQUIRED CONTRACT PROVISIONS  
FEDERAL-AID CONSTRUCTION CONTRACTS**

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

**ATTACHMENTS**

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

**II. NONDISCRIMINATION**

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

**I. GENERAL**

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

2. Subject to the applicability criteria noted in the following sections, 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.

**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, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) 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 provisions of the Americans with 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 contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its 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, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program 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 minorities and women.

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 minorities and women 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 minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women 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, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such 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 insure 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 its 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 their avenues of appeal.

**6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

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. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

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 employees who are minorities and women 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 good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 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 good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith 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 contracting agency 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 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 qualified minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. 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 contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar

with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. 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. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

**10. Assurance Required by 49 CFR 26.13(b):**

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor 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 contracting agency deems appropriate.

**11. 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 the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours 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; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency 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](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

### III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

### IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

#### 1. Minimum wages

a. All laborers and mechanics 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 issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions

of paragraph 1.d. of this section; also, 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 29 CFR 5.5(a)(4). 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. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) 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.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), 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 Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The 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.

(3) In the event the contractor, the laborers or mechanics to be employed in the 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. The Wage and Hour 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.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. 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 shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as 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.

## 2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor 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, so 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 contracting agency 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.

## 3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents 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. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) 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 shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each 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 Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) 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 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, 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 FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action 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.

#### 4. Apprentices and trainees

##### a. Apprentices (programs of the USDOL).

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 U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or 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 Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen 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 worker 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 on 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 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's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

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 journeymen 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 determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

##### b. Trainees (programs of the USDOL).

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 U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman 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 wage rate on the wage determination which provides for less than full fringe benefits for apprentices. 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.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor 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. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. 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.

**5. Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

**6. Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

**7. Contract termination; debarment.** A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

**8. Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

**9. Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 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 U.S. Department of Labor, or the employees or their representatives.

**10. Certification of eligibility.**

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

**V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT**

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

**1. Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

**2. Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the 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 or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

**3. Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor 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 (2.) of this section.

**4. Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.



## VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

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 contracting agency. 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 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased 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 or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

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 or propose 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 VI 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 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 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 contracting agency has assured that each subcontract is

evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

## VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

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 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. 3704).

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.3704).

## VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

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 regarding the seriousness of these and similar acts, Form FHWA-1022 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:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of 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 under this title or imprisoned not more than 5 years or both."

#### **IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT**

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

#### **X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

##### **1. Instructions for Certification – First Tier Participants:**

- a. By signing and submitting this proposal, the prospective first tier 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 first tier 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 first tier 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 contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier 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," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first 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 entering into this transaction.

g. The prospective first tier 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 Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.

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 is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective 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.

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## **2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:**

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-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;

(3) 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 (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective 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 Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

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," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers to any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

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 exceeding the \$25,000 threshold.

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 is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.

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 Participants:**

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 participating in covered transactions 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.

\*\*\*\*\*

**XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING**

This provision is 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 its bid or proposal that the participant 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.

^^

**8 PROSECUTION AND PROGRESS**

10-19-12

**Replace "working days" in the 1st paragraph of section 8-1.02B(1) with:**

10-19-12

original working days

**Replace "working days" at each occurrence in the 1st paragraph of section 8-1.02C(1) with:**

10-19-12

original working days

**Delete the 4th paragraph of section 8-1.02C(1).**

04-20-12

**Replace "Contract" in the 9th paragraph of section 8-1.02C(1) with:**

10-19-12

work

**Replace the 1st paragraph of section 8-1.02C(3)(a) with:**

04-20-12

Submit a description of your proposed schedule software for authorization.

**Delete the last paragraph of section 8-1.02C(3)(a).**

04-20-12

**Replace section 8-1.02C(3)(b) with:**

10-19-12

**8-1.02C(3)(b) Reserved**

**Delete the 3rd paragraph of section 8-1.02C(5).**

04-20-12

**Replace "Contract" in the last paragraph of section 8-1.02C(5) with:**

10-19-12

original

**Replace "working days" in the 1st paragraph of section 8-1.02D(1) with:**

10-19-12

original working days

**Replace "8-1.02D(1)" in the 2nd paragraph of section 8-1.02D(1) with:**

01-20-12

8-1.02C(1)

**Replace "Contract" in the 3rd paragraph of section 8-1.02D(2) with:**

10-19-12

work

**Replace "Contract" in item 9 in the list in the 4th paragraph of section 8-1.02D(4) with:**

10-19-12

work

**Replace "Contract completion" in the 4th paragraph of section 8-1.02D(6) with:**

10-19-12

work completion

**Replace "Contract working days" in the 4th paragraph of section 8-1.02D(6) with:**

10-19-12

original working days

**Delete items 1.3 and 1.4 in the list in the 1st paragraph of section 8-1.02D(10).**

04-20-12

**Replace the last paragraph of section 8-1.04B with:**

10-19-12

The Department does not adjust time for starting before receiving notice of Contract approval.

**Replace the 1st paragraph of section 8-1.05 with:**

10-19-12

Contract time starts on the last day specified to start job site activities in section 8-1.04 or on the day you start job site activities, whichever occurs first.

**Replace the 2nd paragraph of section 8-1.05 with:**

10-19-12

Complete the work within the Contract time.

**Delete "unless the Contract is suspended for reasons unrelated to your performance" in the 4th paragraph of section 8-1.05.**

10-19-12

**Replace the headings and paragraphs in section 8-1.06 with:**

10-19-12

The Engineer may suspend work wholly or in part due to conditions unsuitable for work progress. Provide for public safety and a smooth and unobstructed passageway through the work zone during the suspension as specified under sections 7-1.03 and 7-1.04. Providing the passageway is force account work. The Department makes a time adjustment for the suspension due to a critical delay.

The Engineer may suspend work wholly or in part due to your failure to (1) fulfill the Engineer's orders, (2) fulfill a Contract part, or (3) perform weather-dependent work when conditions are favorable so that weather-related unsuitable conditions are avoided or do not occur. The Department may provide for a

smooth and unobstructed passageway through the work during the suspension and deduct the cost from payments. The Department does not make a time adjustment for the suspension.

Upon the Engineer's order of suspension, suspend work immediately. Resume work when ordered.

**Replace the 1st sentence in the 1st paragraph of section 8-1.07B with:**

For a critical delay, the Department may make a time adjustment.

10-19-12

**Add to the end of section 8-1.07C:**

The Department does not make a payment adjustment for overhead incurred during non-working days that extend the Contract into an additional construction season.

10-19-12

**Replace the 1st paragraph of section 8-1.07C with:**

For an excusable delay that affects your costs, the Department may make a payment adjustment.

10-19-12

**Replace "8-1.08B and 8-1.08C" in the 1st paragraph of section 8-1.10A with:**

8-1.10B and 8-1.10C

08-05-11

**Replace section 8-1.10D with:**

**8-1.10D Reserved**

10-19-12

^^

**9 PAYMENT**

11-15-13

**Add to the list in the 1st paragraph of section 9-1.03:**

- 3. Any royalties and costs arising from patents, trademarks, and copyrights involved in the work

07-19-13

**Replace item 1 in the 3rd paragraph of section 9-1.03 with:**

- 1. Full compensation for all work involved in each bid item shown on the Bid Item List by the unit of measure shown for that bid item

01-18-13

**Replace "in" in the 3rd paragraph of section 9-1.04A with:**

for

10-19-12

**Add to the end of section 9-1.04A:**

10-19-12

For nonsubcontracted work paid by force account for a contract with a TRO bid item, the markups are those shown in the following table instead of those specified in sections 9-1.04B–D:

Cost	Percent markup
Labor	30
Materials	10
Equipment rental	10

**Delete ", Huntington Beach," in the 3rd paragraph of section 9-1.07A.**

04-20-12

**Replace the formula in section 9-1.07B(2) with:**

$$Qh = HMATT \times Xa$$

04-20-12

**Replace "weight of dry aggregate" in the definition of the variable  $Xa$  in section 9-1.07B(2) with:**

total weight of HMA

04-20-12

**Replace the formula in section 9-1.07B(3) with:**

$$Qrh = RHMATT \times 0.80 \times Xarb$$

04-20-12

**Replace "weight of dry aggregate" in the definition of the variable  $Xarb$  in section 9-1.07B(3) with:**

total weight of rubberized HMA

04-20-12

**Replace the heading of section 9-1.07B(4) with:**

**Hot Mix Asphalt with Modified Asphalt Binder**

04-20-12

**Add between "in" and "modified" in the introductory clause of section 9-1.07B(4):**

HMA with

04-20-12

**Replace the formula in section 9-1.07B(4) with:**

$$Qmh = MHMATT \times [(100 - Xam) / 100] \times Xmab$$

04-20-12

**Replace "weight of dry aggregate" in the definition of the variable  $Xmab$  in section 9-1.07B(4) with:**

total weight of HMA

04-20-12



**Replace the formula in section 9-1.07B(5) with:**

04-20-12

$$Qrap = HMATT \times Xaa$$

**Replace "weight of dry aggregate" in the definitions of the variables *Xaa* and *Xfa* in section 9-1.07B(5) with:**

04-20-12

total weight of HMA

**Add after the variable definitions in section 9-1.07B(9):**

04-20-12

The quantity of extender oil is included in the quantity of asphalt.

**Replace the headings and paragraphs in section 9-1.11 with:**

10-19-12

**9-1.11A General**

Section 9-1.11 applies if a bid item for time-related overhead is included in the Contract. If a bid item for time-related overhead is included, you must exclude the time-related overhead from every other bid item price.

**9-1.11B Payment Quantity**

The TRO quantity does not include the number of working days to complete plant establishment work.

For a contract with a TRO lump sum quantity on the Bid Item List, the Department pays you based on the following conversions:

1. LS unit of measure is replaced with WDAY
2. Lump sum quantity is replaced with the number of working days bid
3. Lump sum unit price is replaced with the item total divided by the number of working days bid

**9-1.11C Payment Inclusions**

Payment for the TRO bid item includes payment for time-related field- and home-office overhead for the time required to complete the work.

The field office overhead includes time-related expenses associated with the normal and recurring construction activities not directly attributed to the work, including:

1. Salaries, benefits, and equipment costs of:
  - 1.1. Project managers
  - 1.2. General superintendents
  - 1.3. Field office managers
  - 1.4. Field office staff assigned to the project
2. Rent
3. Utilities
4. Maintenance
5. Security
6. Supplies
7. Office equipment costs for the project's field office

The home-office overhead includes the fixed general and administrative expenses for operating your business, including:

1. General administration

2. Insurance
3. Personnel and subcontract administration
4. Purchasing
5. Accounting
6. Project engineering and estimating

Payment for the TRO bid item does not include payment for:

1. The home-office overhead expenses specifically related to:
  - 1.1. Your other contracts or other businesses
  - 1.2. Equipment coordination
  - 1.3. Material deliveries
  - 1.4. Consultant and legal fees
2. Non-time-related costs and expenses such as mobilization, licenses, permits, and other charges incurred once during the Contract
3. Additional overhead involved in incentive/disincentive provisions to satisfy an internal milestone or multiple calendar requirements
4. Additional overhead involved in performing additional work that is not a controlling activity
5. Overhead costs incurred by your subcontractors of any tier or suppliers

#### **9-1.11D Payment Schedule**

For progress payments, the total work completed for the TRO bid item is the number of working days shown for the pay period on the *Weekly Statement of Working Days*.

For progress payments, the Department pays a unit price equal to the lesser of the following amounts:

1. Price per working day as bid or as converted under section 9-1.11B.
2. 20 percent of the total bid divided by the number of original working days

For a contract without plant establishment work, the Department pays you the balance due of the TRO item total as specified in section 9-1.17B.

For a contract with plant establishment work, the Department pays you the balance due of the TRO item total in the 1st progress payment after all non-plant establishment work is completed.

#### **9-1.11E Payment Adjustments**

The 3rd paragraph of section 9-1.17C does not apply.

The Department does not adjust the unit price for an increase or decrease in the TRO quantity except as specified in section 9-1.11E.

Section 9-1.17D(2)(b) does not apply except as specified for the audit report below.

If the TRO bid item quantity exceeds 149 percent of the quantity shown on the Bid Item List or as converted under section 9-1.11B, the Engineer may adjust or you may request an adjustment of the unit price for the excess quantity. For the adjustment, submit an audit report within 60 days of the Engineer's request. The report must be prepared as specified for an audit report for an overhead claim in section 9-1.17D(2)(b).

Within 20 days of the Engineer's request, make your financial records available for an audit by the State for the purpose of verifying the actual rate of TRO described in your audit. The actual rate of TRO described is subject to the Engineer's authorization.

The Department pays the authorized actual rate for TRO in excess of 149 percent of the quantity shown on the Bid Item List or as converted under section 9-1.11B.

The Department pays for 1/2 the cost of the report; the Contractor pays for the other 1/2. The cost is determined under section 9-1.05.

**Replace the paragraphs of section 9-1.16D with:**

07-19-13

**9-1.16D(1) General**

Section 9-1.16D applies if a bid item for mobilization is shown on the Bid Item List.

Payments for mobilization made under section 9-1.16D are in addition to the partial payments made under Pub Cont Code § 10261.

Section 9-1.16D(2) applies unless the Contract includes a special provision for section 9-1.16D(1) that specifies section 9-1.16D(3) applies.

11-15-13

**9-1.16D(2) Mobilization for Projects Except for Those Over Water Requiring Marine Access**

07-19-13

The Department makes partial payments for mobilization under Pub Cont Code § 10264(a) except the amount of work completed does not include the amount earned for mobilization. The partial payment amount is reduced by a prorated amount bid in excess of the maximum allowed under Pub Cont Code § 10264(a)(5).

The Department pays the item total for mobilization in excess of the maximum allowed under Pub Cont Code § 10264(a)(5) in the 1st payment after Contract acceptance.

**9-1.16D(3) Mobilization for Projects Over Water Requiring Marine Access**

The Department makes partial payments for mobilization under Pub Cont Code § 10264(b) except the amount of work completed does not include the amount earned for mobilization. The partial payment amount is reduced by a prorated amount bid in excess of the maximum allowed under Pub Cont Code § 10264(b)(6).

The Department pays the item total for mobilization in excess of the maximum allowed under Pub Cont Code § 10264(b)(6) in the 1st payment after Contract acceptance.

10-19-12

**Delete "revised Contract" in item 1 of the 1st paragraph of section 9-1.16E(2).**

**Replace "2014" in the 1st paragraph of section 9-1.16F with:**

10-19-12

2020

**Replace the 2nd paragraph of section 9-1.17C with:**

10-19-12

Submit either a written acceptance of the proposed final estimate or a claim statement postmarked or hand delivered before the 31st day after receiving the proposed final estimate.

**Add between "the" and "final estimate" in the 1st sentence in the 3rd paragraph of section 9-1.17C:**

10-19-12

proposed

**Replace the 1st sentence in the 6th paragraph of section 9-1.17D(2)(b) with:**

07-19-13

The CPA's audit must be performed as an examination-level engagement under the attestation engagements in the *Government Auditing Standards* published by the Comptroller General of the United States.

AA

**DIVISION II GENERAL CONSTRUCTION**

**10 GENERAL**

04-19-13

Replace the headings and paragraphs in section 10 with:

04-19-13

**10-1 GENERAL**

**10-1.01 GENERAL**

Section 10 includes general specifications for general construction work.

**10-1.02 WORK SEQUENCING**

Before obliterating any traffic stripes, pavement markings, and pavement markers to be replaced at the same location, reference the stripes, markings, and markers. Include limits and transitions with control points to reestablish the new stripes, markings, and markers.

**10-1.03 TIME CONSTRAINTS**

Reserved

**10-1.04 TRAINING AND MEETINGS**

Training and meetings are held at times and locations you and the Engineer agree to.

**10-1.05–10-1.10 RESERVED**

**10-2 SUSTAINABLE DESIGN REQUIREMENTS**

**10-2.01 GENERAL**

**10-2.01A General**

Reserved

**10-2.01B–10-2.01H Reserved**

**10-2.02 CALGREEN TIER 1**

**10-2.02A–10-2.02H Reserved**

**10-2.03 LEED**

**10-2.03A–10-2.03H Reserved**

**10-3–10-5 RESERVED**

**10-6 JOB SITE WATER CONTROL**

**10-6.01 GENERAL**

Section 10-6 includes specifications for controlling water to provide a dry working area at the job site.

**10-6.02 WATER-FILLED COFFERDAM**

Reserved

**10-6.03–10-6.10 RESERVED**

**10-7–10-20 RESERVED**

AA

# 11 QUALITY CONTROL AND ASSURANCE

07-19-13

Replace section 11-2 with:

07-19-13

**11-2 RESERVED**

Replace the table in the 3rd paragraph of section 11-3.01A with:

07-19-13

AWS code	Year of adoption
D1.1	2010
D1.3	2008
D1.4	2011
D1.5	2010
D1.6	2007
D1.8	2009

Replace "does" in the definition of "continuous inspection" in section 11-3.01B with:

07-19-13

do

Replace "gross nonconformance" and its definition in section 11-3.01B with:

07-19-13

**gross nonconformance:** Rejectable indications are present in more than 20 percent of the tested weld length.

Replace the introductory clause in the 1st paragraph of section 11-3.01C with:

07-19-13

Replace clause 6.1.3 of AWS D1.1, the 1st paragraph of clause 7.1.2 of AWS D1.4, and clause 6.1.2 of AWS D1.5 with:

Replace the 3rd paragraph of section 11-3.01C with:

07-19-13

For each inspection, including fit-up, WPS verification, and final weld inspection, the QC Inspector must confirm and document compliance with the specifications, AWS welding codes, and any referenced drawings.

Replace the paragraphs in section 11-3.01D with:

07-19-13

The Engineer has the authority to verify the qualifications or certifications of any welder, QC Inspector, or NDT personnel to specified levels by retests or other means determined by the Engineer. If welding will be performed without gas shielding, then qualification must also include welding without gas shielding.

Replace clause 6.14.6.1 of AWS D1.1, clause 7.8 of AWS D1.4, and clause 6.1.3.4 of AWS D1.5 with:

Personnel performing NDT must be qualified and certified under 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 must comply with 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 must be one of the following:

1. Certified NDT Level II technicians
2. Level III technicians certified to perform the work of Level II technicians

**Replace the heading and the 1st through 3rd paragraphs of section 11-3.01E with:**

07-19-13

**11-3.01E Weld Joint Details**

If weld joint details proposed for use in the work are not prequalified under clause 3 of AWS D1.1 or figure 2.4 or 2.5 of AWS D1.5, submit the proposed WPS and the intended weld joint locations.

Upon authorization of the proposed joint detail locations and qualification of the proposed joint details, welders and welding operators using these details must weld an additional qualification test plate using the WPS variables and the weld joint detail to be used in production. The test plate must:

1. Have the maximum thickness to be used in production and a minimum length of 18 inches.
2. Be mechanically and radiographically tested. Mechanical and radiographic testing and acceptance criteria must comply with the applicable AWS codes.

If a nonprequalified weld joint configuration is proposed using a combination of WPSs for work welded under AWS D1.1, you may conduct a single test combining the WPSs to be used in production, if the essential variables, including weld bead placement, of each process are limited to those established in table 4.5 of AWS D1.1.

**Replace the 1st paragraph of section 11-3.01F with:**

07-19-13

Replace paragraph 3 of clause 6.26.3.2 of AWS D1.5 with:

3. If indications that exhibit these planar characteristics are present at scanning sensitivity, or other evidence exists to suggest the presence of transverse cracks, a more detailed evaluation of the discontinuity by other means must be performed (e.g., alternate UT techniques, RT, grinding, or gouging for visual inspection or MT of the excavated areas.). For welds that have transverse cracks, excavate the full length of the crack plus 2 inches of weld metal on each side adjacent to the crack and reweld.

**Replace "section" in the 2nd paragraph of section 11-3.01F with:**

07-19-13

clause

**Replace the 1st paragraph of section 11-3.02A with:**

07-19-13

Except for stud welding, section 11-3.02 applies to (1) work welded under sections 49, 52, 55, and 75-1.03E and (2) work in section 99 that must comply with an AWS welding code.

**Replace the 4th through 6th paragraphs of section 11-3.02C(2) with:**

07-19-13

Submit an amended welding QC plan or an addendum to the welding QC plan for any changes to:

1. WPSs
2. NDT firms
3. QC personnel or procedures

4. NDT personnel or procedures
5. Systems for tracking and identifying welds
6. Welding personnel

Allow 15 days for the Engineer's review of an amended welding QC plan or an addendum to the welding QC plan.

Submit 7 copies of each authorized QC plan and any authorized addendums. Make 1 copy available at each location where work is performed.

**Replace the 1st paragraph of section 11-3.02C(3) with:**

07-19-13

Submit a welding report within 7 days following the performance of any welding. The welding report must include:

1. Daily production log for welding for each day that welding is performed
2. Reports of all visual weld inspections and NDT performed, whether specified, additional, or informational
3. Radiographs and radiographic reports, and other required NDT reports
4. Summary of welding and NDT activities that occurred during the reporting period
5. Reports of each application of heat straightening
6. Summarized log listing the rejected lengths of weld by welder, position, process, joint configuration, and piece number
7. Documentation that you have:
  - 7.1. Evaluated all radiographs and radiograph reports and NDT and NDT reports
  - 7.2. Corrected all rejectable deficiencies and that all repaired welds have been reexamined using the required NDT and found acceptable
8. Reports or chart recordings of each application of any stress relieving used
9. Reports and chart recordings for any electroslag welding used

**Add between "radiographic" and "envelopes" in the introductory clause in the 3rd paragraph of section 11-3.02C(3):**

07-19-13

film

**Delete the 3rd sentence in the 5th paragraph of section 11-3.02C(3).**

07-19-13

**Replace the introductory clause in the 1st paragraph of section 11-3.02D with:**

07-19-13

Clauses 6.1.4.1 and 6.1.4.3 of AWS D1.1, the 2nd paragraph of clause 7.1.2 of AWS D1.4, clauses 6.1.3.1 through 6.1.3.3 of AWS D1.5, and clause 7.2.3 of AWS D1.8 are replaced with:

**Replace items 1 and 2 in the list in the 2nd paragraph of section 11-3.02D with:**

07-19-13

1. Work is welded at a permanent fabrication or manufacturing plant that is certified under the AISC Certification Program for Steel Bridge Fabricators, Intermediate Bridges, and Fracture-Critical Member endorsement if required.
2. Structural steel for building construction work is performed at a permanent fabrication or manufacturing plant that is certified under the AISC Quality Certification Program, Category STD, Standard for Steel Building Structures.

07-19-13

**Delete the 3rd paragraph of section 11-3.02D.**

**Replace the 1st sentence in the 4th paragraph of section 11-3.02D with:**

07-19-13

Except for the exempt facilities identified above, an authorized independent third party must witness the qualification tests for welders or welding operators.

**Replace the paragraph in section 11-3.02F with:**

07-19-13

Welding procedures qualification for work welded under AWS D1.5 must comply with clause 5.12 or 5.12.4 of AWS D1.5 and the following:

1. Unless considered prequalified, qualify fillet welds in each position. Conduct the fillet weld soundness test using the essential variables of the WPS as established by the PQR.
2. For qualifying joints that do not comply with figures 2.4 and 2.5 of AWS D1.5, conduct the test complying with figure 5.3 using the welding parameters that were established for the test conducted complying with figure 5.1.
3. Macroetch tests are required for WPS qualification tests, and acceptance must comply with clause 5.19.3 of AWS D1.5.
4. If a nonstandard weld joint is to be made using a combination of WPSs, you may conduct a test under figure 5.3, combining the qualified or prequalified WPSs to be used in production, if the essential variables, including weld bead placement, of each process are limited to those established in table 5.3 of AWS D1.5.
5. Before preparing mechanical test specimens, inspect the PQR welds by visual and radiographic tests. The backing bar must be 3 inches in width and must remain in place during NDT. Results of the visual and radiographic tests must comply with clause 6.26.2 of AWS D1.5 excluding clause 6.26.2.2. All other requirements for clause 5.17 are applicable.

**Add to the list in the 3rd paragraph of section 11-3.02G:**

07-19-13

3. Repairs not included in the welding QC plan

**Replace the 1st sentence of the 4th paragraph of section 11-3.02G with:**

07-19-13

Requests to perform 3rd-time excavations, repairs of cracks, or repairs not included in the welding QC plan must include an engineering evaluation.

^^

**12 TEMPORARY TRAFFIC CONTROL**

07-19-13

**Replace the 1st paragraph of section 12-3.01A(4) with:**

10-19-12

Category 2 temporary traffic control devices must be on FHWA's list of acceptable, crashworthy Category 2 hardware for work zones. This list is available on FHWA's Safety Program Web site.



**Replace "project" in the 4th paragraph of section 12-3.02C with:**

10-19-12

work

**Add after "Display" in item 4 in the list in the 2nd paragraph of section 12-3.03B:**

04-19-13

or Alternating Diamond

**Replace "project" in the 3rd paragraph of section 12-3.07C with:**

10-19-12

work

**Add to section 12-3:**

07-19-13

**12-3.18 AUTOMATED WORK ZONE INFORMATION SYSTEM**

Reserved

**12-3.19–12-3.25 RESERVED**

**Replace the 7th through 9th paragraphs of section 12-4.02A with:**

07-19-13

If pedestrian traffic is allowed to pass through construction areas, provide a temporary pedestrian facility through the construction areas within the highway. Include protective overhead covering as necessary to ensure protection from falling objects and drippings from overhead structures.

At locations where pedestrian openings through falsework are required, provide a temporary pedestrian facility with protective overhead covering during all bridge construction activities.

Temporary pedestrian facilities must comply with section 12-7.

If an activity requires a closure of a walkway, another walkway must be made available nearby, off of the traveled way.

07-19-13

**Delete the 12th paragraph of section 12-4.02A.**

**Replace section 12-4.03 with:**

07-19-13

**12-4.03 CLOSURE SCHEDULES AND CONDITIONS**

**12-4.03A General**

Submit closure schedule requests and closure schedule amendments using LCS to show the locations and times of the requested closures.

The Department provides LCS training. Request the LCS training at least 30 days before submitting the 1st lane closure request. The Department provides the training within 15 days after your request. The training may be web based.

Except for web-based training, the training is held at a time and location you and the Engineer agree to.

For web-based training, the Engineer provides you the website address to access the training.

Within 5 business days after completion of the training, the Department provides LCS accounts and user identifications to your assigned, trained representatives.

Each representative must maintain a unique password and current user information in the LCS.

#### **12-4.03B Closure Schedules**

Every Monday by noon, submit a closure schedule request of planned closures for the next week period. The next week period is defined as Sunday noon through the following Sunday noon.

Submit a closure schedule request not less than 25 days and not more than 125 days before the anticipated start of any activity that reduces:

1. Horizontal clearances of traveled ways, including shoulders, to 2 lanes or less due to activities such as temporary barrier placement and paving
2. Vertical clearances of traveled way, including shoulders, due to activities such as pavement overlays, overhead sign installation, falsework, or girder erection

Submit closure schedule amendments, including adding additional closures, by noon at least 3 business days before a planned closure.

Cancel closure requests using LCS at least 48 hours before the start time of the closure.

You will be notified through LCS of unauthorized closures or closures that require coordination with other parties as a condition for authorization.

The Engineer may reschedule a closure cancelled due to unsuitable weather.

If a closure is not opened to traffic by the specified time, suspend work. No further closures are allowed until the Engineer has reviewed and authorized a work plan submitted by you that ensures that future closures will be opened to traffic by the specified time. Allow 2 business days for review of your proposed work plan. The Department does not compensate you for your losses due to the suspension of work resulting from the late opening of closures.

Notify the Engineer of delays in your activities caused by:

1. Your closure schedule request being denied although your requested closures are within the specified time frame allowed for closures. The Department does not compensate you for your losses due to amendments to the closure schedule that are not authorized.
2. Your authorized closure being denied.

If you are directed to remove a closure before the time designated in the authorized closure schedule, you will be compensated for the delay.

#### **12-4.03C Contingency Plan**

Section 12-4.03C applies if a contingency plan is specified in the special provisions or if a contingency plan is requested.

If a contingency plan is requested, submit the contingency plan within 1 business day of the request.

The contingency plan must identify the activities, equipment, processes, and materials that may cause a delay in the opening of a closure to traffic. The plan must include:

1. List of additional or alternate equipment, materials, or workers necessary to ensure continuing activities and on-time opening of closures if a problem occurs. If the additional or alternate equipment, materials, or workers are not on site, specify their location, the method for mobilizing these items, and the required time to complete mobilization.
2. General time-scaled logic diagram displaying the major activities and sequence of planned operations. For each activity, identify the critical event when the contingency plan will be activated.

Based on the Engineer's review, additional materials, equipment, workers, or time to complete activities from that specified in the contingency plan may be required.

Submit revisions to a contingency plan at least 3 business days before starting the activity requiring a contingency plan. Allow 2 business days for review of the revised contingency plan.

**Replace section 12-7 with:**

07-19-13

### **12-7 TEMPORARY PEDESTRIAN FACILITIES**

#### **12-7.01 GENERAL**

Section 12-7 includes specifications for constructing temporary pedestrian facilities.

Temporary pedestrian facilities must comply with the *California MUTCD*, Part 6, Chapter 6D, "Pedestrian and Worker Safety."

Design temporary pedestrian facilities with protective overhead covering to support all imposed loads.

The design load and maximum allowable stresses for temporary pedestrian facilities with protective overhead covering must comply with section 48-2.01D(3). The minimum design live load for the temporary pedestrian facilities with protective overhead covering must be 150 psf for the entire structure.

The minimum width of the temporary pedestrian facilities with protective overhead covering between the inside face of handrails must be 60 inches. The clear height of the temporary pedestrian facilities with protective overhead covering measured from the floor surface to the canopy overhead must be at least 8 feet. Provide adequate lighting at all times. Lighting must comply with section 86-6.13.

Submit shop drawings with supporting calculations for temporary pedestrian facilities with protective overhead covering. Shop drawings and calculations must be signed by an engineer who is registered as a civil engineer in the State.

#### **12-7.02 MATERIALS**

Walkways must be surfaced with HMA, portland cement concrete, or wood. The surface must be skid resistant and free of irregularities.

Hand railings must be S4S lumber and painted white.

Protective overhead covering of temporary pedestrian facilities must be plywood at least 3/4 inch thick or wood planking with a nominal thickness of 2 inches minimum.

#### **12-7.03 CONSTRUCTION**

Construct hand railings on each side of a temporary pedestrian facility as necessary to protect pedestrian traffic from hazards due to work activities or adjacent vehicular traffic.

Maintain temporary pedestrian facilities in good condition and keep them clear of obstructions.

#### **12-7.04 PAYMENT**

Not Used

^^

## **13 WATER POLLUTION CONTROL**

11-15-13

04-19-13

**Delete item 3 in the list in the 4th paragraph of section 13-1.01A.**

**Add to section 13-1.01A:**

11-15-13

Comply with the Department's general permit issued by the State Water Resources Control Board for *Order No. 2012-0011-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)*. The Department's general permit governs stormwater and nonstormwater discharges from the Department's properties, facilities, and activities. The Department's general permit may be viewed at the Web site for the State Water Resources Control Board, Storm Water Program, Caltrans General Permit.

**Add to the list in the 1st paragraph of section 13-1.01D(3)(b):**

10-21-11

3. Have completed SWRCB approved QSD training and passed the QSD exam

**Add to the list in the 2nd paragraph of section 13-1.01D(3)(b):**

10-21-11

3. Have completed SWRCB approved QSP training and passed the QSP exam

**Replace "NEL violation" in item 3.6.2 in the list in the 1st paragraph of section 13-1.01D(3)(c) with:**

04-19-13

receiving water monitoring trigger

**Replace the 1st paragraph in section 13-2.01B with:**

04-19-13

Within 7 days after Contract approval, submit 2 copies of your WPCP for review. Allow 5 business days for review.

After the Engineer authorizes the WPCP, submit an electronic copy and 3 printed copies of the authorized WPCP.

If the RWQCB requires review of the authorized WPCP, the Engineer submits the authorized WPCP to the RWQCB for its review and comment. If the Engineer orders changes to the WPCP based on the RWQCB's comments, amend the WPCP within 3 business days.

**Replace the 1st paragraph in section 13-3.01B(2)(a) with:**

04-19-13

Within 15 days of Contract approval, submit 3 copies of your SWPPP for review. The Engineer provides comments and specifies the date when the review stopped if revisions are required. Change and resubmit a revised SWPPP within 15 days of receiving the Engineer's comments. The Department's review resumes when a complete SWPPP has been resubmitted.

When the Engineer authorizes the SWPPP, submit an electronic copy and 4 printed copies of the authorized SWPPP.

If the RWQCB requires review of the authorized SWPPP, the Engineer submits the authorized SWPPP to the RWQCB for its review and comment. If the Engineer requests changes to the SWPPP based on the RWQCB's comments, amend the SWPPP within 10 days.

**Replace "NELs" in item 3.1 in the 3rd paragraph of section 13-3.01B(2)(a) with:**

04-19-13

receiving water monitoring triggers

**Replace section 13-3.01B(6)(c) with:**

04-19-13

**13-3.01B(6)(c) Receiving Water Monitoring Trigger Report**

Whenever a receiving water monitoring trigger is exceeded, notify the Engineer and submit a receiving water monitoring trigger report within 48 hours after conclusion of a storm event. The report must include:

1. Field sampling results and inspections, including:
  - 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 from the storm event
2. Description of BMPs and corrective actions

**Replace "NEL" in the 6th paragraph of section 13-3.01C(1) with:**

04-19-13

receiving water monitoring trigger

**Replace section 13-3.01C(3) with:**

04-19-13

**13-3.01C(3) Receiving Water Monitoring Trigger**

For a risk level 3 project, receiving water monitoring triggers must comply with the values shown in the following table:

<b>Receiving Water Monitoring Trigger</b>				
Parameter	Test method	Detection limit (min)	Unit	Value
pH	Field test with calibrated portable instrument	0.2	pH	Lower limit = 6.0 Upper limit = 9.0
Turbidity	Field test with calibrated portable instrument	1	NTU	500 NTU max

The storm event daily average for storms up to the 5-year, 24-hour storm must not exceed the receiving water monitoring trigger for turbidity.

The daily average sampling results must not exceed the receiving water monitoring trigger for pH.

04-19-13

**Delete "and NELs are violated" in the 3rd paragraph of section 13-3.03C.**

**Replace "working days" at each occurrence in section 13-3.04 with.**

10-19-12

original working days

**Delete the 1st sentence in the 2nd paragraph of section 13-4.03C(3).**

04-19-13

**Add between the 2nd and 3rd paragraphs of section 13-4.03C(3):**

04-19-13

Manage stockpiles by implementing water pollution control practices on:

1. Active stockpiles before a forecasted storm event
2. Inactive stockpiles according to the WPCP or SWPPP schedule

**Replace the paragraph in section 13-4.04 with:**

Not Used

04-20-12

**Replace "20-7.02D(6)" in section 13-5.02C with:**

20-5.03E

07-19-13

**Delete "or stockpile" in the 3rd paragraph of section 13-5.02F.**

10-19-12

**Replace "20-7.03I(10)" in section 13-5.03C with:**

20-5.03E(3)

07-19-13

**Replace section 13-5.03F with:**

**13-5.03F Reserved**

04-20-12

**Delete "or stockpile" in item 1 in the list in the 1st paragraph of section 13-5.03K.**

10-19-12

**Delete the 3rd paragraph of section 13-5.03K.**

10-19-12

**Replace the 2nd sentence in the 1st paragraph of section 13-9.01A with:**

You may use any of the following systems for temporary concrete washout:

10-19-12

1. Temporary concrete washout facility
2. Portable temporary concrete washout
3. Temporary concrete washout bin

**Replace the 2nd paragraph of section 13-9.01B with:**

Retain and submit an informational submittal for records of disposed concrete waste.

10-19-12

**Delete the 4th paragraph of section 13-9.01B.**

10-19-12

**Delete "if authorized" in the 1st sentence in the 1st paragraph of section 13-9.02A.**

10-19-12

**Replace "at least 3-inch" in the 3rd sentence in the 1st paragraph of section 13-9.02A with:**

6-inch

10-19-12

^^

**15 EXISTING FACILITIES**

07-19-13

**Replace section 15-1.03D with:**

**15-1.03D Reserved**

07-19-13

**Replace "metal beam guard railing" in the 1st paragraph of section 15-2.01C with:**

guardrail

07-19-13

**Replace the paragraphs of section 15-2.02B(1) with:**

07-19-13

Section 15-2.02B includes specifications for removing pavement, base, subbase, and subgrade.

If only a portion of the pavement is removed, saw-cut the outline of the removal area on a neat line and with a power-driven saw before removing.

For asphalt concrete pavement, saw cuts must be at least 2 inches deep unless otherwise described.

**Replace section 15-2.02B(4)(b) with:**

07-19-13

**15-2.02B(4)(b) Reserved**

**Add to section 15-2.02B:**

07-19-13

**15-2.02B(5) Remove Concrete Pavement**

**15-2.02B(5)(a) General**

Remove only the portion of pavement to be replaced or repaired during the same lane closure. If there is overlying material on the concrete pavement, remove it with the pavement.

Do not impact the surface within 18 inches of the pavement to remain in place. Use removal methods that do not damage the remaining pavement and base. Slab-lifting equipment must attach to the pavement.

Instead of disposing of removed concrete pavement by removing it from the job site, you may dispose of it under section 15-3.01.

**15-2.02B(5)(b) Saw Cuts**

Saw cut using a diamond blade and make cuts perpendicular to the pavement surface. Saw cutting is not required where concrete pavement is adjacent to asphalt concrete pavement.

Saw cut (1) no more than 2 days before removing pavement and (2) such that traffic will not dislodge any pavement piece or segment. Saw cut perpendicular to the traveled way except you may cut parallel or diagonal to the traveled way when removing the pavement during the same lane closure as the saw cutting.

You may make additional saw cuts within the sawed outline.

Saw cuts must be the full depth of the pavement unless otherwise shown.

Saw cut at longitudinal and transverse joints to remove entire slabs. For partial-slab areas, the Engineer determines the exact saw-cut locations.

**15-2.02B(5)(c) Reserved**

**15-2.02B(6) Reserved**

**15-2.02B(7) Payment**

Reserved

**Replace section 15-2.02G with:**

07-19-13

**15-2.02G Remove Guardrail**

Where removing guardrail, remove any concrete anchors and steel foundation tubes.

**Replace the 1st paragraph of section 15-2.02K with:**

07-19-13

Box culverts, concrete pipes, inlets, headwalls, and endwalls must be completely removed if any portion of these structures is (1) within 3 feet of the grading plane in excavation areas, (2) within 1 foot of original ground in embankment areas, or (3) shown to be removed.

**Replace "Metal beam guard railing" in the table in the 2nd paragraph of section 15-2.03A(2)(a) with:**

07-19-13

Guardrail

**Replace the heading of section 15-2.03B with:**

07-19-13

**Salvage Guardrail**

**Replace the heading of section 15-2.04D with:**

07-19-13

**Reconstruct Guardrail**

**Replace section 15-2.09D with:**

07-19-13

**15-2.09D Reserved**



**Replace the 4th paragraph of section 15-2.10B with:**

01-18-13

Instead of using new materials similar in character to those in the existing structure, you may use raising devices to adjust a manhole to grade. Before starting paving work, measure and fabricate raising devices. Raising devices must:

1. Comply with the specifications for section 75 except that galvanizing is not required
2. Have a shape and size that matches the existing frame
3. Be match marked by painting identification numbers on the device and corresponding structure
4. Result in an installation that is equal to or better than the existing one in stability, support, and nonrocking characteristics
5. Be fastened securely to the existing frame without projections above the surface of the road or into the clear opening

**Replace the heading of section 15-2.10D with:**

07-19-13

**Adjust Guardrail**

**Replace the paragraphs of section 15-3.01 with:**

07-19-13

Section 15-3 includes specifications for removing all or a portion of a concrete facility.

Concrete facilities include curbs, gutters, gutter depressions, sidewalks, driveways, slope paving, island paving, barriers, retaining walls, sound walls, minor structures, aprons, spillways, and dams.

Where broken-concrete slope protection is shown, use removed concrete for the construction of the broken-concrete slope protection.

Instead of disposing of removed concrete by removing it from the job site, you may dispose of it on the job site by one of the following methods:

1. Burying it in embankments at authorized locations. Removed concrete must be broken into pieces that can be readily handled and incorporated into embankments and placed at a depth of at least 3 feet below finished grade and slope lines. Concrete must not be buried in areas where piling is to be placed or within 10 feet of trees, pipelines, poles, buildings or other permanent objects or structures.
2. Placing it at authorized locations. The removed concrete must not present an unsightly appearance from the highway.

**Replace the paragraph of section 15-3.02 with:**

07-19-13

Not Used

**Delete the 5th paragraph of section 15-3.03.**

07-19-13

**Add to the end of section 15-4.01A(2):**

04-19-13

Allow 20 days for review of the bridge removal work plan.

**Replace the 1st paragraph of section 15-5.01C(1) with:**

10-19-12

Before starting deck rehabilitation activities, complete the removal of any traffic stripes, pavement markings, and pavement markers.

**Replace the 2nd and 3rd paragraphs of section 15-5.01C(2) with:**

10-19-12

Perform the following activities in the order listed:

1. Abrasive blast the deck surface with steel shot. Perform abrasive blasting after the removal of any unsound concrete and placement of any rapid setting concrete patches.
2. Sweep the deck surface.
3. Blow the deck surface clean using high-pressure air.

**Replace the 2nd paragraph of section 15-5.01C(4) with:**

10-19-12

Before removing asphalt concrete surfacing, verify the depth of the surfacing at the supports and midspans of each structure (1) in each shoulder, (2) in the traveled way, and (3) at the roadway crown, if a crown is present.

**Delete "and concrete expansion dams" in the 3rd paragraph of section 15-5.01C(4).**

04-19-13

**Replace the 2nd paragraph of section 15-5.03A(2) with:**

10-19-12

For a contract with less than 60 original working days, submit certificates of compliance for the filler material and bonding agents.

**Replace "51-1.02C" in the 1st paragraph of section 15-5.03B with:**

04-19-13

51-1.02F

**Replace the 4th paragraph of section 15-5.03B with:**

10-19-12

For a contract with less than 60 original working days, alternative materials must be authorized before use.

**Add between the 5th and 6th paragraphs of section 15-5.03C:**

10-19-12

The final surface finish of the patched concrete surface must comply with section 51-1.03F.

**Delete the 4th paragraph of section 15-5.05C.**

10-19-12

**Replace "51-1.03F(5)" in the 3rd paragraph of section 15-5.06C(1) with:**

51-1.01D(4)(b)

07-19-13

**Replace "51-1.03E(5)" in the 5th paragraph of section 15-5.06C(1) with:**

51-1.03F(5)

10-19-12

**Delete the 9th paragraph of section 15-5.06C(1).**

10-19-12

**Delete the 15th paragraph of section 15-5.06C(1).**

04-19-13

**Add between the 18th and 19th paragraphs of section 15-5.06C(1):**

Texture the polyester concrete surface before gelling occurs by longitudinal tining under 51-1.03F(5)(b)(iii), except do not perform initial texturing.

07-19-13

**Replace section 15-5.06C(2) with:**

**15-5.06C(2) Reserved**

04-19-13

**Delete the 3rd paragraph of section 15-5.06D.**

04-19-13

**Replace the 1st paragraph in section 15-5.07B(4) with:**

Payment for furnishing dowels is not included in the payment for core and pressure grout dowel.

10-19-12

**Replace section 15-5.09 with:**

04-19-13

**15-5.09 POLYESTER CONCRETE EXPANSION DAMS**

**15-5.09A General**

Section 15-5.09 includes specifications for constructing polyester concrete expansion dams.

Polyester concrete expansion dams must comply with the specifications for polyester concrete overlays in section 15-5.06, except a trial slab is not required.

Reinforcement must comply with section 52.

**15-5.09B Materials**

Not Used

**15-5.09C Construction**

For new asphalt concrete overlays, place the asphalt concrete overlay before starting polyester concrete activities. Saw cut and remove asphalt concrete at expansion dam locations.

For existing asphalt concrete overlays, remove expansion dams and asphalt concrete to the limits shown. Removing expansion dams must comply with section 15-4 except a bridge removal work plan is not required.

Where a portion of the asphalt concrete overlay is to remain, saw cut a 2-inch-deep neat line along the edge to remain in place before removing the asphalt concrete. Do not damage the existing surfacing to remain in place.

Prepare the deck surface under section 15-5.01C(2).

You may use a mechanical mixer to mix the polyester concrete for expansion dams. The mixer capacity must not exceed 9 cu ft unless authorized. Initiate the resin and thoroughly blend it immediately before mixing it with the aggregate. Mix the polyester concrete for at least 2 minutes before placing.

The application rate of methacrylate resin must be approximately 100 sq ft/gal.

You may place and finish expansion dams using hand methods.

Protect expansion dams from moisture, traffic, and equipment for at least 4 hours after finishing.

For expansion dams over 6 feet long, install 1/4-inch-wide joint material at 6-foot intervals across the width of the expansion dam. Joint material must be either expanded polyurethane or expanded polyethylene.

**15-5.09D Payment**

Not Used

**Add to section 15-6.01A(3)(a):**

07-19-13

Within 5 days of completing annular space grouting at a culvert, submit the grouting records.

**Replace "41-1.01" in item 10.3 in the list in the 2nd paragraph of section 15-6.01A(3)(d) with:**

07-19-13

41-2

**Replace "41-1.02" in 1st paragraph of section 15-6.01B(2) with:**

07-19-13

41-2

**Replace the heading of section 15-6.04 with:**

01-18-13

**INVERT PAVING**

**Replace the 1st paragraph of section 15-6.13A(1) with:**

07-19-13

Section 15-6.13 includes specifications for installing machine spiral wound PVC pipeliners directly into the culvert.

**Replace the heading of section 15-6.13B with:**

07-19-13

**Machine Spiral Wound PVC Pipeliners, Grouted**

AA

**DIVISION III GRADING**  
**16 CLEARING AND GRUBBING**

07-19-13

**Replace "20-3.03B(4)" in the 3rd paragraph of section 16-1.01 with:**

20-2.02C(2)

07-19-13

**Replace "20-1.03D" in the 2nd paragraph of section 16-1.03B with:**

20-3.01C(2)

07-19-13

AA

**19 EARTHWORK**

07-19-13

**Replace "20-3.03B(4)" in the 2nd paragraph of section 19-1.01A with:**

20-2.02C(2)

07-19-13

**Replace the 3rd paragraph in section 19-2.01A with:**

Pavement removal within the limits of roadway excavation must comply with section 15-2.02B.

07-19-13

**Delete the 2nd paragraph in section 19-2.03A.**

07-19-13

**Replace the 2nd paragraph of section 19-3.01A(2)(b) with:**

For cofferdams on or affecting railroad property, allow 85 days for review.

07-01-11

**Add to the list in the 1st paragraph of section 19-3.01A(2)(d):**

9. Provisions for discontinuous rows of soil nails

01-20-12

**Replace "sets" in the 3rd and 4th paragraphs of section 19-3.01A(2)(d) with:**

copies

04-19-13

**Add to section 19-3.01A(3)(b):**

For soil nail walls, wall zones are specified in the special provisions.

01-20-12

For ground anchor walls, a wall zone is the entire wall unless otherwise specified in the special provisions.

**Delete the 2nd sentence in the 4th paragraph of section 19-3.01A(3)(b).**

01-20-12

**Replace "90" in the paragraph of section 19-3.02G with:**

90-1

01-18-13

**Add to section 19-3.02:**

**19-3.02I Filter Fabric**

Filter fabric must be Class A.

07-19-13

**Replace the heading of section 19-3.03C with:**

**19-3.03B(4) Cofferdams**

04-19-13

**Replace the heading of section 19-3.03D with:**

**19-3.03B(5) Water Control and Foundation Treatment**

04-19-13

**Replace the 1st paragraph of section 19-3.03E(3) with:**

Compact structure backfill behind lagging of soldier pile walls by hand tamping, mechanical compaction, or other authorized means.

01-20-12

**Add to the end of section 19-3.03E(3):**

If filter fabric is shown behind the lagging:

07-19-13

1. Immediately before placing the filter fabric, remove any loose or extraneous material and sharp objects from the surface to receive the filter fabric.
2. Handle and place the filter fabric under the manufacturer's instructions. Stretch, align, and place the fabric without wrinkling.
3. Stitch the adjacent borders of filter fabric or overlap the adjacent borders by 12 to 18 inches. If stitching the border, use yarn of a contrasting color. Yarn size and composition must be as recommended by the fabric manufacturer. Use 5 to 7 stitches per inch of seam.
4. Repair any damaged filter fabric by placing a piece of filter fabric large enough to cover the damaged area and comply with the overlapping or stitching requirements.

**Replace the 2nd paragraph of section 19-3.03F with:**

Do not backfill over or place material over slurry cement backfill until 4 hours after placement. When concrete sand is used as aggregate and the in-place material is free draining, you may start backfilling as soon as the surface water is gone.

01-20-12

**Add between the 2nd and 3rd paragraphs of section 19-3.03K:**

01-20-12

Before you excavate for the installation of ground anchors in a wall zone:

1. Complete stability testing
2. Obtain authorization of test data

**Replace the 2nd sentence of the 7th paragraph of section 19-3.03K:**

01-20-12

Stop construction in unstable areas until remedial measures have been taken. Remedial measures must be submitted and authorized.

**Add between the 8th and 9th paragraphs of section 19-3.03K:**

01-20-12

When your excavation and installation methods result in a discontinuous wall along any soil nail row, the ends of the structurally completed wall section must extend beyond the ends of the next lower excavation lift by a distance equal to twice the lift height. Maintain temporary slopes at the ends of each wall section to ensure slope stability.

**Replace the 9th paragraph of section 19-3.03K:**

01-20-12

Do not excavate to the next underlying excavation lift until the following conditions have been attained for the portion of the soil nail or ground anchor wall in the current excavation lift:

1. Soil nails or ground anchors are installed and grouted.
2. Reinforced shotcrete facing is constructed.
3. Grout and shotcrete have cured for at least 72 hours.
4. Specified tests are complete for that portion of wall and the results are authorized.
5. Soil nail facing anchorages are attached or ground anchors are locked off.

01-18-13

01-20-12

**Replace the 2nd sentence in the 7th paragraph of section 19-3.04 with:**

01-18-13

Structure excavation more than 0.5 foot from the depth shown is paid for as a work-character change if you request an adjustment or the Engineer orders an adjustment.

**Replace "Contract completion time" in the 8th paragraph of section 19-6.03D with:**

10-19-12

work completion date

**Add to section 19:**

01-18-13

**19-10-19-20 RESERVED**

AA

## 20 LANDSCAPE

11-15-13

Replace the headings and paragraphs in section 20 with:

07-19-13

### 20-1 GENERAL

#### 20-1.01 GENERAL

##### 20-1.01A Summary

Section 20-1 includes general specifications for performing landscaping.

If an irrigation system is to be installed in an existing planting area to be maintained, check for plant deficiencies under section 20-3.02A(4) before starting irrigation work.

Perform a functional test for each irrigation system under 20-2.01A(4)(d):

1. Before planting the plants
2. After planting the plants
3. Before the start of the plant establishment work

If a plant is to be transplanted or an irrigation component is to be relocated, transplant plant or protect irrigation components before performing other construction activities in the area.

Perform roadside clearing:

1. As required to prepare the job site for construction work
2. Until the start of the plant establishment work or Contract acceptance, whichever comes first

##### 20-1.01B Definitions

Reserved

##### 20-1.01C Submittals

At least 15 days before applying any pesticide, submit a copy of the licensed pest control adviser's recommendation.

At the end of each week, submit a report documenting the application of all pesticides as an informational submittal. Use form *Report of Chemical Spray Operations*.

Before mixing a pesticide, submit a copy of the registered label for the pesticide as an informational submittal. If unable to copy, allow the Engineer to read the label on the container.

##### 20-1.01D Quality Control and Assurance

###### 20-1.01D(1) General

Obtain a recommendation from a licensed pest control adviser for the use of all pesticides under the Food & Agri Code. The recommendation must include the pesticides to be used, rates of application, methods of application, and application areas.

The pesticide applicator must have an active and valid qualified applicator license or certificate from the Department of Pesticide Regulation.

###### 20-1.01D(2) Progress Inspections

The Engineer will perform progress inspections before:

1. Cultivating work starts
2. Pressure testing of irrigation pipe on the supply side of control valves
3. Testing of low voltage conductors
4. Planting work starts
5. Completion of planting work



Notify the Engineer at least 4 business days before each inspection is required. Allow at least 3 business days for the Engineer's inspection.

Unless otherwise authorized, do not proceed with the next construction activity until the inspection has been completed and any required corrective work has been performed and authorized.

## **20-1.02 MATERIALS**

### **20-1.02A General**

Reserved

### **20-1.02B Water**

Water available from an existing Department-owned facility within the project limits or an irrigation system to be installed under the Contract is furnished at no charge.

If water is not available, make arrangements for supplying water. Water must be of a quality that will promote plant growth.

### **20-1.02C Pesticides**

Pesticides must comply with the Department of Pesticide Regulation.

Insecticide must be imidacloprid.

Rodenticides must be brodifacoum, bromadiolone, or diphacinone.

Do not use oil or pelleted forms of pesticides for weed control.

For weed control, use a pesticide with a photosensitive dye that produces a contrasting color when sprayed on the ground. The color must disappear between 2 to 3 days after being applied. The dye must not stain surfaces or injure plants or wildlife when applied at the manufacturer's recommended application rate.

## **20-1.03 CONSTRUCTION**

### **20-1.03A General**

Take precautions to prevent irrigation water from:

1. Wetting vehicles, pedestrians, and pavement
2. Eroding soil

Dispose of removed, pruned, and damaged vegetative material.

You may reduce removed vegetative material to chips with a maximum thickness of 1/2 inch and spread within the job site at locations determined by the Engineer. Chipped material must not be substituted for wood mulch, nor must the chipped material be placed within areas to receive wood mulch.

### **20-1.03B Pesticides**

Notify the Engineer of pesticide application times at least 24 hours before each application.

Mix and apply pesticides under the requirements of the Department of Pesticide Regulation and the instructions on the pesticide product label.

Do not apply pesticides:

1. On Saturdays and holidays unless authorized
2. Whenever weather and wind conditions are unsuitable for application
3. Within the plant basin
4. On the foliage and woody parts of the plant

If a granular preemergent is used, it must be covered with mulch on the same work day. Do not apply granular preemergent in plant basins.

Do not apply preemergents:

1. To groundcover plants before the plants have been planted a minimum of 3 days and have been thoroughly watered
2. Within 18 inches of trees, shrubs, and seeded areas

### **20-1.03C Roadside Clearing**

#### **20-1.03C(1) General**

Perform roadside clearing by:

1. Removing and disposing of trash and debris
2. Controlling the following pests:
  - 2.1. Rodents
  - 2.2. Insects
  - 2.3. Weeds
3. Removing existing plants as described

Control rodents by using rodenticides or traps.

#### **20-1.03C(2) Remove Existing Plants**

Remove existing plants as described. Removal of existing plants includes removing their stumps and roots 2 inches or larger in diameter to a minimum depth of 12 inches below finished grade. Backfill holes resulting from stump removal to finished grade with material obtained from adjacent areas.

If a plant is to be planted within existing groundcover area, remove existing groundcover from within an area 6 feet in diameter centered at each plant location.

#### **20-1.03C(3) Weed Control**

Control weeds by the use of pesticides, hand pulling, or mowing.

If pesticides are used to control weeds, apply pesticides before the weeds reach the seed stage of growth or exceed 4 inches in length, whichever occurs first. Do not use pesticides at cutting plant locations.

Where cuttings are to be planted, control weeds by hand pulling within an area 2 feet in diameter centered at each plant location.

If weeds are to be controlled by hand pulling, hand pull weeds before they reach the seed stage of growth or exceed 4 inches in length, whichever occurs first.

Where liner, plug, or seedling plants are to be planted 10 feet or more apart, control weeds by the use of pesticides or hand pulling within an area 2 feet in diameter centered at each plant location. Where liner, plug, or seedling plants are to be planted less than 10 feet apart, control weeds by the use of pesticides within the entire area.

Control weeds by mowing outside of mulched areas, plant basins, groundcover areas, and within areas to be seeded. Mowing must extend to the edges of pavement, dikes, curbs, sidewalks, walls, and fences.

If mowing is to be performed within areas to be seeded, perform mowing as needed until the start of the seeding operation specified in section 21.

Mowing must be performed before the weeds reach the seed stage of growth or exceed 6 inches in length, whichever occurs first. Mow weeds to a height of 3 inches.

#### **20-1.03C(4) Disposal of Removed Groundcover, Weeds, and Mowed Material**

Dispose of hand pulled weeds the same day they are pulled. Dispose of removed groundcover within 3 days.

Dispose of mowed material from the initial mowing. Disposal of material from subsequent mowing is not required.

#### **20-1.03D Cultivation**

Cultivation must be by mechanical methods and performed until the soil is in a loose condition to a minimum depth of 6 inches. Soil clods must not be larger than 2 inches in maximum dimension after cultivation.

The areas to be cultivated must extend 12 inches beyond the outer limit of each planting area requiring cultivation.

After initial cultivation, place soil amendment and fertilizer at specified rates.

Recultivate to thoroughly mix native soil and amendments.

Do not drive on cultivated areas after cultivation.

Planting areas that have been cultivated and become compacted must be recultivated.

Rocks and debris encountered during soil preparation in planting areas must be brought to the surface of the ground.

Remove rocks and debris as ordered. This work is change order work.

### **20-1.03E Weed Germination**

Reserved

### **20-1.04 PAYMENT**

Items paid for by area are measured parallel to the ground surface.

Planting areas that do not require cultivation but are within the cultivation areas will not be deducted.

## **20-2 IRRIGATION**

### **20-2.01 GENERAL**

#### **20-2.01A General**

##### **20-2.01A(1) Summary**

Section 20-2 includes specifications for installing irrigation systems.

The irrigation systems shown are diagrammatic.

##### **20-2.01A(2) Definitions**

Reserved

##### **20-2.01A(3) Submittals**

###### **20-2.01A(3)(a) General**

Submit shop drawings for the electrical components of the irrigation system except electrical service 30 days before installation. The drawings must:

1. Include schematic wiring diagrams showing wire sizes and routes between electrical components
2. Show conduit sizes
3. Bear the written approval of the controller manufacturer or the manufacturer's authorized agent
4. Be accompanied by:
  - 4.1. Colored wire and splice samples
  - 4.2. Manufacturer's descriptive and technical literature

After the work shown on the drawing is complete, submit 3 copies of the as-built shop drawings including any wire modifications for each controller installed.

For each controller, laminate and place in an envelope 1 copy of:

1. As-built schematic wiring diagram including wiring modifications
2. 11 by 17 inches as-built irrigation plan

The laminate must be clear, mat-finished plastic that is at least 10 mils thick. The envelope must be heavy-duty plastic.

Attach the envelope to the inside of the controller enclosure or cabinet door. If the door is not large enough to secure the envelope, submit the envelope and its contents.

### **20-2.01A(3)(b) Manufacturer's Instructions**

Submit as an informational submittal the manufacturer's installation instructions 15 days before installing:

1. Couplings for conduits used for irrigation conduits
2. Plastic pipe and fittings
3. Solvent cement for plastic pipe and flexible hose
4. Sprinklers
5. Flow sensors

### **20-2.01A(3)(c) Maintenance and Operation Manuals**

Before Contract acceptance, submit as an informational submittal a manufacturer's maintenance and operation manual for each type of controller installed.

### **20-2.01A(4) Quality Control and Assurance**

#### **20-2.01A(4)(a) General**

Reserved

#### **20-2.01A(4)(b) Pressure Testing**

##### **20-2.01A(4)(b)(i) General**

Perform pressure testing for leakage on irrigation supply lines:

1. In the Engineer's presence
2. On business days between 8 a.m. and 5 p.m. unless authorized
3. Before backfilling supply line trenches
4. With irrigation system gate valves open
5. With open ends of the supply line and fittings plugged or capped

Notify the Engineer at least 48 hours before performing a pressure test.

Choose either Method A or B to test supply lines installed by trenching and backfilling and supply lines that are completely visible after installation.

All other supply lines, including those installed in the ground by methods other than trenching and backfilling must be tested by Method A.

Test irrigation supply line in conduit by Method A with the testing period modified to 0.5 hour and no allowable pressure drop.

##### **20-2.01A(4)(b)(ii) Method A**

Method A pressure testing procedures for leakage must comply with the following:

1. Pressure gauge must be calibrated from 0 to 200 psi in 5 psi increments and be accurate to within a tolerance of 2 psi.
2. Supply line must be filled with water and connected to a pressure gauge. Place the pipeline under a pressure of 125 psi. Remove the source of pressure and leave the line under the required pressure.
3. Test the supply line under the required pressure for a period of 1 hour. The pressure gauge must remain in place until each test period is complete.
4. Leaks that develop in the tested portion of the system must be located and repaired after each test period if a drop of more than 5 psi is indicated by the pressure gauge. After the leaks have been repaired, repeat the 1 hour pressure test until the drop in pressure is 5 psi or less.

If a system consists of a new supply line connected to an existing line, the new supply line must be isolated from the existing line and tested.

##### **20-2.01A(4)(b)(iii) Method B**

Method B pressure testing procedures for leakage must comply with the following:

1. Before any portion of the supply line on the upstream side of a control valve is backfilled, water must be turned on for that portion of the line and maintained at full pressure from the water source for a period not less than 8 consecutive hours after all air has been expelled from the line. Before any

portion of the supply line on the downstream side of the control valve is backfilled, perform the same test for a period not less than 1 hour.

2. Repair leaks that develop in the tested portion of the system. After the leaks have been repaired, repeat the pressure test until no leaks occur as determined by the Engineer.

#### **20-2.01A(4)(c) Sprinkler Coverage Check**

After installation of the sprinklers, check and adjust the entire sprinkler system for proper orientation and uniform coverage.

#### **20-2.01A(4)(d) Irrigation System Functional Tests**

The functional tests for each irrigation controller or group of controllers and associated irrigation system served by a single electric service point must consist of at least 1 complete cycle of operation. The Engineer determines the length of the cycle.

Notify the Engineer at least 10 days before performing each functional test.

#### **20-2.01A(4)(e) Final Irrigation System Check**

Perform the final check of the existing and new irrigation system between 20 and 30 days before Contract acceptance. The Engineer determines the length of the cycle.

Remote control valves connected to existing and new irrigation controllers must be checked for automatic operation when the controllers are in automatic mode.

#### **20-2.01B Materials**

##### **20-2.01B(1) General**

Use minor concrete for replacing removed concrete facilities.

HMA for replacing removed asphalt concrete surfacing and facilities must comply with section 39. You may use minor HMA if authorized.

##### **20-2.01B(2) Garden Valves**

Each garden valve must:

1. Be inverted nose type and of brass or bronze construction with female thread inlet
2. Have a replaceable seat washer, rising valve stem within a protective collar, and male thread hose outlet
3. Have a loose key handle

##### **20-2.01B(3) Recycled Water Identification**

Irrigation components used for recycled water must be manufactured or painted purple. Recycled water irrigation pipe and tubing must have a permanent label with the wording "CAUTION RECYCLED WATER" every 24 inches in 2 rows spaced approximately 180 degrees apart in the longitudinal direction of the pipe or tubing.

The recycled water warning sign must be a decal or a decal attached to a 1/16-inch thick aluminum plate or tag.

Each warning sign decal must:

1. Show the phrase "Recycled Water, Do Not Drink" and the drinking glass graphic symbol
2. Be UV fade and weather resistant and manufactured from flexible vinyl with or without mylar
3. Have a purple background, black text, and self-adhesive backing

Each warning tag must:

1. Show the phrase "RECYCLED WATER" and the drinking glass graphic symbol
2. Be UV fade and weather resistant
3. Be purple, double-sided, and manufactured from polyurethane
4. Have an integral neck attachment and attachment hole capable of withstanding 178 lb of pull-out resistance
5. Have hot-stamped black lettering

Posts and hardware for warning signs must comply with section 56-4.

Concrete sprinkler protectors used with recycled water must be painted purple.

#### **20-2.01B(4) Location Markers**

Location markers must be schedule 40 white PVC plastic pipe.

#### **20-2.01B(5) Pull Boxes**

Pull boxes must comply with section 86-2.06 and be no. 5 or larger unless otherwise shown. Pull boxes for low voltage conductors must not have side openings.

Pull box covers used solely for irrigation electrical service must be marked "IRRIGATION".

#### **20-2.01B(6) Unions**

Unions must be brass or malleable iron capable of withstanding the maximum required working pressure.

#### **20-2.01B(7) Valve Boxes and Covers**

Valve boxes must be precast concrete.

Covers must be:

1. Concrete, steel, or cast iron.
2. Marked "WATER" in cast-in letters not less than 1 inch high.
3. 1 piece, except 2 pieces are required when the weight of the valve box cover exceeds 35 lb.

The valve box covers must include a polyurethane label with the appropriate controller letter and station number as shown.

#### **20-2.01B(8) Wye Strainers**

Wye strainers must:

1. Have a cast iron or all bronze body
2. Have a removable stainless steel strainer screen:
  - 2.1. With an open area equal to at least 3 times the cross-sectional area of the pipe based on an iron pipe size
  - 2.2. With 40-mesh woven wire, except:
    - 2.2.1. For a backflow preventer assembly, the screen must be 20-mesh woven wire mesh or perforated sheet with 0.045-inch diameter holes
    - 2.2.2. For a valve assembly, the screen must be 80-mesh woven wire mesh
3. Be capable of withstanding a working pressure of 150 psi
4. Be equipped with a garden valve at the outlet

The wye strainer filter housing must:

1. Withstand a working pressure of 150 psi
2. Be manufactured of reinforced polypropylene plastic

#### **20-2.01C Construction**

##### **20-2.01C(1) General**

Repair irrigation systems within 24 hours after a malfunction or damage occurs.

Connect underground metallic pipes, valves, or fittings made of dissimilar metals through a dielectric coupling or bushing.

You may install conduits, conductors, and supply lines by methods other than trenching provided that they are not damaged and are installed at the depths specified.

##### **20-2.01C(2) Trenching and Backfilling**

Trench and backfill under section 86-2.01.

Remove plants under 20-1.03C as necessary to perform trenching. If plants are to remain, adjust trench alignment to minimize damage.

If removal of:

1. Turf is required, remove to a maximum width of 12 inches.
2. Groundcover is required, remove to a maximum width of 6 feet. Existing *Carpobrotus* and *Delosperma* may be rototilled if the backfill for the trenches does not contain plants longer than 6 inches in length.

Make a 2-inch deep sawcut along neat lines around the perimeter of the pavement to be removed at locations determined by the Engineer.

The trench must have uniform bearing throughout the entire length and must be free of jagged rubble or sharp objects. Ensure conduit, supply line, and joints are not moved or damaged by backfill operations.

For a project with multiple water service points, excavate and backfill trenches for 1 service point at a time.

11-15-13

Trenches for irrigation supply lines and conduits 3 inches and larger must be 5 times the pipe or conduit diameter deep and 2 times the pipe or conduit diameter wide.

Trenches for irrigation supply lines and conduits 2-1/2 inches or less in diameter must be a minimum of 12 inches below finished grade, measured from the top of the installed pipe.

07-19-13

Trenches must be at least 4 feet from curbs, dikes, and paved shoulders.

Rocks and debris encountered during trenching operations must be brought to the surface of the ground. Remove rocks and debris as ordered. This work is change order work.

If trenching requires the removal of plants, in areas with:

1. Turf, replace turf with sod under section 20-3.03C(3)(e).
2. Groundcover, replace groundcover plants from flats and plant at 12 inches on center under section 20-3.03C. No replacement of *Carpobrotus* and *Delosperma* is required if removed by rototilling.

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Where existing surfacing is removed, replace the structural section to match the materials removed. Replacement concrete must be of uniform smoothness, color, and texture equal to the adjacent concrete surface. Dispose of removed material. Install supply line and conduits at the bottom of trenches and backfill with sand to a depth of 2 inches over the top of the supply lines and conduits. Excluding the part of the trench backfilled with surfacing or pavement, the remainder of the trench must be backfilled with material that is excavated from the trench. Rock, broken concrete, asphalt concrete and other particles larger than 2 inches in greatest dimension must not be used.

07-19-13

### **20-2.01C(3) Pull Boxes**

Install pull boxes under section 86-2.06 at the following locations:

1. At all conductor splices except splices made in valve boxes
2. Within 5 feet of irrigation controllers
3. At ends of electrical conduits
4. At other locations shown

### **20-2.01C(4) Valve Boxes and Covers**

Install and identify each valve box as shown.

In walkways and paved areas, install the top of the valve box flush with the surrounding finished grade.

### **20-2.01C(5) Recycled Water Warning Signs**

Install recycled water warning signs on irrigation facilities using recycled water.

Install sign decals directly to clean, smooth surfaces. Clean the surface with alcohol or an equivalent cleaner before applying the decal.

Install a 4 by 4 inch warning sign decal to each:

1. Backflow preventer assembly
2. Irrigation controller enclosure cabinet door

Install a 2 by 2 inch warning tag to the each remote control valve and valve box cover.

Install a 2-1/2 by 3 inches sign decal to each sprinkler riser.

Under local regulations, install a 12 by 12 inch warning sign decal on an aluminum plate and attach to gates, fences, and walls located in the vicinity of a recycled water irrigation system. On gates and fences, install signs with S hooks and C clips or 14-gauge galvanized steel wire. On concrete walls or other rough surfaces, install signs with a silicon-based adhesive.

#### **20-2.01C(6) Garden Valves**

Furnish 3 keys for each garden valve before Contract acceptance.

#### **20-2.01D Payment**

Not Used

### **20-2.02 EXISTING IRRIGATION FACILITIES**

#### **20-2.02A General**

##### **20-2.02A(1) Summary**

Section 20-2.02 includes specifications for checking, testing, operating, replacing, and relocating existing irrigation facilities.

##### **20-2.02A(2) Definitions**

Reserved

##### **20-2.02A(3) Submittals**

Submit a list of irrigation system deficiencies within 7 days after checking the existing facilities.

##### **20-2.02A(4) Quality Control and Assurance**

After irrigation facilities have been relocated, demonstrate in the presence of the Engineer that the relocated facilities function properly.

Certify each existing backflow preventer under section 20-2.03A(4).

#### **20-2.02B Materials**

Valve box covers must be the same size as the covers they replace.

Control and neutral conductors must be the same size and color as the control and neutral conductors they replace.

#### **20-2.02C Construction**

##### **20-2.02C(1) General**

Notify the Engineer at least 4 business days before shutting off the water supply to any portion of the existing irrigation system and immediately after restoring the water supply to any portion of the existing irrigation system.

If an irrigation facility to be relocated is determined unsuitable by the Engineer, replace irrigation facility under section 20-2. This work is change order work.

##### **20-2.02C(2) Check and Test Existing Irrigation Facilities**

Before performing irrigation system work, check existing irrigation facilities to remain in place or to be relocated. The Engineer determines the test watering cycle lengths. Check for deficiencies including missing parts, damaged components, and improper operation. Correct deficiencies as ordered. The correction of deficiencies is change order work.



### **20-2.02C(3) Operate Existing Irrigation Facilities**

If the Contract includes a bid item for operate existing irrigation facilities, after performing work under section 20-2.02C(2), operate existing irrigation facilities through Contract acceptance.

Operate existing irrigation facilities except for water meters, underground supply lines, control and neutral conductors, and electrical conduits.

Check for proper operation at least once every 30 days. Adjust, repair, or replace existing irrigation facilities within 7 days of finding any deficiency.

Operate irrigation systems using the automatic irrigation controller until Contract acceptance. You may operate irrigation controllers manually during plant replacement, fertilization, weed germination, and repair work.

Program the irrigation controllers for seasonal requirements.

### **20-2.02C(4) Replace Valve Box Covers**

Existing valve box covers shown to be replaced must remain in place until the new covers are ready to be installed.

Dispose of removed valve box covers.

### **20-2.02C(5) Relocate Backflow Preventer Assemblies**

Relocate backflow preventer assembly as shown and install under section 20-2.03C.

### **20-2.02C(6) Relocate Water Meters**

Relocate water meter as shown.

### **20-2.02C(7) Relocate Irrigation Controllers**

Relocate irrigation controller as shown and install under section 20-2.07C.

### **20-2.02D Payment**

Not Used

## **20-2.03 BACKFLOW PREVENTER ASSEMBLIES**

### **20-2.03A General**

#### **20-2.03A(1) Summary**

Section 20-2.03 includes specifications for installing a backflow preventer assembly.

#### **20-2.03A(2) Definitions**

Reserved

#### **20-2.03A(3) Submittals**

Reserved

#### **20-2.03A(4) Quality Control and Assurance**

Each backflow preventer assembly must be certified by a backflow preventer tester. The tester must have an active and valid certification from the water purveyor having jurisdiction.

If the local water purveyor does not have a certification program, the tester must be certified by AWWA or a nearby county with a certification program.

Notify the Engineer at least 5 business days before certifying backflow preventer assembly.

Certify each backflow preventer assembly annually and within 10 days before Contract acceptance.

### **20-2.03B Materials**

#### **20-2.03B(1) General**

Each backflow preventer assembly must include:

1. Backflow preventer including gate valve, wye strainer, brass or malleable iron unions, fittings, and supports
2. Blanket
3. Enclosure
4. Concrete pad

Concrete for the pad must be minor concrete, except the concrete must not contain less than 463 pounds of cementitious material per cubic yard. Hand mixing of the concrete is allowed.

#### **20-2.03B(2) Backflow Preventers**

Each backflow preventer must:

1. Be reduced-pressure principle type.
2. Comply with the requirements of the water purveyor that has jurisdiction.
3. Be factory-assembled with:
  - 3.1. 2 check valves
  - 3.2. 1 pressure differential relief valve
  - 3.3. 4 test cocks
  - 3.4. 2 shut-off valves manufactured from iron or bronze. Shut-off valves must be one of the following:
    - 3.4.1. Resilient wedge gate valves
    - 3.4.2. Resilient seated and fully ported ball valves
    - 3.4.3. Resilient seated butterfly valves

Backflow preventer components must be capable of withstanding a working pressure of 150 psi.

#### **20-2.03B(3) Backflow Preventer Blankets**

Each backflow preventer blanket must:

1. Be polyester fabric coated with vinyl or polymeric resin
2. Be resistant to UV light, water, mildew, and fire
3. Have an R-value from R-30 to R-38

Blankets must have a securing mechanism that includes either zippers, hook-pile tape, grommets, snaps, buttons, or any combination of these. Wherever the backflow preventer is not in an enclosure, the securing mechanism must be capable of accepting a padlock.

#### **20-2.03B(4) Backflow Preventer Enclosures**

Each backflow preventer enclosure must:

1. Have expanded metal sides, ends, and top panels fabricated from 9-gauge minimum thickness stainless sheet steel with openings of approximately 3/4 by 1-3/4 inches
2. Have expanded metal panels attached to the 3/16-inch thick steel frame by a series of welds not less than 1/4 inch in length and spaced not more than 4 inches on center, along the edges of the enclosure
3. Have Type 304 stainless steel lock guards with a minimum thickness of 12 gauge.
4. Have hexagonal nuts and lock-type washers
5. Be powder coated by the manufacturer to match color no. 20450 of FED-STD-595.
6. Have padlock clasp or latch and lock mechanism

#### **20-2.03C Construction**

Finish exposed top surfaces of concrete pad with a medium broom finish applied parallel to the long dimension of pads.

Install hold-downs for the backflow preventer assembly enclosure when concrete is still plastic.

#### **20-2.03D Payment**

Not Used

## **20-2.04 CAM COUPLER ASSEMBLIES**

### **20-2.04A General**

Section 20-2.04 includes specifications for installing a cam coupler assembly.

### **20-2.04B Materials**

Each cam coupler assembly must consist of a cam coupler, dust cap, check valve, pipes, fittings, concrete thrust block, and valve box with woven wire cloth and gravel.

Cam couplers and keys must be manufactured of brass or bronze and be able to withstand a working pressure of 150 psi.

Furnish 3 loose cam coupler keys before Contract acceptance.

### **20-2.04C Construction**

Install cam coupler assemblies in valve boxes as shown.

### **20-2.04D Payment**

Not Used

## **20-2.05 CONTROL AND NEUTRAL CONDUCTORS**

### **20-2.05A General**

#### **20-2.05A(1) Summary**

Section 20-2.05 includes specifications for installing control and neutral conductors.

#### **20-2.05A(2) Definitions**

Reserved

#### **20-2.05A(3) Submittals**

Reserved

#### **20-2.05A(4) Quality Control and Assurance**

Perform field tests on control and neutral conductors. Field tests must comply with the specifications for lighting circuits in section 86-2.14B.

Where the conductors are installed by trenching and backfilling, perform field tests after a minimum of 6 inches of backfill material has been placed and compacted over the conductors.

### **20-2.05B Materials**

Control and neutral conductors must comply with the requirements in section 86-2.08.

For connections between 24-volt irrigation controllers and valve solenoids, use control and neutral conductors. Conductors must include a control conductor for each valve and a common neutral.

Conductor insulation color, except for the stripes, must be continuous throughout. The color of the conductors must be consistent from the controller to each valve. Neutral conductors must be white. Do not use white for control conductors. Do not use conductors with green insulation except as permitted by the NEC.

Conductors must be:

1. No. 12 AWG or larger or no. 14 AWG or larger for armor-clad
2. Rated for 36 V or 600 V for armor-clad
3. Rated for direct burial
4. Underground feeder cable Type UF and TWU
5. Solid, uncoated copper for armor-clad
6. Not less than 90 percent of the AWG diameter required

No. 10 and smaller conductors must be insulated with a minimum of 56 mils of PVC or a minimum of 41 mils of polyethylene. No. 8 and larger conductors must be insulated with a minimum of 70 mils of PVC.

No. 10 and smaller armor-clad conductors must be insulated with a minimum of 41 mils of polyethylene. No. 8 and larger armor-clad conductors must be insulated with 54 to 60 mils of PVC.

Armor-clad conductors must include:

1. Stainless steel tape armor, Type 304 and helically wrapped with a 33 percent minimum overlap. The tape must be 0.5 inch wide and at least 0.005 inch thick.
2. PVC outer conductor jacket that is UV resistant and complies with the ICEA S-61-402, NEMA standard WC5 and UL listing 1263. The jacket nominal thickness must be 24 to 30 mils thick.

### **20-2.05C Construction**

#### **20-2.05C(1) General**

Reserved

#### **20-2.05C(2) In Open Trenches**

Do not install control and neutral conductors above each other in an open trench. Wrap conductors together with electrical tape at 5 foot intervals.

Where conductors are installed in the same trench as supply line, install at the same depth as the line. At other locations, install conductors not less than 12 inches below finished grade.

Where conductors are not in a supply line trench, install conductors at least 4 feet from curbs, dikes, and paved shoulders.

#### **20-2.05C(3) In Conduits**

Install conductors in electrical conduit if conductors are to be:

1. Surface mounted
2. Installed in or on structures
3. Installed under paved areas
4. Installed in irrigation conduits
5. Placed in concrete

#### **20-2.05C(4) Splicing**

Splice low voltage control and neutral conductors under sections 86-2.09C, 86-2.09D, and 86-2.09E, except do not use method B. Tape used for splice insulation must be PVC tape.

Leave at least 2 feet of slack for each conductor at each:

1. Pull box
2. Valve box for each conductor that is connected to other facilities within the box or spliced within the box

Do not splice conductors in irrigation controller cabinets.

Permanent splice connections must be made with freshly cut and skinned conductors. Do not use temporary splices made for testing valve circuits as permanent splices.

#### **20-2.05C(5) Marking**

Mark control and neutral conductors in pull boxes, valve boxes, at irrigation control terminals, and at splices.

Mark conductor terminations and splices with adhesive cloth wrap-around markers. Seal markers with clear, heat-shrinkable sleeves.

Mark nonspliced conductors with clip-on C-shaped white extruded PVC sleeves. Sleeves must have black indented legends of uniform depth with transparent overlays over the legends and chevron cuts for the alignment of 2 or more sleeves.

Identify markers for the control conductors with the appropriate irrigation controller and station number.

## **20-2.05D Payment**

Not Used

## **20-2.06 FLOW SENSORS**

### **20-2.06A General**

Section 20-2.06 includes specifications for installing a flow sensor.

### **20-2.06B Materials**

Each flow sensor must be an inline type with a nonmagnetic spinning impeller as the only moving part.

The electronics housing must:

1. Be schedule 80 PVC or cast 85-5-5-5 bronze
2. Include glass-filled polyphenylene sulfide
3. Be easily removable from the meter body and include 2 ethylene-propylene O-rings

The impeller must be tungsten carbide.

The electronics must be rated to withstand prolonged water immersion conditions and include 2 single conductor 18 AWG leads, 48 inches long.

The insulation must be direct burial UF type colored red for the positive lead and black for the negative lead.

The flow sensor must be capable of withstanding:

1. 100 to 400 psi operating pressure depending on sensor size shown
2. Liquid temperatures up to 220 degrees F
3. Flows from 1/2 to 15 ft/sec

### **20-2.06C Construction**

Install flow sensor as shown.

### **20-2.06D Payment**

Not Used

## **20-2.07 IRRIGATION CONTROLLERS**

### **20-2.07A General**

#### **20-2.07A(1) Summary**

Section 20-2.07 includes specifications for installing irrigation controllers.

#### **20-2.07A(2) Definitions**

**irrigation controller:** "Smart" irrigation controller as defined by the Irrigation Association.

**remote irrigation control system (RICS):** Centralized water management system that consists of a base station, centralized server, satellite controllers.

**base station:** Designated computer located at a Department maintenance facility or District Office that collects data from a series of satellite controllers through a centralized server.

**centralized server:** Designated server or web-based application that collects data from all base stations.

**web-based application:** Encrypted managing software that is coded in a browser-supported language and is executable via a common internet web browser (e.g., Microsoft Internet Explorer, Firefox, Safari, etc.).

**satellite controller:** Irrigation controller that communicates directly to a base station or centralized server.

**network communication:** Identified means through which satellite controllers, base stations, and a centralized server communicate to one another (i.e., fiber optics, spread spectrum, phone line, etc.).

**remote access device:** Device (i.e., FCC compliant radio remote, cell phone or wireless, etc.) used to communicate with satellite controllers from a remote location.

### **20-2.07A(3) Submittals**

Submit as an informational submittal, a complete manufacturer's maintenance and operations manual for each type of controller installed. Submit the manual at the time the wiring plans and diagrams are placed inside the controller enclosure or cabinet door.

### **20-2.07A(4) Quality Control and Assurance**

Provide training by a qualified person on the use and adjustment of the irrigation controllers installed 30 days before Contract acceptance.

Modifications to electrical components must be done by the manufacturer before shipment to the job site.

The installation date and expiration date of the manufacturer's guarantee for the controllers must be permanently marked on the inside face of the controller.

### **20-2.07B Materials**

#### **20-2.07B(1) General**

Conventional A/C powered irrigation controllers must operate on 110/120 V, 60 Hz(ac) and supply 24 to 30 VAC, 60 Hz(ac) for operating electrical remote control valves.

Concrete for the pad and foundation must be minor concrete, except the concrete must not contain less than 463 pounds of cementitious material per cubic yard. Hand mixing of the concrete is allowed.

#### **20-2.07B(2) Irrigation Controllers**

##### **20-2.07B(2)(a) General**

The irrigation controllers must:

1. Be A/C, battery, solar, or 2-wire as shown
2. Be from a single manufacturer.
3. Be fully automatic and capable of operating a complete 30-day or longer irrigation program.
4. Have a switch or button on the face of the irrigation control panel showing that the irrigation controller can be turned on or off and provide for automatic or manual operation. Manual operation must allow cycle start at the desired station and allow for the minimum activation of a single station or have the option to operate multiple stations in sequential or simultaneous operation modes.
5. Have non-volatile memory.
6. Have a watering time display on the face of the control panel.
7. Have a panel and circuit board connected to the low voltage control and neutral conductors by means of a plug and receptacle connectors located within the cabinet enclosure.
8. Have a variable or incremental timing adjustment ranging from 1 minute to 360 minutes per station.
9. Be capable of operating at least 3 program schedules.
10. Be capable of having at least 4 start times per program schedule.
11. Have an output that can energize a pump start circuit or a remote control master valve.
12. Be protected by fuses and circuit breakers.
13. Display a program and station affected by a sensory alert without altering other watering schedules not affected by the alert.
14. Be capable of global manual and automatic seasonal adjustments to all valves in any given program.
15. Automatically alter watering schedule in accordance with evapotranspiration data provided by a local weather station or have an internal programmed default of historical evapotranspirational data for a given region.
16. Support a flow sensor, rain sensor, or weather station and have automatic shut-off capability.
17. Be capable of communicating with the remote access device.

If the irrigation controller is installed in an enclosure cabinet, the cabinet must be stainless steel and must comply with section 86-3.04A.

Irrigation controllers not installed in enclosure cabinets must be weatherproof, constructed of fiberglass or metal and have a door lock with 2 keys provided.

RICS must meet the requirements of an irrigation controller and be capable of being accessible only through a secured and encrypted server that is password and firewall protected by the Department or be accessible through a firewall secure remote server that is independent from any Department servers. The Department will set up and manage the network communication.

#### **20-2.07B(2)(b) Battery Powered Irrigation Controllers**

Reserved

#### **20-2.07B(2)(c) Solar Powered Irrigation Controllers**

Reserved

#### **20-2.07B(2)(d) Two-wire Irrigation Controllers**

Reserved

#### **20-2.07B(3) Irrigation Controller Enclosure Cabinets**

The irrigation controller enclosure cabinet must:

1. Be stainless steel.
2. Include a mounting panel. Fabricate mounting panels with one of the following:
  - 2.1. 3/4-inch exterior AC grade veneer plywood. Paint panels with 1 application of an exterior, latex based, wood primer and 2 applications of an exterior, vinyl acrylic enamel, white in color. Paint panels on all sides and edges before installation of the panels in the cabinets and the equipment on the panels.
  - 2.2. 3/16-inch thick aluminum sheets.
  - 2.3. 10-gauge cold-rolled steel sheets.
  - 2.4. 0.157-inch stainless steel metal sheets.
3. Provide cross ventilation, roof ventilation, or a combination of both. Ventilation must not compromise the weather resistance properties of the cabinet and must be fabricated by the cabinet manufacturer.
4. Include protection against lightning damage.
5. Have an area inside the cabinet doors for storage of the as-built schematic wiring diagram and irrigation plans.
6. Have padlock clasp or latch and lock mechanism.

#### **20-2.07B(4) Rain Sensors**

A rain sensor unit must be a solid state, automatic shut-off type, and compatible with the irrigation controller. The rain sensor unit must automatically interrupt the master remote control valves when approximately 1/8 inch of rain has fallen. The irrigation controller must automatically be enabled again when the accumulated rainfall evaporates from the rain sensor unit collection cup.

Rain sensor units must be one of the following:

1. Rated 24 V(ac) to 30 V(ac)
2. Wireless and FCC compliant

#### **20-2.07C Construction**

Finish exposed top surface of concrete pad with a medium broom finish applied parallel to the long dimension.

Locate irrigation controllers in pedestal or wall mounted enclosures as shown.

Install electrical components for automatic irrigation systems under section 86-1.02.

Install irrigation controllers under the manufacturer's instructions and as shown.

If 2 or more irrigation controllers operate the same remote master control valve, furnish and install an isolation relay under the controller manufacturer's instructions.

Where direct burial conductors are to be connected to the terminal strip, connect the conductors with the open-end-crimp-on wire terminals. Exposed wire must not extend beyond the crimp of the terminal and the wires must be parallel on the terminal strip.

Install rain sensor units for irrigation controllers on the irrigation controller enclosure cabinets. Provide protection against lightning damage.

#### **20-2.07D Payment**

Payment for electrical service for 120-volt or higher is not included in the payment for irrigation controller.

### **20-2.08 IRRIGATION CONDUIT**

#### **20-2.08A General**

##### **20-2.08A(1) Summary**

Section 20-2.08 includes specifications for installing irrigation conduit under a roadway or other facility to accommodate electrical conduit for control and neutral conductors and irrigation supply lines.

Before performing work on irrigation systems, locate existing conduits shown to be incorporated into the new work.

Before removing or disturbing existing Type A pavement markers that show the location of the existing conduit, mark the location of the existing conduit on the pavement.

##### **20-2.08A(2) Definitions**

Reserved

##### **20-2.08A(3) Submittals**

Reserved

##### **20-2.08A(4) Quality Control and Assurance**

Demonstrate the conduits are free of obstructions after placement of base and surfacing.

Before and after extending the irrigation supply line in a conduit, pressure test the supply line under section 20-2.01A(4)(b).

After conductors are installed in a conduit, test the conductors under section 20-2.05A(4).

Assign a technical representative to direct and control the directional bore activities. The representative must be present during directional bore activities. Unless otherwise authorized, perform directional bore activities in the presence of the Engineer.

#### **20-2.08B Materials**

##### **20-2.08B(1) General**

Reserved

##### **20-2.08B(2) ABS Composite Pipe Conduit**

ABS composite pipe and couplings must comply with ASTM D 2680. Couplings must be solvent cement type.

##### **20-2.08B(3) Corrugated High Density Polyethylene Pipe Conduit**

Corrugated high density polyethylene pipe must comply with ASTM F 405 and F 667 or be Type S and comply with AASHTO M252 and M294. Couplings and fittings must be as recommended by the pipe manufacturer.

##### **20-2.08B(4) Corrugated Steel Pipe Conduit**

Corrugated steel pipe conduit must comply with section 66. The nominal thickness of metal sheets for pipe must be 0.064 inch for corrugated steel pipe and 0.060 inch for corrugated aluminum pipe. Coupling bands and hardware must comply with section 66.

##### **20-2.08B(5) Polyvinyl Chloride Pipe Conduit**

PVC pipe conduit must be schedule 40 and comply with ASTM D 1785.

Fittings must be schedule 80.



**20-2.08B(6) Welded Steel Pipe Conduit**

Welded steel pipe must comply with ASTM A 53. Pipe must be black and have either welded or threaded joints.

The minimum wall thickness for the various sizes of welded steel pipe must comply with the dimensions shown in the following table:

Pipe size, nominal (inch)	Minimum wall thickness (inch)
3	0.216
4	0.237
6	0.280
8	0.277
10	0.279
12	0.330

**20-2.08C Construction**

**20-2.08C(1) General**

When existing conduits are to be incorporated in new work, excavate exploratory holes for locating existing conduits at the locations indicated by existing markers or as directed. Excavate and backfill exploratory holes to a maximum size of 2-1/2 feet in width, 5 feet in depth, and 5 feet on each side of the marker or directed location parallel to the roadway. If the conduit is not found and if ordered, increase the size of the exploratory holes beyond the dimensions specified. The additional excavation and backfill is change order work.

If extending an existing conduit, remove conductors from the conduit.

Use a coupling band if the new conduit matches the existing conduit diameter, otherwise overlap the conduit at least 12 inches.

After extending existing conduits, install conductors that match the color and size of the existing conductors without splices. Splice conductors in adjacent pull boxes.

If installing a control and neutral conductor and electrical conduit through the irrigation conduit, install a no. 5 pull box at each end.

Remove debris found in the conduit before performing other work. Debris found more than 3 feet from the ends of the conduits is removed as change order work.

Extend conduit 2 feet beyond all paving unless otherwise shown.

Cap the ends of unused conduit.

Designate the location of each conduit by cementing a Type A pavement marker as shown. Type A pavement markers and adhesive must comply with section 85.

**20-2.08C(2) Welded Steel Pipe Conduit**

**20-2.08C(2)(a) General**

Install welded steel pipe by directional boring or jack and drill.

Install top of conduits:

1. 18 to 30 inches below the finished surface in sidewalk areas
2. 40 to 52 inches below the finished grade in other paved areas

**20-2.08C(2)(b) Directional Boring**

Notify the Engineer 2 business days before starting directional bore activities.

The diameter of the boring tool for directional boring must be only as large as necessary to install the conduit.

Mineral slurry or wetting solution may be used to lubricate the boring tool and to stabilize the soil surrounding the boring path. The mineral slurry or wetting solution must be water based.

The directional bore equipment must have directional control of the boring tool and have an electronic boring tool location detection system. During operation, the directional bore equipment must be able to determine the location of the tool both horizontally and vertically.

#### **20-2.08C(2)(c) Jack and Drill**

Notify the Engineer 2 business days before starting jack and drill activities.

Jacking or drilling pits must be no closer than 2 feet from pavement edge whenever possible.

If authorized, small holes may be cut in the pavement to locate or remove obstructions.

Do not use excessive water that will soften subgrade or undermine pavement.

#### **20-2.08C(3) Schedule 40 Pipe Conduit**

Where schedule 40 pipe conduit 2 inches or less in outside diameter is installed under surfacing, you may install by directional boring under section 20-2.08C(2)(b).

For conduit 2 inches or less in diameter, the top of the conduit must be a minimum of 18 inches below surfacing.

Extend schedule 40 pipe conduit 6 inches beyond surfacing. Cap ends of conduit until used.

#### **20-2.08D Payment**

Schedule 40 PVC pipe conduit is paid for as plastic pipe (schedule 40) (supply line).

### **20-2.09 IRRIGATION SUPPLY LINE**

#### **20-2.09A General**

##### **20-2.09A(1) Summary**

Section 20-2.09 includes specifications for installing irrigation supply line.

If the supply line location interferes with the excavation of plant holes, relocate the plant hole to clear the supply line. Do not install supply lines through plant holes unless shown.

Supply lines, control and neutral conductors and electrical conduits installed in common trenches must not be installed above each other.

##### **20-2.09A(2) Definitions**

Reserved

##### **20-2.09A(3) Submittals**

Submit a certificate of compliance for polyethylene pipe and plastic pipe supply line.

##### **20-2.09A(4) Quality Control and Assurance**

Solvent cement must comply with the local Air Quality Management District requirements.

#### **20-2.09B Materials**

##### **20-2.09B(1) General**

Irrigation supply pipe must be metal or plastic as shown.

PCC for thrust blocks must be produced from commercial-quality aggregates. The concrete must contain at least 295 pounds of cementitious material per cubic yard.

##### **20-2.09B(2) Copper Pipe Supply Line**

Copper pipe must be Type K rigid pipe and comply with ASTM B 88. Fittings must be wrought copper or cast bronze either soldered or threaded.

Solder must be 95 percent tin and 5 percent antimony.

**20-2.09B(3) Galvanized Steel Pipe Supply Line**

Galvanized steel pipe supply line and couplings must be standard weight and comply with ASTM A 53, except that the zinc coating must not be less than 90 percent of the specified amount. Except for couplings, fittings must be galvanized malleable iron, banded and threaded, and comply with ANSI B16.3, Class 150.

Joint compound must be nonhardening and noncorrosive. Do not use pipe thread sealant tape.

**20-2.09B(4) Drip Irrigation Tubing**

Drip irrigation tubing must be virgin polyethylene plastic and comply with ASTM D 2737.

The drip irrigation tubing must be distribution tubing with preinstalled in-line emitters.

If preinstalled in-line drip irrigation tubing is not shown, you may install emitters that match the distribution requirements shown. The emitters must be barbed or threaded-type outlet devices with dual silicone diaphragms and installed under the manufacturer's instructions.

The emitters must meet the flow rate and operating pressure range shown.

The wall thickness of polyethylene tubing must comply with the following requirements when tested under ASTM D 2122:

Pipe size, nominal (inch)	Minimum wall thickness (inch)	Maximum wall thickness (inch)
1/2	0.050	0.070
5/8	0.055	0.075
3/4	0.060	0.080

The polyethylene tubing fittings must be leak-free, compression type and have female sockets with an internal barb to provide a positive pipe-to-fitting connection that will not separate at the designed pressure.

**20-2.09B(5) Plastic Pipe Supply Line**

Plastic pipe supply line must be PVC pipe that is NSF approved.

Schedule 40 plastic pipe supply line must comply with ASTM D 1785.

Class 315 plastic pipe supply line must comply with ASTM D 2241.

PVC gasketed bell joints must comply with ASTM D 2672, ASTM D2241, ASTM D 3139, and ASTM F 477.

For solvent-cemented type joints, the primer and solvent cement must be made by the same manufacturer. The primer color must contrast with the color of the pipe and fittings.

Solvent-cemented fittings must be injection molded PVC, schedule 40, and comply with ASTM D 2466.

Fittings for supply line placed in irrigation conduit must be schedule 80.

Fittings for plastic pipe supply line larger than 4 inches must be ductile iron under section 20-2.14C(2)(b).

If UV-resistant plastic pipe supply line is required, the pipe must be homogeneous, uniform color and be manufactured of:

1. At least 80 percent vinyl chloride resin with UV stabilizers
2. Non-PVC resin modifiers and coloring ingredients
3. Coloring ingredients with UV stabilizers

**20-2.09C Construction**

**20-2.09C(1) General**

Cut pipe straight and true. After cutting, ream out the ends to the full inside diameter of the pipe.

Prevent foreign material from entering the irrigation system during installation. Immediately before assembling, clean all pipes, valves, and fittings. Flush lines before attaching sprinklers, emitters, and other terminal fittings.

Pipe supply lines installed between the water meter and backflow preventer assembly must be installed not less than 18 inches below finished grade measured to the top of the pipe.

Where a connection is made to existing supply lines, bell and gasketed fittings or compression fittings may be used.

Install a thrust block at each change in direction on the main supply line, terminus run, and at other locations shown.

Where supply lines cross paved ditches more than 3 feet deep at their flow line, install galvanized steel pipe for the entire span of the ditch.

Secure UV resistant plastic pipe supply line on grade as shown.

#### **20-2.09C(2) Galvanized Steel Pipe Supply Line**

Coat male pipe threads on galvanized steel pipe according to the manufacturer's instructions.

#### **20-2.09C(3) Drip Irrigation Tubing**

Install drip irrigation tubing on grade and under manufacturer's instructions.

Install a flush valve and an air-relief valve if recommended by the drip valve assembly manufacturer.

#### **20-2.09C(4) Plastic Pipe Supply Line**

For PVC pipe 1-1/2 inches in diameter or smaller, cut the pipe with PVC cutters.

For solvent-cemented type joints, apply primer and solvent-cement separately under the manufacturer's instructions.

Wrap the male portion of each threaded plastic pipe fitting with at least 2 layers of pipe thread sealant tape.

Install plastic pipe supply line mains with solvent-cemented type joints not less than 18 inches below finished grade measured to the top of the pipe.

Install plastic pipe supply line laterals with solvent-cemented type joints not less than 12 inches below finished grade measured to the top of the pipe.

Snake plastic pipe installed by trenching and backfilling methods.

#### **20-2.09D Payment**

Supply line pipe and drip irrigation tubing are measured along the slope.

### **20-2.10 SPRINKLER ASSEMBLIES**

#### **20-2.10A General**

Section 20-2.10 includes specifications for installing sprinkler assemblies.

#### **20-2.10B Materials**

##### **20-2.10B(1) General**

Each sprinkler assembly must meet the characteristics shown in the irrigation legend.

Where shown, a sprinkler assembly must have a flow shut-off device that automatically stops the flow of water on the downstream side of the device when the assembly is broken. You may use a sprinkler assembly with a preinstalled flow shut-off device or you must install a flow shut-off device under the manufacturer's instructions.

Flexible hose for sprinkler assembly must be leak-free, nonrigid and comply with ASTM D 2287, cell Type 6564500. The hose wall thickness must comply with ASTM D 2122 for the hose diameters shown in the following table:

Hose diameter, nominal (inch)	Minimum wall thickness (inch)
1/2	0.127
3/4	0.154
1	0.179

Solvent cement and fittings for flexible hose must comply with section 20-2.09B(5).

**20-2.10B(2) Pop-Up Sprinkler Assemblies**

Each pop-up sprinkler assembly must include a body, nozzle, swing joint, pressure compensation device, check valve, sprinkler protector, and fittings as shown.

**20-2.10B(3) Riser Sprinkler Assemblies**

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Each riser sprinkler assembly must include a riser or flexible hose, threaded nipple, swing joint, check valve, and nozzle as shown. The riser must be UV resistant schedule 80, PVC 1120 or PVC 1220 pipe and comply with ASTM D 1785.

**20-2.10B(4) Tree Well Sprinkler Assemblies**

Each tree well sprinkler assembly must include a body, riser, swing joint, perforated drainpipe, and drain cap.

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The perforated drainpipe must be commercial grade, rigid, PVC pipe with holes spaced not more than 6 inches on center on 1 side of the pipe.

Drain cap must be commercially available, 1 piece, injection molded drain grate manufactured from structural foam polyolefins with UV light inhibitors. Drain grate must be black.

Gravel for filling the drainpipe must be graded such that 100 percent passes the 3/4-inch sieve and 100 percent is retained on the 1/2-inch sieve. Gravel must be clean, washed, dry, and free from clay or organic material.

**20-2.10C Construction**

Install pop-up and riser sprinkler assembly:

1. 6-1/2 to 8 feet from curbs, dikes, and sidewalks
2. 10 feet from paved shoulders
3. 3 feet from fences and walls

If sprinkler assembly cannot be installed within these limits, the location will be determined by the Engineer.

Set sprinkler assembly riser on slopes perpendicular to the plane of the slope.

Install tree well sprinkler assembly as shown.

**20-2.10D Payment**

Not Used

**20-2.11 VALVES**

**20-2.11A General**

Section 20-2.11 includes specifications for installing valves.

**20-2.11B Materials**

**20-2.11B(1) General**

Valves must:

1. Include a valve box and cover
2. Be the same size as the supply line that the valve serves unless otherwise shown

3. Be bottom, angled, or straight inlet configuration

**20-2.11B(2) Ball Valves**

Ball valve must be a two-piece brass or bronze body and comply with the requirements shown in the following table:

Property	Requirements
Nonshock working pressure, min	400 psi
Seats	PTFE
O-ring seals	PTFE

Ball valve must be the same size as the supply line that the valve serves.

**20-2.11B(3) Check Valves**

Each check valve must:

1. Be schedule 80 PVC and factory set to 5 psi for adjustable spring check valve
2. Be Class 200 PVC for swing check valves on non pressurized plastic irrigation supply line

**20-2.11B(4) Drip Valve Assemblies**

Each drip valve assembly must include:

1. Remote control valve
2. Wye filter with:
  - 2.1. Filter housing that:
    - 2.1.1. Can withstand a working pressure of 150 psi
    - 2.1.2. Is manufactured of reinforced polypropylene plastic
  - 2.2. Reusable stainless steel filter cartridge with a 200 mesh size filtration
3. Ball valve under 20-2.11B(2)
4. Schedule 80 PVC pipes and fittings
5. Pressure regulator

**20-2.11B(5) Garden Valve Assemblies**

Each garden valve assembly must have:

1. Garden valve
2. Location marker

**20-2.11B(6) Gate Valves**

Gate valves must be:

1. Flanged or threaded type
2. Iron or bronze body
3. Bronze trimmed with one of the following:
  - 3.1. Internally threading rising stem
  - 3.2. Nonrising stem
4. Able to withstand a working pressure of 150 psi
5. Same size as the pipeline that the valves serves unless otherwise shown

Gate valves smaller than 3 inches must have a cross handle.

Gate valves 3 inches or larger must be flanged type with a square nut. Furnish 3 long shank keys before Contract acceptance.

Gate valves attached to the outlets of a wye strainer must have seating rings on the discharge side of the gate valves must be PTFE. Valve wedges must be driven obliquely by cam action into the seating rings.

**20-2.11B(7) Pressure Regulating Valves**

Pressure regulating valve must be:

1. Flanged or threaded type
2. Brass, bronze, cast iron, or plastic body
3. Spring diaphragm type
4. Pilot controlled

Pressure regulating valve must have no internal filter screens.

#### **20-2.11B(8) Pressure Relief Valves**

Pressure relief valve must have a brass or bronze body, stainless steel springs, bronze nickel chrome seats, composition seat discs, female bottom inlets, and female side outlets.

#### **20-2.11B(9) Quick Coupling Valves**

Quick coupling valve must be 3/4 inch double slotted with a self-closing cap, 3/4-inch brass key and 3/4-inch brass hose swivel unless otherwise shown. Except for the cap, quick coupling valve must be brass or bronze construction. Furnish 3 loose quick coupling brass keys and brass hose swivels before Contract acceptance.

#### **20-2.11B(10) Remote Control Valves**

##### **20-2.11B(10)(a) General**

Each remote control valve must:

1. Be normally closed type.
2. Be glass filled nylon, brass, or bronze.
3. Be completely serviceable from the top without removing the valve body from the system.
4. Be equipped with a device that regulates and adjusts the flow of water and be provided with a manual shut-off. The manual shut-off for valves larger than 3/4 inch must be operated by a cross handle.
5. Have solenoids compatible with the irrigation controller.
6. Have a manual bleed device.
7. Be capable of withstanding a pressure of 200 psi
8. Have replaceable compression discs or diaphragms.
9. Have threaded fittings for inlets and outlets.
10. Have DC latching solenoids when used with solar or battery controllers. Solenoids must operate on 3.5 V.

##### **20-2.11B(10)(b) Remote Control Valves with Flow Sensor**

Reserved

##### **20-2.11B(10)(c) Remote Control Valves with Pressure Regulator**

Each remote control valve with pressure regulator must be factory assembled as 1 unit.

#### **20-2.11B(11) Wye Strainer Assemblies**

Each wye strainer assembly must include:

1. Wye strainer
2. Garden valve

#### **20-2.11C Construction**

##### **20-2.11C(1) General**

Install control valves:

1. 6-1/2 to 8 feet from curbs, dikes, and sidewalks
2. 10 feet from paved shoulders
3. 3 feet from fences, walls, or both

If a control valve cannot be installed within these limits, the location will be determined by the Engineer.

##### **20-2.11C(2) Check Valves**

Unless otherwise shown, install spring-action check valves as necessary to prevent low head drainage.

**20-2.11C(3) Garden Valve Assemblies**

Install a location marker 8 to 10 inches from the back of each garden valve.

**20-2.11C(4) Pressure Regulating Valves**

Install pressure regulating valves with threaded connections and a union on the inlet side of the valves.

**20-2.11C(5) Wye Strainer Assemblies**

Unless shown, install wye strainer assembly on the upstream side of the remote control valves.

Install garden valve so that when the system is flushed, the discharge sprays out of the valve box.

**20-2.11D Payment**

Not Used

**20-2.12 WATER METERS**

Reserved

**20-2.13 RESERVED****20-2.14 SUPPLY LINE ON STRUCTURES****20-2.14A General****20-2.14A(1) General****20-2.14A(1)(a) Summary**

Section 20-14 includes specifications for installing water supply lines through bridges and on the exterior of concrete structures.

**20-2.14A(1)(b) Definitions**

Reserved

**20-2.14A(1)(c) Submittals**

Submit a work plan for temporary casing support at the abutments as an informational submittal.

**20-2.14A(1)(d) Quality Control and Assurance****20-2.14A(1)(d)(i) General**

Before installing seismic expansion assemblies or expansion assemblies, the Engineer must authorize the extension setting.

**20-2.14A(1)(d)(ii) Regulatory Requirements**

Piping materials must bear the label, stamp, or other markings of the specified standards.

**20-2.14A(1)(d)(iii) Site Tests**

Test water supply lines before:

1. Backfilling
2. Beginning work on box girder cell decks
3. Otherwise covering the water supply lines

Furnish pipe anchorages to resist thrust forces occurring during testing.

Test the water supply lines as 1 unit. The limits of the unit must be 5 feet beyond the casing at each end of the bridge.

Cap each end of the water supply lines before testing. Caps must be rated for the test pressure.

Test water supply lines under section 20-2.01A(4)(b), except that the testing period must be 4 hours with no pressure drop.

For water supply lines 4 inches and larger testing must meet the following additional requirements:

1. Testing pressure must be at least 120 psi
2. Air relief valve must not be subjected to water pressure due to testing



If water supply lines fail testing, retest the lines after repair.

### **20-2.14A(2) Materials**

#### **20-2.14A(2)(a) General**

Protect stored piping from moisture and dirt. Elevate piping above grade. Support piping to prevent sagging and bending.

Protect flanges, fittings, and assemblies from moisture and dirt.

#### **20-2.14A(2)(b) Air Release Valve Assemblies**

Air release valve assemblies include an air release valve, ball valve, tank vent, nipples, and pipe saddle. Assemblies must comply with the following:

1. Air release valves must have a cast iron body with stainless steel trim and float, 1-inch NPT inlet, 1/2-inch NPT outlet, and 3/16-inch orifice.
2. Ball valves must have a 2-piece bronze body with chrome plated or brass ball, 1-inch full-size port, and be rated for at least 400 psi.
3. Tank vents must have a 1/2-inch NPT inlet and downward-facing double openings with screened covers.
4. Nipples must be schedule 40 galvanized steel pipe.
5. Pipe saddle must be rated for at least 150 psi and compatible with water supply line. Pipe saddle must be (1) single strap pipe saddle for water supply lines smaller than 4 inches or (2) double strap pipe saddle for water supply lines 4 inches and larger. You may use a tee fitting for galvanized steel water supply lines.

#### **20-2.14A(2)(c) Casings**

Casings must be welded steel pipe casing complying with section 70-7.

#### **20-2.14A(2)(d) Pipe Wrap Tape**

Pipe wrap tape must be pressure sensitive tape made from PVC or polyethylene. Pipe wrap tape must be at least 50 mils thick and not wider than 2 inches.

#### **20-2.14A(2)(e) Pipe Hangers**

Pipe hangers must comply with section 70-7.02C.

The pipe hanger must be rated for the water supply line. If casings are shown, include the casings weight.

#### **20-2.14A(2)(f) Epoxy Adhesives**

Epoxy used for anchoring concrete pipe supports must comply with section 70-7.02D.

#### **20-2.14A(2)(g) Concrete Pipe Supports**

Concrete pipe supports must comply with section 70-7.02D.

#### **20-2.14A(2)(h) Pipe Clamps and Anchors**

Metal clamps must be commercial quality steel complying with section 75-1.02. Anchors must comply with the specifications for concrete anchorage devices in section 75-1.03C.

#### **20-2.14A(2)(i) Pull Boxes**

Pull boxes and covers must comply with section 20-2.01B(5).

### **20.2.14A(3) Construction**

#### **20-2.14A(3)(a) General**

Support water supply lines as described.

Where water supply lines penetrate bridge superstructure concrete, either form or install pipe sleeves at least 2 pipe sizes larger than the pipe.

### **20-2.14A(3)(b) Preparation**

Clean the interior of the pipe before installation. Cap or plug openings as pipe is installed to prevent the entrance of foreign material. Leave caps or plugs in place until the next pipe section is installed.

### **20-2.14A(3)(c) Installation**

#### **20-2.14A(3)(c)(i) General**

Reserved

#### **20-2.14A(3)(c)(ii) Casings**

Install casings under section 70-7.03.

Seal casing end with 8 inches of polyurethane foam at dirt stop or pipe end seal.

#### **20-2.14A(3)(c)(iii) Wrapping Water Supply Line**

Wrap damaged supply line coatings with pipe wrap tape. Wrap field joints and fittings that are in contact with the earth.

Wrapping must comply with the following:

1. Clean and prime area as recommended by the tape manufacturer.
2. Tightly wrap tape with 1/2 uniform overlap, free from wrinkles and voids, to provide not less than a 100 mil thickness.
3. The tape must conform to joint or fitting contours.
4. Extend tape at least 6 inches over adjacent pipe.

#### **20-2.14A(3)(c)(iv) Pipe Clamps and Anchors**

Install water supply lines on the exterior surfaces of bridges or other concrete structures with metal clamps and anchors.

Drilling of holes for anchors must comply with the following:

1. Drill holes to manufacturers recommended depth.
2. Drilling tools must be authorized.
3. Do not drill holes closer than 6 inches to the edge of a concrete structure.
4. Relocate holes if reinforcing steel is encountered. Fill abandoned holes with mortar. Mortar must comply with section 51-1.02F.

Where water supply lines are mounted vertically for more than 2 feet, install clamps and anchors within 6 inches of the elbows.

Where water supply lines are mounted vertically for more than 10 feet, install additional clamps and anchors at 10 foot centers unless otherwise shown.

#### **20-2.14A(3)(d) Sequences of Operation**

If the bridge superstructure is to be prestressed do not place mortar around casings in abutments and hinges until bridge superstructure prestressing has been completed.

#### **20-2.14A(4) Payment**

Supply line on structures is measured from end to end, along the centerline.

The Department does not pay for failed tests.

### **20-2.14B Supply Line on Structures, Less than 4 Inches**

#### **20-2.14B(1) General**

##### **20-2.14B(1)(a) Summary**

Section 20-2.14B includes specifications for installing water supply lines smaller than 4 inches.

##### **20-2.14B(1)(b) Definitions**

Reserved

### **20-2.14B(1)(c) Submittals**

Product data for materials includes catalog cuts, performance data, and installation instructions.

Submit product data for:

1. Water supply line
2. Expansion assemblies
3. Casing insulators
4. Pipe end seals
5. Pipe anchorages
6. Air release valve assemblies
7. Casings
8. Pipe hangers
9. Epoxy adhesives
10. Concrete pipe supports

### **20-2.14B(1)(d) Quality Control and Assurance**

Reserved

### **20-2.14B(2) Materials**

#### **20-2.14B(2)(a) General**

Reserved

#### **20-2.14B(2)(b) Water Supply Line**

Water supply lines must comply with section 20-2.09.

#### **20-2.14B(2)(c) Expansion Assemblies**

Expansion assemblies must consist of a hose with ends, insulated flange connections, and elbows. Expansion assemblies must have the same nominal inside diameter as the water supply line. Working pressure must be at least 150 psi.

Hose must be medium or heavy weight, crush and kink resistant, rated for at least 150 psi. Cover must be flexible, oil resistant rubber or synthetic, reinforced with at least 2-ply synthetic yarn or steel wire. The inner tube must meet FDA and USDA Standards for potable water. Hose ends must be stainless steel flanged connections with stainless steel crimped bands or swaged end connectors. Do not use barbed ends with band clamps.

Elbows must be 45 degree, standard weight galvanized steel fittings.

#### **20-2.14B(2)(d) Casing Insulators**

Casing insulators must be:

1. 2-piece, high-density, injection-molded polyethylene, nonconductive inner liner, with cadmium-plated nuts and bolts.
2. Factory constructed to ensure the water supply line is centered in the casing. Insulators must not allow any contact between pipe and casing and have at least 2 runners seated on the bottom of the casing.
3. Sized for the casing and water supply line shown.

#### **20-2.14B(2)(e) Pipe Anchorages**

Pipe anchorages must consist of an I-beam, U-bolts, anchors, and double nuts.

Use concrete anchorage devices for anchors on existing bridges. Use L-anchor bolts for anchors on new bridges.

Fabricate the I-beam from 1/2-inch steel plate. Steel plate, U-bolts, L-anchors, and nuts must comply with section 75-1.02. Concrete anchorage devices must comply with section 75-1.03C.

#### **20-2.14B(2)(f) Pipe End Seals**

Pipe end seals must consist of a pipe end seal, stainless steel bands, and polyurethane foam.

Pipe end seal must be factory constructed from seamless neoprene and sized for the casing and water supply line shown. Neoprene must be at least 1/8 inch thick. Stainless steel bands must be crimped.

Polyurethane foam must be expanding foam spray that is water resistant and moisture cured.

**20-2.14B(3) Construction**

Locate pipe anchorage halfway between expansion assemblies.

Pipe end seal must be pulled onto the casing during pipe installation. Do not use wrap-around type end seals.

**20-2.14B(4) Payment**

Supply line on structures is paid for as galvanized steel pipe (supply line on bridge).

**20-2.14C Supply Line on Structures, 4 Inches and Larger**

**20-2.14C(1) General**

**20-2.14C(1)(a) Summary**

Section 20-2.14C includes specifications for installing water supply lines 4 inches and larger.

**20-2.14C(1)(b) Definitions**

Reserved

**20-2.14C(1)(c) Submittals**

Product data for materials includes catalog cuts, performance data, and installation instructions.

Submit product data for:

1. Water supply line
2. Expansion assemblies
3. Flange insulating gaskets
4. Casing insulators
5. Seismic expansion assemblies
6. Lateral restraint assemblies
7. Air release valve assemblies
8. Casings
9. Pipe hangers
10. Epoxy adhesives
11. Concrete pipe supports

Submit the maximum range and preset dimension for each expansion assembly or seismic expansion assembly as an informational submittal.

Submit at least 5 sets of product data to OSD, Documents Unit. Each set must be bound together and include an index stating equipment names, manufacturers, and model numbers. Two sets will be returned. Notify the Engineer of the submittal. Include in the notification the date and contents of the submittal.

**20-2.14C(1)(d) Quality Control and Assurance**

Reserved

**20-2.14C(2) Materials**

**20-2.14C(2)(a) General**

Reserved

**20-2.14C(2)(b) Water Supply Line**

Water supply lines must consist of ductile iron pipe and fittings. Pipe must comply with ANSI/AWWA C151/A21.51, Class 350. Fittings must comply with ANSI/AWWA C110/A21.10, rated for a working pressure of 350 psi.

Ductile iron pipe connections to expansion assemblies must be a flanged joint complying with ANSI/AWWA C115/A21.15. Flange gaskets must be rated for a working pressure of 350 psi. Fasteners must comply with section 75-1.02, except that stainless steel fasteners must not be used.

All other ductile iron pipe and fitting joints must be push-on, restrained type complying with ANSI/AWWA C111/A21.11. Push-on, restrained type joints may use proprietary dimensions and proprietary restrained joint locking systems.

Ductile iron pipe and fittings must have an asphaltic coating complying with ANSI/AWWA C151/A21.51, and a cement mortar lining complying with ANSI/AWWA C104/A21.4.

#### **20-2.14C(2)(c) Expansion Assemblies**

Expansion assemblies must be a sleeve type expansion joint. The expansion assembly must have:

1. Ductile iron body complying with ANSI/AWWA C153/A21.53
2. Flanged ends complying with ANSI/AWWA C110/A21.10
3. Fusion bonded epoxy internal lining complying with ANSI/AWWA C213 at least 15 mils thick
4. Internal expansion sleeve limiting stop collars and be pressure balanced
5. Working pressure of at least 350 psi for sizes 24 inches and smaller and 250 psi for sizes larger than 24 inches
6. NSF 61 certification

The expansion assembly must be factory set at 1/2 the extension capacity.

#### **20-2.14C(2)(d) Flange Insulating Gaskets**

Flange insulating gaskets must consist of a dielectric flange gasket, insulating washers and sleeves, and commercial quality steel bolts and nuts. Dielectric flange gasket must have a dielectric strength of at least 500 vpm.

#### **20-2.14C(2)(e) Casing Insulators**

Casing insulators must be:

1. 2-piece, 8-inch, 14-gauge epoxy-coated or galvanized steel band, four 2-inch-wide glass-reinforced polyester or polyethylene runners, with cadmium-plated nuts and bolts.
2. Coated with at least 15-mils heat-fused PVC to provide a nonconductive inner liner.
3. Factory constructed to ensure the water supply line is centered in the casing. Insulators must not allow any pipe to casing contact and have at least 2 runners seated on the bottom of the casing.
4. Sized for the casing and water supply line shown.

#### **20-2.14C(2)(f) Dirt Stops**

Dirt stops must consist of a redwood cover with polyurethane foam.

Use construction heart grade redwood complying with 57-2.01B(2). Construct cover to fit snugly around the water supply line. The cover must be 2 inches taller and 2 inches wider than the casing.

Polyurethane foam must be expanding foam spray that is water resistant and moisture cured.

#### **20-2.14C(2)(g) Seismic Expansion Assemblies**

Seismic expansion assemblies must be a sleeve type expansion joint with integral ball joints at each end.

Seismic expansion assemblies must have:

1. Ability to withstand at least 15 degree angular deflection at each end and maximum movement in all 3 planes at the same time
2. Ductile iron body complying with ANSI/AWWA C153/A21.53
3. Flanged ends complying with ANSI/AWWA C110/A21.10
4. Fusion bonded epoxy internal lining complying with ANSI/AWWA C213 at least 15 mils thick
5. Internal expansion sleeve limiting stop collars and pressure balanced
6. Ball joints contained in flanged retainers with seal gaskets
7. Working pressure of at least 350 psi for sizes 24 inches and smaller and 250 psi for sizes larger than 24 inches

8. NSF 61 certification

The seismic expansion assembly must be factory set at 1/2 the extension capacity.

**20-2.14C(2)(h) Lateral Restraint Assemblies**

Lateral restraint assemblies must be (1) constructed from commercial quality steel components complying with section 75-1.02, (2) adjustable, and (3) able to resist a horizontal force of 10 percent of the contributory dead load.

**20-2.14C(3) Construction**

Each ductile iron pipe must be connected and fully extended (pulled out) after joint assembly before the next pipe section is added.

Install flange insulating gaskets on the outside flange of seismic expansion assemblies and expansion assemblies.

**20-2.14C(4) Payment**

Supply line on structures is paid for as supply line (bridge).

**20-2.15 TEMPORARY IRRIGATION SYSTEMS**

Reserved

**20-2.16–20-2.19 RESERVED**

**20-3 PLANTING**

**20-3.01 GENERAL**

**20-3.01A General**

**20-3.01A(1) Summary**

Section 20-3 includes specifications for performing planting work in new and existing landscapes.

**20-3.01A(2) Definitions**

Reserved

**20-3.01A(3) Submittals**

**20-3.01A(3)(a) General**

Submit nursery invoices showing species or variety and inspection certificates for plants.

Submit documentation of clearance from the county agricultural commissioner for plants obtained from a county outside the project limits.

If a root stimulant is required, submit a copy of the root stimulant manufacturer's product sheet and instructions for the application of the root stimulant.

If cuttings are to be taken from outside the right-of-way, submit proof of permits and payment of associated fees. Notify the Engineer of the location at least 15 days before taking cuttings.

**20-3.01A(3)(b) Vendor Statements**

At least 60 days before planting the plants, submit a statement from the vendor that the order for the plants required, including sample plants used for inspection, has been received and accepted by the vendor. The statement from the vendor must include the plant names, sizes, and quantities and the anticipated delivery date.

**20-3.01A(3)(c) Certificates of Compliance**

Submit a certificate of compliance for:

1. Sod
2. Soil amendment

**20-3.01A(4) Quality Control and Assurance**

Plants must comply with federal and state laws requiring inspection for diseases and infestations. Inspection certificates required by law must accompany each shipment of plants.

Obtain clearance from the county agricultural commissioner before planting plants delivered from a county outside the project limits.

The Engineer inspects the roots of container-grown sample plants by removing earth from the rootball of not less than 2 plants, nor more than 2 percent of the total number of plants of each species or variety. If container-grown plants are purchased from several sources, the Engineer inspects the roots of not less than 2 of each sample plant species or variety from each source. The rootball of container grown plants must not show evidence of being underdeveloped, deformed, or having been restricted.

If the Engineer finds noncompliant plants, the entire lot represented by the noncompliant sample plants will be rejected.

Cuttings with mature or brown stems and cuttings that have been trimmed will be rejected.

**20-3.01B Materials**

**20-3.01B(1) General**

Notify the Engineer at least 10 days before the plants are shipped to the job site.

**20-3.01B(2) Plants**

**20-3.01B(2)(a) General**

Plants must be the variety and size shown and true to the type or name shown. Plants must be individually tagged or tagged in groups identifying the plants by species or variety. Tagging is not required for cuttings.

Plants must be healthy, well-formed, not root-bound, free from insect pests and disease, and grown in nurseries inspected by the Department of Food and Agriculture.

The plants must comply with the size and type shown in the following table:

Plant group designation	Description	Container size (cu in)
A	No. 1 container	152–251
B	No. 5 container	785–1242
C	Balled and burlapped	--
E	Bulb	--
F	In flats	--
H	Cutting	--
I	Pot	--
K	24-inch box	5775–6861
M	Liner <sup>a</sup>	--
O	Acorn	--
P	Plugs <sup>a, b</sup>	--
S	Seedling <sup>c</sup>	--
U	No. 15 container	2768–3696

<sup>a</sup>Do not use containers made of biodegradable material.

<sup>b</sup>Grown in individual container cells.

<sup>c</sup>Bare root.

Trucks used for transporting plants must be equipped with covers to protect plants from windburn.

Handle and pack plants in an authorized way for the species or variety.

### **20-3.01B(2)(b) Cuttings**

#### **20-3.01B(2)(b)(i) General**

Take cuttings at random from healthy, vigorous plants. Make cuts with sharp, clean tools. Do not take more than 25 percent of an individual plant and not more than 50 percent of the plants in an area.

Keep cuttings covered and wet until planted. Do not allow cuttings to dry or wither.

Plant cuttings no more than 2 days after being cut.

#### **20-3.01B(2)(b)(ii) *Carpobrotus* and *Delosperma* Cuttings**

You may take cuttings for new *Carpobrotus* and *Delosperma* groundcover from the existing highway planting areas, but these areas may not provide enough material to complete the work. Contact the local District's encroachment permit office to obtain a permit to harvest cuttings, identify acceptable cutting harvest areas, and to determine acceptable quantities to take.

Take tip cuttings from healthy, vigorous *Carpobrotus* and *Delosperma* plants that are free of pests and disease.

*Carpobrotus* cuttings must be 10 inches or more in length and not have roots.

*Delosperma* cuttings must be 6 inches or more in length and not have roots.

#### **20-3.01B(2)(b)(iii) Willow Cuttings**

Take willow cuttings from areas shown or designated by the Engineer.

Willow cuttings must be:

1. Reasonably straight
2. 20 to 24 inches in length
3. 3/4 to 1-1/2 inch in diameter at the base of the cutting

Cut the top of each willow cutting square above a leaf bud. Cut the base below a leaf bud at approximately a 45 degree angle. Trim off leaves and branches flush with the stem of the cutting.

#### **20-3.01B(2)(b)(iv) Cottonwood Cuttings**

Cottonwood cuttings must comply with the requirements for willow cuttings in section 20-3.01B(2)(b)(iii).

#### **20-3.01B(2)(b)(v)–20-3.01B(2)(b)(viii) Reserved**

#### **20-3.01B(2)(c) Sod**

Sod must:

1. Be grown to comply with the Food & Agri Code
2. Be free from weeds and undesirable types of grasses and clovers
3. Be field-grown on soil containing less than 50 percent silt and clay
3. Have less than 1/2-inch-thick thatch
4. Not be less than 8 months or more than 16 months old
5. Be machine-cut to a uniform soil thickness of  $5/8 \pm 1/4$  inch, not including top growth and thatch

Protect sod with tarps or other protective covers during delivery. Do not allow sod to dry out during delivery or before placement.

#### **20-3.01B(3) Soil Amendment**

Soil amendment must comply with the requirements in the Food & Agri Code. Soil amendment must be one or a combination of the following:

1. Sphagnum peat moss
2. Nitrolized fir bark
3. Vermiculite
4. Perlite



**20-3.01B(4) Fertilizers**

**20-3.01B(4)(a) General**

Deliver fertilizer in labeled containers showing weight, chemical analysis, and manufacturer's name.

Fertilizer must comply with the requirements of the Food & Agri Code.

**20-3.01B(4)(b) Slow-release Fertilizers**

Slow-release fertilizer must be a pelleted or granular form with a nutrient release over an 8 to 12 month period and must comply with the chemical analysis ranges shown in the following table:

Ingredient	Content (percent)
Nitrogen (N)	16–21
Phosphoric acid (P)	6–8
Water soluble potash (K)	4–10

**20-3.01B(4)(c) Packet Fertilizers**

Packet fertilizer must be a biodegradable packet with a nutrient release over a 12 month period. Each packet must have a weight of 10 ± 1 grams and must comply with the chemical analysis shown in the following table:

Ingredient	Content (percent)
Nitrogen(N)	20
Phosphoric acid (P)	10
Water soluble potash (K)	5

**20-3.01B(4)(d) Organic Fertilizers**

Organic fertilizer must be pelleted or granular with a cumulative nitrogen release rate of no more than 70 percent for the first 70 days after incubation at 86 degrees F with 100 percent at 350 days or more. Organic fertilizer must comply with the chemical analysis shown in the following table:

Ingredient	Content (percent)
Nitrogen (N)	5–7
Phosphoric acid (P)	1–5
Water soluble potash (K)	1–10

**20-3.01B(5) Root Stimulants**

Root stimulant must be a commercial quality product.

**20-3.01B(6) Plaster Sand**

Backfill material for the transplant palm tree planting holes must be 100 percent commercial quality washed plaster sand.

**20-3.01B(7) Root Barrier**

Root barrier must be an injection molded or extruded modular panel made of high-density polypropylene or polyethylene plastic.

Each panel must:

1. Be at least 1/16-inch thick
2. Have at least 4 molded root-deflecting vertical ribs 0.5- to 0.8-inch wide, 6 to 8 inches apart
3. Have a locking strip or an integral male-female sliding lock designed to resist slippage between panels
4. Be at least 2 feet wide and 2 feet in depth

### **20-3.01B(8) Root Protectors**

Each root protector must be:

1. Fabricated from 1-inch, hexagonal pattern, 20-gauge mesh wire
2. Closed bottom design with a height and diameter that provides a minimum of 6 inches of clearance between the root ball and the sides and bottom of the wire cylinder

Wire edges at the top of the cylinder must be the uncut manufactured finished edge free of sharp points.

### **20-3.01B(9) Foliage Protectors**

Each foliage protector must be:

1. Fabricated from 1-inch, hexagonal pattern, 20-gauge mesh wire
2. Approximately 4 feet high and 2 feet in diameter

Wire edges at the top of the cylinder must be the uncut manufactured finished edge free of sharp points. Other wire edges that are cut must be free of sharp points.

Support stakes must be one of the following:

1. 3/4-inch reinforcing steel bar a minimum of 5 feet long with an orange or red plastic safety cap that fits snugly onto the top of the reinforcing steel bar
2. 2 inch nominal diameter or 2 by 2 inch nominal size wood stakes a minimum of 5 feet long. Wood stakes must be straight

The jute mesh cover must comply with section 21-1.02O(2). Twine required to hold the jute mesh cover in place must be 1/8-inch diameter manila hemp twine.

### **20-3.01B(10) Wood Plant Stakes**

Each plant stake must be nominal 2 by 2 inch or nominal 2-inch diameter and of sufficient length to keep the plant in an upright position.

Plant stakes for vines must be nominal 1 by 1 inch, 18 inches long.

### **20-3.01B(11) Plant Ties**

Plant ties must be extruded vinyl-based tape, 1 inch wide and at least 10 mils thick.

### **20-3.01C Construction**

#### **20-3.01C(1) General**

Apply a root stimulant under the manufacturer's instructions to the plants specified in the special provisions.

Before transporting the plants to the planting area, thoroughly wet the root ball.

#### **20-3.01C(2) Pruning**

Prune plants under the latest edition of ANSI A300 part 1, *Pruning*, published by the Tree Care Industry Association.

Do not use tree seal compounds to cover pruning cuts.

#### **20-3.01C(3) Watering**

Water existing plants to be maintained, transplanted trees, and new plants as needed to keep the plants in a healthy growing condition.

#### **20-3.01C(4) Replacement Plants**

Plants that show signs of failure to grow at any time or are so injured or damaged as to render them unsuitable for the purpose intended, must be removed, replaced, and replanted. Replace unsuitable plants within 2 weeks after the Engineer marks or indicates that the plants must be replaced.

Replacement planting must comply with the original planting requirements, spacing, and size provisions described for the plants being replaced.

Replacement planting for transplanted trees must comply with the work plan and be planted in the same planting hole.

Replacement ground cover plants must be the same species specified for the ground cover being replaced. Other replacement plants must be the same species as the plants being replaced.

Place orders for replacement plants with the vendor at the appropriate time so that the replacement plants are not in a root-bound condition.

The Department does not pay for replacement plants or the planting of replacement plants.

#### **20-3.01C(5) Maintain Plants**

Maintain plants from the time of planting until Contract acceptance if no plant establishment period is specified or until the start of the plant establishment period.

#### **20-3.01D Payment**

Reserved

### **20-3.02 EXISTING PLANTING**

#### **20-3.02A General**

##### **20-3.02A(1) Summary**

Section 20-3.02 includes specifications for pruning existing plants, transplanting trees, and maintaining existing planted areas.

Transplant palm trees between March 15 and October 15.

##### **20-3.02A(2) Definitions**

Reserved

##### **20-3.02A(3) Submittals**

Submit a work plan for:

1. Transplanting trees. The work plan must include methods for lifting, transporting, storing, planting, guying, and maintaining each tree to be transplanted. Include root ball size, method of root ball containment, and a maintenance program for each tree.
2. Maintaining existing planted areas. The work plan must include weed control, fertilization, mowing and trimming of turf areas, watering, and controlling rodents and pests.

Submit a copy of the manufacturer's product sheet for root stimulant including application instructions.

##### **20-3.02A(4) Quality Control and Assurance**

Inspect for deficiencies of existing planted areas in the presence of the Engineer. Complete the inspection within 15 days after the start of job site activities.

Deficiencies requiring corrective action include:

1. Weeds
2. Dead, diseased, or unhealthy plants
3. Missing plant stakes and tree ties
4. Inadequate plant basins and basin mulch
5. Other deficiencies needing corrective action to promote healthy plant life
6. Rodents and pests

#### **20-3.02B Materials**

Not Used

#### **20-3.02C Construction**

##### **20-3.02C(1) General**

Correct deficiencies of existing planted areas as ordered within 15 days of the order. Correction of deficiencies is change order work.

After deficiencies are corrected, perform work to maintain existing planted areas in a neat and presentable condition and to promote healthy plant growth through Contract acceptance.

#### **20-3.02C(2) Prune Existing Plants**

Prune existing plants as shown.

If no bid item for prune existing plants is included, prune existing plants as ordered. Pruning existing plants is change order work.

#### **20-3.02C(3) Transplant Trees**

Prune each tree to be transplanted immediately before lifting.

If the tree to be transplanted is a palm, prune by removing dead fronds and frond stubs from the trunk. Remove green fronds up to 2 rows of fronds away from the center of growth. Tie the remaining 2 rows of fronds in an upright position with light hemp or manila rope. Remove fronds and frond stubs at the trunk in a manner that will not injure the trunk. Remove fronds and frond stubs for *Phoenix dactylifera* (Date Palm) approximately 4 inches from the trunk.

Prepare each hole in the new location before lifting the tree to be transplanted.

Lift tree to be transplanted as described in the work plan.

Comply with section 20-3.03C(3) for handling and planting each tree to be transplanted.

Until replanted, cover exposed root ball with wet burlap or canvas and cover the crown with 90 percent shade cloth.

Replant each tree on the same day it is lifted if possible. If the transplant location is not ready to receive the tree, store and maintain the tree to be transplanted until the transplant location is authorized. Store tree in an upright position.

Replace damaged transplanted tree under 20-3.01C(4) and with the number of trees specified in the special provisions.

The replacement trees must be planted in individual plant holes at the location determined by the Engineer within the area of the tree being replaced. Comply with section 20-3.03C(2) for the planting of the replacement trees.

#### **20-3.02C(4) Maintain Existing Planted Areas**

If a bid item for maintain existing planted areas is included, the existing plant basins must be kept well-formed and free of sediment. If the existing plant basins need repairs, and the basins contain mulch, replace the mulch after the repairs are done.

Control weeds within the existing planted area and:

1. From the existing planted area limit to the adjacent edges of paving and fences if less than or equal to 12 feet
2. From the existing planted area limit to 6 feet beyond the outer limit of the existing planted area if the adjacent edge of paving or fence is more than 12 feet away
3. Within a 3-foot radius from each existing tree and shrub

If no bid item for maintain existing planted areas is included, maintain existing planted areas as ordered. Maintain existing planted areas is change order work.

#### **20-3.02D Payment**

Not Used

### **20-3.03 PLANTING WORK**

#### **20-3.03A General**

Section 20-3.03 includes specifications for planting plants.

### **20-3.03B Materials**

Not Used

### **20-3.03C Construction**

#### **20-3.03C(1) General**

Do not begin planting until authorized.

If an irrigation system is required, do not begin planting in an area until the functional test has been completed and authorized for the irrigation system serving that area.

#### **20-3.03C(2) Preparing Planting Areas**

The location of each plant is as shown unless the Engineer designates otherwise. If the Engineer designates the location, it will be marked by a stake, flag, or other marker.

Conduct work so the existing flow line in drainage ditches is maintained. Material displaced by your operations that interferes with drainage must be removed.

Where a minimum distance to a drainage ditch is shown, locate the plant so that the outer edge of its basin wall is at least the minimum distance shown for each plant involved.

Excavate each planting hole by hand digging or by drilling. The bottom of each planting hole must be flat. Do not use water for excavating the hole.

Unless a larger planting hole is specified, the planting hole must be large enough to receive the root ball or the total length and width of roots, backfill, amendments, and fertilizer. Where rock or other hard material prohibits the hole from being excavated, a new hole must be excavated and the abandoned hole backfilled.

#### **20-3.03C(3) Planting Plants**

##### **20-3.03C(3)(a) General**

Do not plant plants in soil that is too wet, too dry, not properly conditioned as specified, or in an unsatisfactory condition for planting.

Do not distribute more plants than can be planted and watered on that day.

Water plants immediately after planting. Apply water until the backfill soil around and below the roots or ball of earth around the roots of each plant is thoroughly saturated. When watering with a hose, use a nozzle, water disbursement device, or pressure reducing device. Do not allow the full force of the water from the open end of the hose to fall within the basin around any plant. Groundcover plants in areas with an irrigation system must be watered by sprinklers. Several consecutive watering cycles may be necessary to thoroughly saturate the soil.

If shown, install root barriers between trees and concrete sidewalk or curb. Install panels flush with finished grade and join with locking strips or integral male-female sliding locks. Install barriers with root deflectors facing inward.

If a tree grate is shown, install root barrier panels 0.5 inch above finish grade or as shown.

Adjust planting locations so that each tree or shrub is at least 8 feet away from any sprinkler.

Where a tree, shrub, or vine is to be planted within a groundcover area or cutting planting area, plant it before planting groundcover or cuttings.

Where shrubs and groundcovers are shown to be planted in groups, the outer rows directly adjacent to the nearest roadway or highway fence must be parallel to the nearest roadway or highway fence. Stagger shrubs and groundcovers in adjacent rows. Adjust the alignment of the plants within the outer rows.

Core holes in concrete masonry block wall as shown.

Where a vine is to be planted against a wall or fence, plant it as close as possible to the wall or fence. If a vine planted next to a wall is to be staked, stake and tie the vine at the time of planting. A vine planted next to a fence must be tied to the fence at the time of planting.

Protect tree trunks from injury. Do not:

1. Drag tree
2. Use chains to move a tree
3. Lay tree on the ground

### **20-3.03C(3)(b) Trees, Shrubs, and Vines**

After preparing holes, thoroughly mix soil amendment and granular fertilizer at the rate shown with native soil to be used as backfill material. Remove containers from plants in such a manner that the ball of earth surrounding the roots is not broken. Do not cut plant containers before delivery of the plants to the planting area. Plant and water plants immediately after removal from their containers.

Place packet fertilizer in the backfill within 6 to 8 inches of the ground surface and approximately 1 inch from the root ball. If more than 1 packet is required per plant, distribute the packets evenly around the root ball.

If a root stimulant is to be used, apply it according to the manufacturer's instructions.

If required, install root protectors in the plant holes as shown.

Ensure roots are not restricted or distorted.

Distribute backfill uniformly throughout the entire depth of the plant hole without clods or lumps. After the planting holes have been backfilled, jet water into the backfill with a pipe or tube inserted into the bottom of the hole until the backfill material is saturated for the full depth. If the backfill material settles below this level, add additional backfill to the required level. If a plant settles deeper than shown, replant it at the required level.

Remove nursery stakes after planting.

Install 2 plant stakes for each plant to be staked at the time of planting as shown. Ensure the rootball is not damaged.

Tie the plant to the stakes with 2 plant ties, 1 tie to each stake. Each tie must form a figure 8 by crossing the tie between the plant and the stake as shown. Install ties at the lowest position that will support the plant in an upright position. Ties must provide trunk flexibility but not allow the trunk to rub against the stakes. Wrap each end of the tie 1-1/2 turns around the stake and securely tie.

Construct a watering basin around each plant as shown.

If required, install a foliage protector:

1. Over the plant within 2 days after planting.
2. Vertically and centered over the plant as shown

If foliage protectors are required:

1. Cut the bottom of the wire cylinder to match the slope of the ground. Do not leave sharp points of wire after cutting. Sharp points must be bent over or blunted.
2. Install 2 support stakes for foliage protectors vertically and embed in the soil on opposite sides of the plant as shown and in a transverse direction to the prevailing wind.
3. Either weave the support stakes through the wire cylinder mesh at 6 inch maximum centers or fasten the wire cylinder to the support stakes at 6 inch maximum centers.
4. Wire cylinder must be snug against the support stakes but loose enough to be raised for pesticide application or to perform weeding within the plant basin.
5. Install jute mesh cover over the foliage protector and secure with twine as shown.

### **20-3.03C(3)(c) Groundcover Plants**

Each groundcover planting area irrigated by a single control valve must be completely planted and watered before planting other groundcover planting areas.

Plant groundcover plants in moist soil, and in neat, straight rows, spaced as shown.

Apply fertilizer to groundcover plants and water into the soil immediately after planting.

### **20-3.03C(3)(d) Cuttings, Liners, Plugs, and Seedling Plants**

#### **20-3.03C(3)(d)(i) General**

Apply fertilizer to cuttings, liners, plugs, and seedling plants and water immediately after planting.

Ensure the soil is moist to a minimum depth of 8 inches before planting cuttings.

If a root stimulant is to be used, apply it according to the manufacturer's instructions.

#### **20-3.03C(3)(d)(ii) Willow Cuttings**

Unless otherwise shown, for willow cuttings excavate planting holes perpendicular to the ground line by using a steel bar, auger, post hole digger, or similar tools. Holes must be large enough to receive the cuttings and fertilizer packet. Plant willow cuttings to the specified depths without damaging the bark.

Where rock or other hard material prohibits the excavation of the planting holes, excavate new holes and backfill the unused holes.

Plant willow cuttings during the period specified in the special provisions.

Apply root stimulant according to the manufacturer's instructions.

Plant the base of the cutting 10 to 12 inches deep with 3 to 5 bud scars exposed above the ground. If more than 5 bud scars are exposed, trim off the excess willow cutting length.

Place 1 fertilizer packet in the backfill of each cutting, 6 to 8 inches below the ground surface and approximately 1 inch from the cutting.

Backfill the plant holes with excavated material after planting. Distribute the excavated material evenly within the hole without clods, lumps, or air pockets. Compact the backfill so that the cutting cannot be easily removed from the soil. Do not damage the cutting's bark.

Dispose of trimmings and unused cuttings.

#### **20-3.03C(3)(d)(iii) Cottonwood Cuttings**

Reserved

#### **20-3.03C(3)(d)(iv) *Carpobrotus* and *Delosperma* Cuttings**

Plant *Carpobrotus* cuttings to a depth so that not less than 2 nodes are covered with soil. The basal end of *Delosperma* cuttings must not be less than 2 inches below the surface of the soil and the basal end of *Carpobrotus* cuttings must not be less than 4 inches below the surface of the soil.

Apply root stimulant to *Delosperma* cuttings before planting.

Do not plant *Carpobrotus* or *Delosperma* cuttings in soil that does not contain sufficient moisture at an average depth of 2 inches below the surface.

#### **20-3.03C(3)(d)(v) Liner Plants**

Plant liner plants during the period specified in the special provisions.

If a foliage protector is required, install under section 20-3.03C(3)(b).

#### **20-3.03C(3)(d)(vi) Plug Plants**

Plant plug plants during the period specified in the special provisions.

#### **20-3.03C(3)(d)(vii) Seedling Plants**

Plant seedling plants during the period specified in the special provisions.

#### **20-3.03C(3)(e) Sod**

After all other planting is performed, grade sod areas to drain and to a smooth and uniform surface. Fine grade and roll sod areas before placing sod.

Areas adjacent to sidewalks, edging, and other paved borders and surfaced areas must be 1 inch below the finished surface elevation of the facilities, after fine grading, rolling, and settlement of the soil.

Place sod such that the end of each adjacent strip is staggered a minimum of 2 feet. Place the edge and end of sod firmly against adjacent sod and against sidewalks, edging, and other paved borders and surfaced areas.

Lightly roll the entire sodded area to eliminate air pockets and ensure close contact with the soil after placement of sod. Water the sodded areas so that the soil is moist to a minimum depth of 4 inches after rolling. Do not allow the sod to dry out.

If irregular or uneven areas appear in the sodded areas, restore to a smooth and even appearance.

Trim sod to a uniform edge at sidewalks, edging, and other paved borders and surfaced areas. Trimming must be repeated whenever the edge of sod extends 1 inch beyond the edge of the edging, sidewalks, and other paved borders and surfaced areas. Remove and dispose of trimmed sod.

Mow sod when it has reached a height of 4 inches. Mow sod to a height of 2.5 inches.

### **20-3.03D Payment**

Soil amendment is measured in the vehicle at the point of delivery.

Measurement for slow-release fertilizer, organic fertilizer, or iron sulfate is determined from marked weight or sack count.

Various sizes and types of plants are measured by either the product of the average plant density and the total area planted or by actual count of the living plants in place, determined by the Engineer. The average plant density is the number of living plants per sq yd determined from actual count of test areas chosen representing the total planted area. The size and location of the test areas is determined by you and the Engineer, except that the total area tested must be equal to not less than 3 percent nor more than 5 percent of the planted area being determined. The Engineer makes the final determination of the areas to be tested.

### **20-3.04–20-3.08 RESERVED**

## **20-4 PLANT ESTABLISHMENT WORK**

### **20-4.01 GENERAL**

#### **20-4.01A Summary**

Section 20-4 includes specifications for performing plant establishment work.

Plant establishment consists of caring for the plants, including watering, fertilizing, pruning, replacing damaged plants, pest control, and operating and repairing of all existing irrigation facilities used and irrigation facilities installed as part of the new irrigation system.

Working days on which no work is required, as determined by the Engineer, will be credited as a plant establishment working day, regardless of whether or not you perform plant establishment work.

Working days whenever you fail to adequately perform plant establishment work will not be credited toward the plant establishment working days.

#### **20-4.01B Definitions**

**Type 1 plant establishment:** Plant establishment period with the number of working days specified for plant establishment beginning after all work has been completed except for plant establishment work and other bid items specified to be performed until Contract acceptance.

**Type 2 plant establishment:** Plant establishment period with the number of working days specified for plant establishment beginning after all planting work has been completed except for plant establishment work and other bid items specified to be performed until Contract acceptance, provided that the Contract must not be accepted unless the plant establishment work has been satisfactorily performed for at least the number of working days specified for plant establishment.

If maintenance and protection relief is granted for a completed portion of the work under section 5-1.38, Type 2 plant establishment period for the completed portion of the work is the time between



completion of all planting work except for plant establishment work, and the granting of maintenance and protection relief, provided that the relief must not be granted unless the plant establishment work in the completed portion of the work has been satisfactorily performed for at least the number of working days specified for the plant establishment period.

#### **20-4.01C Submittals**

##### **20-4.01C(1) General**

Submit seasonal watering schedules for use during the plant establishment period within 10 days after the start of the plant establishment period. Remote irrigation control system watering schedule must utilize the remote irrigation control system software program.

Submit updated watering schedules within 5 business days after any changes have been made to the authorized schedules.

Submit a revised watering schedule for each irrigation controller not less than 30 days before completion of the plant establishment period.

##### **20-4.01C(2) Notification**

The Engineer will notify you in writing when the plant establishment period begins and will furnish statements regarding the number of working days credited to the plant establishment period after the notification.

Notify the Engineer at least 5 business days before applying each application of fertilizer.

#### **20-4.01D Quality Control and Assurance**

Provide training by a qualified person on the use and adjustment of the irrigation controllers installed, 30 days before completion of the plant establishment period.

Perform a final inspection of the plant establishment work in the presence of the Engineer between 20 and 30 days before Contract acceptance.

#### **20-4.02 MATERIALS**

##### **20-4.02A General**

Reserved

##### **20-4.02B Fertilizers**

Fertilizer must comply with section 20-3.01B(5).

#### **20-4.03 CONSTRUCTION**

##### **20-4.03A General**

Remove trash and debris.

Surplus earth accumulated in roadside clearing and planting areas must be removed.

Trim and mow turf areas as specified for sod in section 20-3.03C(3)(e). Dispose of trimmed and mowed material.

If irregular or uneven areas appear within turf areas, restore to a smooth and even appearance. Reseed turf seed areas.

Remove the tops of foliage protectors if plants become restricted.

Remove foliage protectors, including support stakes, within 30 days before the completion of the plant establishment period.

Keep plant basin walls well formed.

Clean new wye strainers and existing wye strainers that are a part of the new irrigation system annually until the completion of the plant establishment period. The last cleaning must be done within 15 days before the completion of the plant establishment period.

Remove, clean, and reinstall new filters and existing filters that are a part of the new irrigation system annually until the completion of the plant establishment period. The last cleaning must be done within 15 days before the completion of the plant establishment period.

**20-4.03B Plant Growth Control**

Prune plants planted as part of the Contract as authorized.

Remove plant growth that extends within 2 feet of sidewalks, curbs, dikes, shoulders, walls or fences.

Remove proposed and existing ground cover from within the plant basins, including basin walls, turf areas, and planting areas within edging.

Vines next to walls and fences must be kept staked and tied. Train vines on fences and walls or through cored holes in walls.

**20-4.03C Fertilizers**

Apply fertilizer to the plants as specified and water into the soil after each application.

Apply fertilizer at the rates shown and spread with a mechanical spreader, whenever possible.

**20-4.03D Weed Control**

Control weeds under section 20-1.03C(3).

**20-4.03E Plant Staking**

Replace the plant stakes that are inadequate to support plants with larger stakes.

Remove plant stakes when the Engineer determines they are no longer needed.

**20-4.03F Replacement Plants**

Replacement plants must comply with section 20-3.01C(4).

Replacement of plants up to and including the 125th plant establishment working day must be with a plant of the same size as originally specified. Plants of a larger container size than those originally specified for replacement plants may be used during the first 125 working days of the plant establishment period.

Replacement of plants after the 125th plant establishment working day must comply with the following size requirements:

Plant size (Original)	Plant size (Replacement)
Pot/liner/plug/seedling	No. 1 container
No. 1 container	No. 5 container
No. 5 container	No. 15 container

Other replacement plants must be the same size as originally specified.

Replacement ground cover plants must comply with the following spacing requirements:

Original spacing (inches)	On center spacing of replacement ground cover plants (inches)		
	Number of completed plant establishment working days		
	1–125	126–190	191–End of plant establishment period
9	9	6	6
12	12	9	6
18	18	12	9
24	24	18	12
36	36	24	18

**20-4.03G Watering**

Operate the electric automatic irrigation systems in the automatic mode unless authorized.

If any component of the electric automatic irrigation system is operated manually, the day will not be credited as a plant establishment working day unless the manual operation is authorized.

Water plants utilizing the remote irrigation control system software program unless authorized.

Implement the watering schedule at least 10 days before completion of the plant establishment period.

**20-4.04 PAYMENT**

Not Used

**20-5 LANDSCAPE ELEMENTS**

**20-5.01 GENERAL**

**20-5.01A General**

Section 20-5 includes specifications for constructing and installing landscape elements.

**20-5.01B Materials**

Not Used

**20-5.01C Construction**

Earthwork must comply with section 19.

**20-5.01D Payment**

Not Used

**20-5.02 EDGING**

**20-5.02A General**

Section 20-5.02 includes specifications for constructing landscape edging.

**20-5.02B Materials**

**20-5.02B(1) General**

Reserved

**20-5.02B(2) Header Board Edging**

Lumber for header board edging must be one of the following types:

1. Construction grade cedar
2. Pressure-treated Douglas fir
3. Construction heart grade redwood complying with section 57-2.01B(2)

Lumber must be:

1. Rough cut from sound timber.
2. Straight. Sweep must not exceed 1 inch in 6 feet.
3. Free from loose or unsound knots. Knots must be sound, tight, well spaced, and not to exceed 2 inches in size on any face.
4. Free of shakes in excess of 1/3 the thickness of the lumber.
5. Free of splits longer than the thickness of the lumber.
6. Free of other defects that would render the lumber unfit structurally for the purpose intended.

Edging anchors for header board edging must be stakes of the size and shape shown.

#### **20-5.02B(3) Metal Edging**

Metal edging must be commercial quality, made of aluminum or steel, and have an L-shaped design. Edging must be a minimum of 4 inches in height. The thickness must be as recommended by the manufacturer for the use intended.

Edging anchors must be from the same manufacturer as the metal edging.

#### **20-5.02B(4) High Density Polyethylene Edging**

HDPE edging must be commercial quality and a minimum of 4 inches in height. The thickness must be as recommended by the manufacturer for commercial installation for the use intended.

Edging anchors must be from the same manufacturer as HDPE edging.

#### **20-5.02B(5) Concrete Edging**

Concrete for edging must be minor concrete.

#### **20-5.02B(6)–20-5.02B(10) Reserved**

#### **20-5.02C Construction**

##### **20-5.02C(1) General**

Where edging is used to delineate the limits of inert ground cover or mulch areas, install edging before installing inert ground cover or mulch areas.

Saw cut surfaces where (1) asphalt concrete or concrete surfacing must be removed to permit the installation of edging and (2) no joint exists between the surfacing to be removed and the surfacing to remain in place. The surfacing must be cut in a straight line to a minimum depth of 2 inches with a power-driven saw before the surfacing is removed. Spike or stake spacing must comply with the manufacturer's instructions for use and site conditions.

##### **20-5.02C(2) Header Board Edging**

Each stake must be driven flush with the top edge of the header board edging and the stake top must be beveled away from the header board at a 45 degree angle. Attach stake to header board with a minimum of two 12-penny hot dipped galvanized nails per stake.

##### **20-5.02C(3) Metal and High Density Polyethylene Edging**

Spike or stake spacing must comply with the manufacturer's instructions for use and site conditions.

##### **20-5.02C(4) Concrete Edging**

Construct and finish minor concrete edging under section 73-2.

##### **20-5.02C(5)–20-5.02C(9) Reserved**

##### **20-5.02D Payment**

Edging is measured parallel to the ground surface.

#### **20-5.03 INERT GROUND COVERS AND MULCHES**

##### **20-5.03A General**

##### **20-5.03A(1) General**

##### **20-5.03A(1)(a) Summary**

Section 20-5.03 includes specifications for installing inert ground covers and mulches.

### **20-5.03A(1)(b) Definitions**

Reserved

### **20-5.03A(1)(c) Submittals**

Submit:

1. Filter fabric product data including the manufacturer's product sheet and installation instructions
2. Certificate of compliance for filter fabric at least 5 business days before delivery of the material to the job site

### **20-5.03A(1)(d) Quality Control and Assurance**

Reserved

### **20-5.03A(2) Materials**

Soil sterilant must be oxadiazon granular preemergent and must comply with section 20-1.02C.

Filter fabric must be Class A. Staples for filter fabric must comply with section 21-1.02R.

### **20-5.03A(3) Construction**

#### **20-5.03A(3)(a) General**

Before performing inert ground cover and mulch work, remove plants and weeds to ground level.

#### **20-5.03A(3)(b) Earthwork**

Excavate areas to receive inert ground cover or mulch to the depth shown. Maintain the planned flow lines, slope gradients, and contours of the job site. Grade subgrade to a smooth and uniform surface and compact to not less than 90 percent relative compaction.

#### **20-5.03A(3)(c) Treatment of Soil**

After compaction, apply soil sterilant at the maximum label rate. Do not apply soil sterilant more than 12 inches beyond the inert ground cover or mulch limits. The soil sterilant application and inert ground cover or mulch placement must be completed within the same work day.

#### **20-5.03A(3)(d) Filter Fabric**

Immediately before placing filter fabric, surfaces to receive filter fabric must be free of loose or extraneous material and sharp objects that may damage the filter fabric during installation.

Align fabric and place in a wrinkle-free manner.

Overlap adjacent rolls of the fabric from 12 to 18 inches. Spread each overlapping roll in the same direction. Fasten fabric with staples flush with the adjacent fabric to prevent movement of fabric by placement of inert ground cover or mulch.

Repair or replace fabric damaged during placement of inert ground cover or mulch with sufficient fabric to comply with overlap requirements.

### **20-5.03A(4) Payment**

Not Used

### **20-5.03B Rock Blanket**

#### **20-5.03B(1) General**

##### **20-5.03B(1)(a) Summary**

Section 20-5.03B includes specifications for placing rock blanket.

##### **20-5.03B(1)(b) Definitions**

Reserved

##### **20-5.03B(1)(c) Submittals**

Submit a 1 sq yd sample of the various rock sizes.

**20-5.03B(1)(d) Quality Control and Assurance**

Reserved

**20-5.03B(2) Materials**

**20-5.03B(2)(a) General**

Do not use filter fabric.

**20-5.03B(2)(b) Concrete**

Concrete must be minor concrete.

**20-5.03B(2)(c) Rock**

Rock must be clean, smooth, and obtained from a single source and must comply with the following grading requirements:

**Grading Requirements**

Screen size (inches)	Percentage passing
8	100
6	50-85
4	0-50

**20-5.03B(2)(d) Mortar**

Mortar must comply with section 51-1.02F.

**20-5.03B(3) Construction**

Place concrete as shown.

Rock must be placed while concrete is still plastic. Remove concrete adhering to the exposed surfaces of the rock.

Loose rocks or rocks with a gap greater than 3/8 inch must be reset by an authorized method. The rock gap is measured from the edge of the rock to the surrounding concrete bedding.

Place mortar as shown.

**20-5.03B(4) Payment**

Rock blanket is measured parallel to the rock blanket surface.

**20-5.03C Gravel Mulch**

**20-5.03C(1) General**

**20-5.03C(1)(a) Summary**

Section 20-5.03C includes specifications for placing gravel mulch.

**20-5.03C(1)(b) Definitions**

Reserved

**20-5.03C(1)(c) Submittals**

Submit a 5-lb sample of the gravel mulch.

**20-5.03C(1)(d) Quality Control and Assurance**

Reserved

**20-5.03C(2) Materials**

Gravel mulch must be:

1. Uniform gray color
2. From a single source only
3. Crushed rock that complies with the following grading requirements:

### Grading Requirements

Sieve size	Percent passing
1-1/4 inch	100
3/4 inch	60-80
1/2 inch	45-65
No. 40	5-20

#### 20-5.03C(3) Construction

Place gravel and compact by rolling.

The finished gravel mulch surface must be smooth and uniform, maintaining original flow lines, slope gradients, and contours of the job site.

#### 20-5.03C(4) Payment

Gravel mulch is measured parallel to the gravel mulch surface.

#### 20-5.03D Decomposed Granite

##### 20-5.03D(1) General

##### 20-5.03D(1)(a) Summary

Section 20-5.03D includes specifications for placing decomposed granite.

##### 20-5.03D(1)(b) Definitions

Reserved

##### 20-5.03D(1)(c) Submittals

Five business days before delivery of the materials to the job site, submit:

1. Solidifying emulsion product data including the manufacturers' product sheets and installation instructions
2. Certificate of compliance for solidifying emulsion
3. 5-lb sample of the decomposed granite

##### 20-5.03D(1)(d) Quality Control and Assurance

Test plot must be:

1. Constructed at an authorized location
2. At least 3 by 12 feet
3. Constructed using the materials, equipment, and methods to be used in the work
4. Authorized before starting work

Notify the Engineer not less than 7 days before constructing the test plot.

The Engineer uses the authorized test plot to determine acceptability of the work.

If ordered, prepare additional test plots. Additional test plots are change order work.

If the test plot is not incorporated into the work, the Engineer may order you to remove it.

##### 20-5.03D(2) Materials

##### 20-5.03D(2)(a) General

Decomposed granite must be:

1. Uniform gray or tan color
2. From one source only
3. Crushed granite rock that complies with grading requirements shown in the following table:

### Grading Requirements

Sieve size	Percent passing
3/8 inch	100
No. 4	95–100
No. 8	75–80
No. 16	55–65
No. 30	40–50
No. 50	25–35
No. 100	20–25
No. 200	5–15

Note:

Grading based upon AASHTO T11-82 and T27-82

#### **20-5.03D(2)(b) Solidifying Emulsion**

Solidifying emulsion must be either a water-based polymer or nontoxic organic powdered binder specifically manufactured to harden decomposed granite. The solidifying emulsion must not alter the decomposed granite color.

#### **20-5.03D(3) Construction**

Do not place decomposed granite during rainy conditions.

Mix solidifying emulsion thoroughly and uniformly throughout the decomposed granite and under the manufacturer's instructions. Mix the material in the field using portable mixing equipment, or delivered in mixer trucks from a local ready-mixed plant.

Place decomposed granite uniformly in layers no more than 1-1/2 inch thick. Compact each layer of decomposed granite to a relative compaction of not less than 90 percent. Begin compaction within 6 to 48 hours of placement.

If the material was mixed in the field, apply an application of solidifying emulsion after compaction as recommended by the manufacturer. Prevent runoff or overspray of solidifying emulsion onto adjacent paved or planting areas.

The finished decomposed granite surface must be smooth and uniform, compacted to a relative compaction of not less than 90 percent, maintaining original flow lines, slope gradients, and contours of the job site.

#### **20-5.03D(4) Payment**

Not Used

#### **20-5.03E Wood Mulch**

##### **20-5.03E(1) General**

##### **20-5.03E(1)(a) Summary**

Section 20-5.03E includes specifications for placing wood mulch.

##### **20-5.03E(1)(b) Definitions**

Reserved

##### **20-5.03E(1)(c) Submittals**

Submit a certificate of compliance for mulch.

Submit a 2 cu ft mulch sample with the mulch source listed on the bag and obtain approval before delivery of mulch to the job site.

##### **20-5.03E(1)(d) Quality Control and Assurance**

Reserved



### **20-5.03E(2) Materials**

#### **20-5.03E(2)(a) General**

Mulch must not contain more than 0.1 percent of deleterious materials such as rocks, glass, plastics, metals, clods, weeds, weed seeds, coarse objects, sticks larger than the specified particle size, salts, paint, petroleum products, pesticides or other chemical residues harmful to plant or animal life.

Do not use filter fabric.

#### **20-5.03E(2)(b) Tree Bark Mulch**

Tree bark mulch must be derived from cedar, Douglas fir, or redwood species.

Tree bark mulch must be ground so that at least 95 percent of the material by volume is less than 2 inches and no more than 30 percent by volume is less than 1 inch.

#### **20-5.03E(2)(c) Wood Chip Mulch**

Wood chip mulch must:

1. Be derived from clean wood
2. Not contain leaves or small twigs
3. Contain at least 95 percent wood chips by volume with average thickness of 1/16 to 3/8 inch in any direction and 1/2 to 3 inches in length

#### **20-5.03E(2)(d) Shredded Bark Mulch**

Shredded bark mulch must:

1. Be derived from trees
2. Be a blend of loose, long, thin wood, or bark pieces
3. Contain at least 95 percent wood strands by volume with average thickness of 1/8 to 1-1/2 inches in any direction and 2 to 8 inches in length

#### **20-5.03E(2)(e) Tree Trimming Mulch**

Tree trimming mulch must:

1. Be derived from chipped trees and may contain leaves and small twigs.
2. Contain at least 95 percent material by volume less than 3 inches and no more than 30 percent by volume less than 1 inch

#### **20-5.03E(2)(f)–20-5.03E(2)(j) Reserved**

#### **20-5.03E(3) Construction**

Spread mulch placed in areas outside of plant basins to a uniform thickness as shown.

Mulch must be placed at the rate described and placed in the plant basins or spread in areas as shown after the plants have been planted. Mulch placed in plant basins must not come in contact with the plant crown and stem.

Spread mulch from the outside edge of the proposed plant basin or plant without basin to the adjacent edges of shoulders, paving, retaining walls, dikes, edging, curbs, sidewalks, walls, fences, and existing plantings. If the proposed plant or plant without basin is 12 feet or more from the adjacent edges of shoulders, paving, retaining walls, dikes, edging, curbs, sidewalks, walls, fences, and existing plantings, spread the mulch 6 feet beyond the outside edge of the proposed plant basin or plant without basin.

Do not place mulch within 4 feet of:

1. Flow line of earthen drainage ditches
2. Edge of paved ditches
3. Drainage flow lines

#### **20-5.03E(4) Payment**

Mulch is measured in the vehicle at the point of delivery.

**20-5.03F–20-5.03J Reserved**

**20-5.04 RESERVED**

Reserved

**20-5.05 SITE FURNISHINGS**

**20-5.05A General**

Section 20-5.05 includes specifications for installing site furnishings.

**20-5.05B–20-5.05Z Reserved**

**20-5.06–20-5.10 RESERVED**

AA

**21 EROSION CONTROL**

07-19-13

**Replace ", bonded fiber matrix, and polymer-stabilized fiber matrix" in the 1st paragraph of section 21-1.01B with:**

and bonded fiber matrix

04-20-12

**Delete the last paragraph of section 21-1.02E.**

04-20-12

**Replace section 21-1.02F(2) with:**

**21-1.02F(2) Reserved**

04-20-12

**Replace "20-7.02D(1)" in the 1st paragraph of section 21-1.02H with:**

20-3.01B(4)

07-19-13

**Replace section 21-1.02J with:**

**21-1.02J Reserved**

04-20-12

**Replace the row for organic matter content in the table in the 4th paragraph of section 21-1.02M with:**

01-18-13

Organic matter content	TMECC 05.07-A Loss-on-ignition organic matter method (LOI) % dry weight basis	30–100
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**Replace section 28-2 with:**

07-19-13

## **28-2 LEAN CONCRETE BASE**

### **28-2.01 GENERAL**

#### **28-2.01A Summary**

Section 28-2 includes specifications for constructing lean concrete base (LCB).

#### **28-2.01B Definitions**

**coarse aggregate:** Aggregate retained on a no. 4 sieve.

**fine aggregate:** Aggregate passing a no. 4 sieve.

#### **28-2.01C Submittals**

##### **28-2.01C(1) General**

At least 25 days before field qualification, submit the name of your proposed testing laboratory.

At least 10 days before field qualification, submit:

1. Aggregate qualification test results
2. Proposed aggregate gradation
3. Mix design, including:
  - 3.1. Proportions
  - 3.2. Types and amounts of chemical admixtures
4. Optional notice stating intent to produce LCB qualifying for a transverse contraction joint waiver under section 28-2.03D

Submittals for cementitious material must comply with section 90-1.01C(3).

Submit QC test results within 24 hours of test completion.

##### **28-2.01C(2) Field Qualification**

11-15-13

For each field qualification for each mix design, manufacture 12 specimens under ASTM C 31 and submit six of the specimens from 24 to 72 hours after manufacture. Use one batch for all 12 specimens.

07-19-13

Submit field qualification data and test reports including:

1. Mixing date
2. Mixing equipment and procedures used
3. Batch volume in cu yd, the minimum is 5 cu yd
4. Type and source of ingredients used
5. Age and strength from compression strength results

Field qualification test reports must be signed by the official in responsible charge of the laboratory performing the tests.

#### **28-2.01D Quality Control and Assurance**

##### **28-2.01D(1) General**

Stop LCB activities and immediately notify the Engineer whenever:

1. Any quality control or acceptance test result does not comply with the specifications
2. Visual inspection shows noncompliant LCB

If LCB activities are stopped, before resuming activities:

1. Inform the Engineer of the adjustments you will make
2. Remedy or replace the noncompliant LCB

3. Obtain authorization

Molds for compressive strength testing under ASTM C 31 or ASTM C 192 must be 6 by 12 inches.

Quality control and assurance for cementitious materials and admixtures must comply with section 90-1.01D(1)

**28-2.01D(2) Aggregate Qualification Testing**

Qualify the aggregate for each proposed aggregate source and gradation. Qualification tests include (1) sand equivalent and (2) average 7-day compressive strength under ASTM C 39 on 3 specimens manufactured under ASTM C 192. The cement content for this test must be 300 lb/cu yd, and the 7-day average compressive strength must be at least 610 psi. Cement must be Type II portland cement under section 90-1.02B(2).

LCB must have from 3 to 4 percent air content during aggregate qualification testing.

**28-2.01D(3) Field Qualification Testing**

Before placing LCB, you must perform field qualification testing and obtain authorization for each mix design. Retest and obtain authorization for changes to authorized mixed designs.

Proposed mix designs must be field qualified before you place the LCB represented by those mix designs. Use an American Concrete Institute (ACI) certified "Concrete Laboratory Technician, Grade I" to perform field qualification tests and calculations.

Notify the Engineer at least 5 days before field qualification. Perform field qualification within the job site or a location authorized by the Engineer.

Field qualification testing includes compressive strength, air content, and penetration or slump in compliance with the table titled "Quality Control Requirements."

Field qualification testing for compressive strength must comply with the following:

1. Manufacture 12 cylinders under ASTM C 31 from a single batch
2. Perform 3 tests; each test consists of determining the average compressive strength of 2 cylinders at 7 days under ASTM C 39
3. The average compressive strength for each test must be at least 530 psi

If you submitted a notice to produce LCB qualifying for a transverse contraction joint waiver, manufacture additional specimens and test LCB for compressive strength at 3 days. Prepare compressive strength cylinders under ASTM C 31 at the same time using the same material and procedures as the 7-day compressive strength cylinders except do not submit 6 additional test cylinders. The average 3-day compressive strength for each test must be not more than 500 psi.

**28-2.01D(4) Quality Control Testing**

Provide a testing laboratory to perform quality control tests. Maintain sampling and testing equipment in proper working condition. Perform sampling under California Test 125.

Testing laboratories and testing equipment must comply with the Department's Independent Assurance Program.

Perform quality control sampling, testing, and inspection throughout LCB production and placement. LCB must comply with the requirements for the quality characteristics shown in the following table:

### Quality Control Requirements

Quality characteristic	Test method	Minimum sampling and testing frequency	Requirement
Sand equivalent (min)	ASTM D 2419	1 per 500 cubic yards but at least 1 per day of production	18
Aggregate gradation	ASTM C 136		Note a
Air content (max, percent) <sup>b</sup>	ASTM C 231		4
Penetration (inches)	ASTM C 360		0 to 1-1/2 nominal <sup>c, d</sup>
Slump (inches)	ASTM C 143		0-3 nominal <sup>c, d</sup>
Compressive strength (min, psi at 7 days)	ASTM C 39 <sup>e</sup>		530
Compressive strength (max, psi at 3 days) <sup>f</sup>	ASTM C 39 <sup>e</sup>		500

<sup>a</sup> Comply with the table titled "Aggregate Grading" in section 28-2.02C.

<sup>b</sup> If no single test in the first 5 air content tests exceeds 1-1/2 percent, no further air content tests are required.

<sup>c</sup> Maximum penetration must not exceed 2 inches and maximum slump must not exceed 4 inches

<sup>d</sup> Test for either penetration or slump

<sup>e</sup> Prepare cylinders under ASTM C 31

<sup>f</sup> Only applicable if you (1) submitted a notice stating intent to produce LCB qualifying for a transverse contraction joint waiver and (2) successfully field qualified the LCB for 3-day compressive strength. Make cylinders at the same time using the same material and procedures as QC testing for 7-day compressive strength.

#### 28-2.01D(5) Acceptance Criteria

For acceptance, properties of LCB must comply with values shown in the following table:

#### Acceptance Criteria Testing

Property	Test method	Value
Compressive strength (min, psi at 7 days)	ASTM C 39 <sup>a</sup>	530 <sup>b</sup>

<sup>a</sup> Cylinders prepared under ASTM C 31

<sup>b</sup> A compressive strength test represents up to (1) 1,000 cu yd or (2) 1 day's production if less than 1,000 cu yd.

#### 28-2.02 MATERIALS

##### 28-2.02A General

Water must comply with section 90-1.02D.

The air content in LCB must not exceed 4 percent. If the aggregate used for LCB is produced from processed reclaimed asphalt concrete or other material that may cause the air content to exceed 4 percent, reduce the air content with an admixture.

A water-reducing chemical admixture may be used. Water-reducing chemical admixture must comply with ASTM C 494, Type A or Type F.

Air-entraining admixtures must comply with section 90-1.02E.

##### 28-2.02B Cementitious Material

Portland cement must comply with section 90-1.02B. Portland cement content must not exceed 300 lb/cu yd.

SCM must comply with section 90-1.02B except the equations for SCM content under 90-1.02B(3) do not apply.

For aggregate qualification testing, use Type II portland cement under section 90-1.02B(2) without SCM.

### 28-2.02C Aggregate

Aggregate must be clean and free from decomposed material, organic material, and other deleterious substances. Aggregate samples must not be treated with lime, cement, or chemicals before testing for sand equivalent.

Use either 1-1/2 inch or 1 inch grading. Do not change your selected aggregate grading without authorization.

When tested under ASTM C 136, the percentage composition by weight of the aggregate must comply with the grading requirements for the sieve sizes shown in the following table:

Sieve sizes	Aggregate Grading			
	Percentage passing			
	1-1/2" maximum		1" maximum	
	Operating range	Contract compliance	Operating range	Contract compliance
2"	100	100	--	--
1-1/2"	90-100	87-100	100	100
1"	--	--	90-100	87-100
3/4"	50-85	45-90	50-100	45-100
3/8"	40-75	35-80	40-75	35-80
No. 4	25-60	20-65	35-60	30-65
No. 30	10-30	6-34	10-30	6-34
No. 200	0-12	0-15	0-12	0-15

Aggregate must comply with the quality requirements shown in the following table:

Aggregate Quality			
Property	Test Method	Operating range	Contract compliance
Sand equivalent (min)	ASTM D 2419	21	18
Compressive strength (min, psi at 7 days)	ASTM C 192 ASTM C 39	--	610 at 300 lb/cu yd cement content

Note: Cement must be Type II portland cement under section 90-1.02B(2).

If the aggregate grading or the sand equivalent test results, or both comply with contract compliance requirements but not operating range requirements, you may continue placing LCB for the remainder of the work day. Do not place additional LCB until you demonstrate the LCB to be placed complies with the operating range requirements.

### 28-2.03 CONSTRUCTION

#### 28-2.03A General

Do not allow traffic or equipment on the LCB for at least 72 hours after the 1st application of the curing compound and completion of contraction joints. Limit traffic and equipment on the LCB to that is required for placing additional layers of LCB or paving.

#### 28-2.03B Subgrade

Immediately before spreading LCB, the subgrade must:

1. Comply with the specified compaction and elevation tolerance for the material involved
2. Be free from loose or extraneous material
3. Be uniformly moist

Areas of subgrade lower than the grade established by the Engineer must be filled with LCB. The Department does not pay for filling low areas of subgrade.

#### 28-2.03C Proportioning, Mixing, and Transporting

Proportion LCB under section 90-1.02F except aggregate does not have to be separated into sizes.

Mix and transport LCB under section 90-1.02G except the 5th and 7th paragraphs in section 90-1.02G(6) do not apply.

### **28-2.03D Placing**

Place LCB under section 40-1.03H(1) except the 3rd paragraph does not apply.

Unless otherwise described, construct LCB in minimum widths of 12 feet separated by construction joints. For LCB constructed monolithically in widths greater than 26 feet, construct a longitudinal contraction joint offset no more than 3 feet from the centerline of the width being constructed.

Contraction joints must comply with section 40-1.03D(3).

Construct transverse contraction joints in intervals that result in LCB areas where the lengths and widths are within 20 percent of each other. Measure the widths from any longitudinal construction or longitudinal contraction joints.

The Engineer waives the requirement for transverse contraction joints if you:

1. Submitted a notice under 28-2.01C(1)
2. Successfully field qualified LCB for 3-day compressive strength testing
3. Submit QC test results for 3-day compressive strength under section 28-2.01D(4).

If concrete pavement will be placed on LCB, construct longitudinal construction and longitudinal contraction joints in the LCB. Provide at least 1 foot horizontal clearance from planned longitudinal construction and longitudinal contraction joints in the concrete pavement.

Do not mix or place LCB when the atmospheric temperature is below 35 degrees F. Do not place LCB on frozen ground.

### **28-2.03E Finishing**

Place LCB under section 40-1.03H(4) or under section 40-1.03H(5) except where there are confined work areas and when authorized:

1. Spread and shape LCB using suitable powered finishing machines and supplement with hand work as necessary
2. Consolidate LCB using high-frequency internal vibrators within 15 minutes after LCB is deposited on the subgrade
3. Vibrate with care such that adequate consolidation occurs across the full paving width and do not use vibrators for extensive weight shifting of the LCB

For LCB to be paved with HMA, before curing operation texture the LCB finished surface by dragging a broom, burlap, or a spring steel tine device. If using a spring steel tine device, the device must produce a scored surface with scores parallel or transverse to the pavement centerline. Texture at a time and in a manner that produces the coarsest texture for the method used.

For LCB to be paved with HMA, the finished surface must not vary more than 0.05 foot from the grade established by the Engineer.

Do not texture LCB that will be covered with concrete pavement. Before applying curing compound, finish LCB to a smooth surface free from mortar ridges and other projections.

For LCB to be paved with concrete pavement, the finished surface must not be above the grade, or more than 0.05 foot below the grade established by the Engineer.

The finished surface must be free from porous areas.

### **28-2.03F Curing**

After finishing LCB, cure LCB with pigmented curing compound under section 90-1.03B(3) and 40-1.03K except for LCB to be paved with concrete pavement, comply with section 36-2. Apply curing compound to the area to be paved with concrete pavement:

1. In 2 separate applications
2. Before the atmospheric temperature falls below 40 degrees F





**DIVISION IV SUBBASES AND BASES**  
**29 TREATED PERMEABLE BASES**

07-19-13

Replace "section 68-4.02C" in the 6th paragraph of section 29-1.03A with:

section 64-4.03

04-20-12

Replace "3rd" in the 4th paragraph of section 29-1.03C with:

4th

07-19-13

^^

Replace section 30 with:

**30 RECLAIMED PAVEMENTS**

04-20-12

**30-1 GENERAL**

04-20-12

**30-1.01 GENERAL**

Section 30 includes specifications for reclaiming the pavement section and constructing a base.

**30-2 FULL DEPTH RECLAIMED—FOAMED ASPHALT**

Reserved

**30-3-30-6 RESERVED**

^^

**DIVISION V SURFACINGS AND PAVEMENTS**

Replace section 36 with:

**36 GENERAL**

07-19-13

**36-1 GENERAL**

07-19-13

Section 36 includes general specifications for constructing surfacings and pavements.

**36-2 BASE BOND BREAKER**

Reserved

**36-3-36-15 RESERVED**

^^

## **37 BITUMINOUS SEALS**

03-21-14

Replace section 37-1.01 with:

01-18-13

### **37-1.01 GENERAL**

#### **37-1.01A Summary**

Section 37-1 includes general specifications for applying bituminous seals.

#### **37-1.01B Definitions**

Reserved

#### **37-1.01C Submittals**

Reserved

#### **37-1.01D Quality Control and Assurance**

##### **37-1.01D(1) General**

Reserved

##### **37-1.01D(2) Prepaving Conference**

For seal coats and micro-surfacing, schedule a prepaving conference at a mutually agreed upon time and place to meet with the Engineer.

Prepaving conference attendees must sign an attendance sheet provided by the Engineer. The prepaving conference must be attended by your:

1. Project superintendent
2. Paving construction foreman
3. Traffic control foreman

Be prepared to discuss:

1. Quality control
2. Acceptance testing
3. Placement
4. Training on placement methods
5. Checklist of items for proper placement
6. Unique issues specific to the project, including:
  - 6.1. Weather
  - 6.2. Alignment and geometrics
  - 6.3. Traffic control issues
  - 6.4. Haul distances
  - 6.5. Presence and absence of shaded areas
  - 6.6. Any other local issues

### **37-1.02 MATERIALS**

Not Used

### **37-1.03 CONSTRUCTION**

Not Used

### **37-1.04 PAYMENT**

Not Used

Replace section 37-2 with:

07-19-13

## 37-2 SEAL COATS

### 37-2.01 GENERAL

#### 37-2.01A General

##### 37-2.01A(1) Summary

Section 37-2 includes specifications for applying seal coats.

##### 37-2.01A(2) Definitions

Reserved

##### 37-2.01A(3) Submittals

Reserved

##### 37-2.01A(4) Quality Control and Assurance

The following personnel must attend the prepaving conference:

1. Aggregate suppliers
2. Chip spreader operators
3. Emulsion and binder distributor
4. Coated chips producer if coated chips are used

#### 37-2.01B Materials

Screenings must be broken stone, crushed gravel, or both. At least 90 percent of screenings by weight must be crushed particles as determined under California Test 205.

Screenings for seal coats must have the properties specified in the following table:

**Seal Coat Screenings**

Properties	Test method	Specification
Los Angeles Rattler, %, max	California Test	
Loss at 100 revolutions.	211	10
Loss at 500 revolutions.		40
Film stripping, %, max	California Test	25
	302	

#### 37-2.01C Construction

##### 37-2.01C(1) General

Wherever final sweeping or brooming of the seal coat surface is complete, place permanent traffic stripes and pavement markings within 10 days.

If you fail to place the permanent traffic stripes and pavement markings within the specified time, the Department withholds 50 percent of the estimated value of the seal coat work completed that has not received permanent traffic stripes and pavement markings.

##### 37-2.01C(2) Equipment

Equipment for seal coats must include and comply with the following:

1. Screenings haul trucks. Haul trucks must have:
  - 1.1. Tailgates that discharge screenings
  - 1.2. Devices to lock onto the rear screenings spreader hitch
  - 1.3. Dump beds that will not push down on the spreader when fully raised
  - 1.4. Dump beds that will not spill screenings on the roadway when transferred to the spreader hopper
  - 1.5. Tarpaulins to cover precoated screenings when haul distance exceeds 30 minutes or ambient temperature is less than 65 degrees F
2. Self-propelled screenings spreader. The spreader must have:
  - 2.1. Screenings hopper in the rear

- 2.2. Belt conveyors that carry the screenings to the front
- 2.3. Spreading hopper capable of providing a uniform screening spread rate over the entire width of the traffic lane in 1 application.
3. Self-propelled power brooms. Do not use gutter brooms or steel-tined brooms. Brooms must be capable of removing loose screenings adjacent to barriers that prevent screenings from being swept off the roadway, including curbs, gutters, dikes, berms, and railings.
4. Pneumatic-tired rollers. Pneumatic-tired rollers must be an oscillating type at least 4 feet wide. Each roller must be self-propelled and reversible. Pneumatic tires must be of equal size, diameter, type, and ply. The roller must carry at least 3,000 lb of load on each wheel and each tire must have an air pressure of  $100 \pm 5$  psi.

### **37-2.01C(3) Surface Preparation**

Before applying seal coat, cover manholes, valve and monument covers, grates, or other exposed facilities located within the area of application, using a plastic or oil resistant construction paper secured by tape or adhesive to the facility being covered. Reference the covered facilities with a sufficient number of control points to relocate the facilities after the application of the seal coat.

After completion of the seal coat operation, remove covers from the facilities.

Immediately before applying seal coat, clean the surface to receive seal coat by removing extraneous material and drying. Cleaning the existing pavement includes the use of brooms.

### **37-2.01C(4) Applying Emulsion and Asphalt Binder**

Prevent spray on existing pavement not intended for seal coat or on previously applied seal coat using a material such as building paper. Remove the material after use.

Align longitudinal joints between seal coat applications with designated traffic lanes.

For emulsion, overlap longitudinal joints by not more than 4 inches. You may overlap longitudinal joints up to 8 inches if authorized.

For areas not accessible to a truck distributor bar, apply the emulsion with a squeegee or other authorized means. For asphalt binder, hand spray nonaccessible areas. You may overlap the emulsion or asphalt binder applications before the application of screenings at longitudinal joints.

Do not apply the emulsion or asphalt binder unless there are sufficient screenings at the job site to cover the emulsion or asphalt binder.

Discontinue application of emulsion or asphalt binder early enough to comply with lane closure specifications and darkness. Apply to 1 lane at a time and cover the lane entirely in 1 operation.

### **37-2.01C(5) Spreading Screenings**

Prevent vehicles from driving on asphaltic emulsion or asphalt binder before spreading screenings.

Spread screenings at a uniform rate over the full lane width in 1 application.

Broom excess screenings at joints before spreading adjacent screenings.

Operate the spreader at speeds slow enough to prevent screenings from rolling over after dropping.

If the spreader is not moving, screenings must not drop. If you stop spreading and screenings drop, remove the excess screenings before resuming activities.

### **37-2.01C(6) Finishing**

Remove piles, ridges, or unevenly distributed screenings. Repair permanent ridges, bumps, or depressions in the finished surface. Spread additional screenings and roll if screenings are picked up by rollers or vehicles.

Seal coat joints between adjacent applications of seal coat must be smooth, straight, uniform, and completely covered. Longitudinal joints must be at lane lines and not overlap by more than 4 inches. Blend the adjacent applications by brooming.

A coverage is the number of passes a roller needs to cover the width. A pass is 1 roller movement parallel to the seal coat application in either direction. Overlapping passes are part of the coverage being made and are not part of a subsequent coverage. Do not start a coverage until completing the previous coverage.

Before opening to traffic, finish seal coat in the following sequence:

1. Perform initial rolling consisting of 1 coverage with a pneumatic-tired roller
2. Perform final rolling consisting of 3 coverages with a pneumatic-tired roller
3. Broom excess screenings from the roadway and adjacent abutting areas
4. Apply flush coat if specified

The Engineer may order salvaging of excess screenings.

Dispose of excess screenings the Engineer determines are not salvageable. Dispose of screenings in any of the following ways or locations:

1. Under section 14-10
2. On embankment slopes
3. In authorized areas

Salvaging and stockpiling excess screenings is change order work.

### **37-2.01C(7) Seal Coat Maintenance**

Seals coat surfaces must be maintained for 4 consecutive days from the day screenings are applied. Maintenance must include brooming to maintain a surface free of loose screenings, to distribute screenings over the surface so as to absorb any free asphaltic material, to cover any areas deficient in cover coat material, and to prevent formation of corrugations.

After 4 consecutive days, excess screenings must be removed from the paved areas. Brooming must not displace screenings set in asphaltic material.

The exact time of brooming will be determined by the Engineer. As a minimum, brooming will be required at the following times:

1. On 2-lane 2-way roadways, from 2 to 4 hours after traffic, controlled with pilot cars, has been routed on the seal coat
2. On multilane roadways, from 2 to 4 hours after screenings have been placed
3. In addition to previous brooming, immediately before opening any lane to public traffic, not controlled with pilot cars
4. On the morning following the application of screenings on any lane that has been open to public traffic not controlled with pilot cars and before starting any other activities

For 2-lane 2-way roadways under 1-way traffic control, upon completion of secondary rolling, public traffic must be controlled with pilot cars and routed over the new seal coat for a period of 2 to 4 hours. The Engineer will determine the exact period of time.

Schedule the operations so that seal coat is placed on both lanes of the traveled way each work shift and so that 1-way traffic control is discontinued 1 hour before darkness. At the end of the work shift, the end of the seal coat on both lanes must generally match.

On multilane roadways, initial brooming must begin after the screenings have been in place for a period of 2 to 4 hours. If the initial brooming is not completed during the work shift in which the screenings were placed, the initial brooming must be completed at the beginning of the next work shift.

Public traffic must be controlled with pilot cars and be routed on the new seal coat surface of the lane for a minimum of 2 hours after completion of the initial brooming and before opening the lane to traffic not controlled with pilot cars. When traffic is controlled with pilot cars, a maximum of 1 lane in the direction of travel must be open to public traffic. Once traffic controlled with pilot cars is routed over the seal coat at a particular location, continuous control must be maintained at that location until the seal coat placement and brooming on adjacent lanes to receive seal coat is completed.

### **37-2.01D Payment**

If there is no bid item for a traffic control system, furnishing and using a pilot car is included in the various items of the work involved in applying the seal coat.

If test results for the screenings grading do not comply with specifications, you may remove the seal coat represented by these tests or request that it remain in place with a payment deduction. The deduction is \$1.75 per ton for the screenings represented by the test results.

### **37-2.02 FOG SEAL**

#### **37-2.02A General**

##### **37-2.02A(1) Summary**

Fog seal coat includes applying a slow-setting asphaltic emulsion.

##### **37-2.02A(2) Definitions**

Reserved

##### **37-2.02A(3) Submittals**

Submit a 1/2-gallon sample of the asphaltic emulsion in a plastic container. Take the sample from the distributor truck spray bar at mid-load.

##### **37-2.02A(4) Quality Control and Assurance**

Reserved

#### **37-2.02B Material**

The Engineer selects the grade of slow-setting asphaltic emulsion to be used.

If additional water is added to the asphaltic emulsion, the resultant mixture must not be more than 1 part asphaltic emulsion to 1 part water. The Engineer determines the exact amount of additional water.

#### **37-2.02C Construction**

Apply asphaltic emulsion for fog seal coat at a residual asphalt rate from 0.02 to 0.06 gal/sq yd. The Engineer determines the exact rate.

Apply fog seal coat when the ambient air temperature is above 40 degrees F.

Sprinkle water on fog seal coat that becomes tacky in an amount determined by the Engineer.

If fog seal coat and seal coat with screenings are specified on the same project, apply fog seal coat at least 4 days before applying the adjoining seal coat with screenings. The joint between the seal coats must be neat and uniform.

#### **37-2.02D Payment**

The Department does not adjust the unit price for an increase or decrease in the asphaltic emulsion (fog seal coat) quantity.

### **37-2.03 FLUSH COATS**

#### **37-2.03A General**

Flush coat includes applying a fog seal coat to the surface, followed by sand.

03-21-14

07-19-13

#### **37-2.03B Material**

The Engineer selects the grade of slow-setting or quick-setting asphaltic emulsion to be used.

Sand for flush coat must comply with the material specifications for fine aggregate grading in section 90-1.02C(3). Sand must not include organic material or clay.

#### **37-2.03C Construction**

Apply asphaltic emulsion for flush coat at a residual asphalt rate from 0.02 to 0.06 gal/sq yd. The Engineer determines the exact rate.

During flush coat activities, close adjacent lanes to traffic. Do not track asphaltic emulsion on existing pavement surfaces.

Apply sand immediately after the asphaltic emulsion application.

Spread sand with a self-propelled screenings spreader equipped with a mechanical device that spreads sand at a uniform rate over the full width of a traffic lane in a single application. Spread sand at a rate from 2 to 6 lb/sq yd. The Engineer determines the exact rate.

#### **37-2.03D Payment**

The Department does not adjust the unit price for an increase or decrease in the sand cover for the flush coat quantity.

### **37-2.04 ASPHALTIC EMULSION SEAL COAT**

#### **37-2.04A General**

##### **37-2.04A(1) General**

##### **37-2.04A(1)(a) Summary**

Section 37-2.04 includes specifications for applying asphaltic emulsion seal coat. Asphaltic emulsion seal coat includes applying asphaltic emulsion, followed by screenings, and then a flush coat.

Asphaltic emulsion seal coat includes one or more of the following types:

1. Nonpolymer asphaltic emulsion seal coat
2. Polymer asphaltic emulsion seal coat

A double asphaltic emulsion seal coat is the application of asphaltic emulsion, followed by screenings applied twice in sequence.

##### **37-2.04A(1)(b) Definitions**

Reserved

##### **37-2.04A(1)(c) Submittals**

At least 10 days before starting asphaltic emulsion seal coat application, submit the name of an authorized laboratory that will be performing asphaltic emulsion QC testing.

03-21-14

Submit a sample of asphaltic emulsion in a 1/2-gallon plastic container to the Engineer and to the authorized laboratory. Each sample must be submitted in an insulated shipping container within 24 hours of sampling.

07-19-13

Within 7 days after taking samples, submit the authorized laboratory's test results for asphaltic emulsion.

##### **37-2.04A(1)(d) Quality Control and Assurance**

Samples for the screenings grading and cleanness value must be taken from the spreader conveyor belt.

03-21-14

Within 3 business days of sampling, the authorized laboratory must test the asphaltic emulsion for:

1. Viscosity under AASHTO T 59
2. Sieve test under AASHTO T 59
3. Demulsibility under AASHTO T 59
4. Torsional recovery under California Test 332 for polymer asphaltic emulsion
5. Elastic recovery under AASHTO T 301 for polymer asphaltic emulsion

Circulate asphaltic emulsion in the distributor truck before sampling. Take samples from the distributor truck at mid load or from a sampling tap or thief. Before taking samples, draw and dispose of 1 gallon. In the presence of the Engineer take two 1/2-gallon samples every 55 tons or at least 1 day's production.



**37-2.04A(2) Materials**

Not Used

**37-2.04A(3) Construction**

The Engineer determines the exact application rate.

At the time of application, the temperature of the asphaltic emulsion must be from 130 to 180 degrees F.

When tested under California Test 339, the application rate for asphaltic emulsion must not vary from the average by more than:

1. 15 percent in the transverse direction
2. 10 percent in the longitudinal direction

**37-2.04A(4) Payment**

Not Used

**37-2.04B Nonpolymer Asphaltic Emulsion Seal Coat****37-2.04B(1) General****37-2.04B(1)(a) Summary**

Section 37-2.04B includes specifications for applying a nonpolymer asphaltic emulsion seal coat.

**37-2.04B(1)(b) Definitions**

Reserved

**37-2.04B(1)(c) Submittals**

Reserved

**37-2.04B(1)(d) Quality Control and Assurance**

For nonpolymer asphaltic emulsion seal coat, if a test result for the screenings cleanness value is from 75 to 80, you may request that the asphaltic emulsion seal coat represented by the test remain in place. A payment deduction is made as specified in section 37-2.04D. If the screenings cleanness value is less than 75, remove the asphaltic emulsion seal coat.

**37-2.04B(2) Materials**

Screenings for nonpolymer asphaltic emulsion seal coat must have the gradation as determined under California Test 202 in the following table.

**Nonpolymer Asphaltic Emulsion Seal Coat Screenings  
Gradation**

Sieve sizes	Percentage passing			
	Coarse 1/2" max	Medium 3/8" max	Medium fine 5/16" max	Fine 1/4" max
3/4"	100	--	--	--
1/2"	95-100	100	--	--
3/8"	50-80	90-100	100	100
No. 4	0-15	5-30	30-60	60-85
No. 8	0-5	0-10	0-15	0-25
No. 16	--	0-5	0-5	0-5
No. 30	--	--	0-3	0-3
No. 200	0-2	0-2	0-2	0-2

The cleanness value determined under California Test 227 must be 80 or greater.

03-21-14

**37-2.04B(3) Construction**

Asphaltic emulsion must be applied within the application rate ranges shown in the following table:

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**Asphaltic Emulsion Application Rates**

Screenings	Application rate range(gallons per square yard)
Fine	0.15–0.30
Medium fine	0.25–0.35
Medium	0.25–0.40
Coarse	0.30–0.40

Apply asphaltic emulsion when the ambient air temperature is from 65 to 110 degrees F and the pavement surface temperature is at least 80 degrees F.

Do not apply asphaltic emulsion when weather forecasts predict the ambient air temperature will fall below 39 degrees F within 24 hours after application.

For double asphaltic emulsion seal coat, the asphaltic emulsion must be applied within the application rates shown in the following table:

**Asphaltic Emulsion Application Rates**

Screenings	Application rate range (gal/sq yd)
Double	
1st application	0.20–0.35
2nd application	0.20–0.30

You may stockpile screenings for asphaltic emulsion seal coat if you prevent contamination. Screenings must have damp surfaces at spreading. If water visibly separates from the screenings, do not spread. You may redampen them in the delivery vehicle.

Spread screenings before the asphaltic emulsion sets or breaks.

Spread screenings within 10 percent of the rate determined by the Engineer. Screenings must have a spread rate within the ranges shown in the following table:

**Screening Spread Rates**

Seal coat type	Range (lb/sq yd)
Fine	12–20
Medium fine	16–25
Medium	20–30
Coarse	23–30

Do not spread screenings more than 2,500 feet ahead of the completed initial rolling.

For double asphaltic emulsion seal coat, screenings must have a spread rate within the ranges shown in the following table:

**Screening Spread Rates**

Seal coat type	Range (lb/sq yd)
Double	
1st application	23–30
2nd application	12–20

Remove excess screenings on the 1st application before the 2nd application of asphaltic emulsion.

**37-2.04B(4) Payment**

If asphaltic emulsion seal coat with screenings does not comply with the cleanness value specifications, you may request that the seal coat remain in place with a pay deduction corresponding to the cleanness value shown in the following table:

**Asphaltic Emulsion Seal Coat Cleanness Value Deductions**

Cleanness value	Deduction
80 or over	None
79	\$2.00 /ton
77-78	\$4.00 /ton
75-76	\$6.00 /ton

**37-2.04C Polymer Asphaltic Emulsion Seal Coat**

**37-2.04C(1) General**

**37-2.04C(1)(a) Summary**

Section 37-2.04C includes specifications for applying a polymer asphaltic emulsion seal coat.

**37-2.04C(1)(b) Definitions**

Reserved

**37-2.04C(1)(c) Submittals**

At least 10 days before starting polymer asphaltic emulsion seal coat application, submit a signed copy of the test result report of the Vialit test method for aggregate retention in chip seals (french chip) to the Engineer and to:

DEPARTMENT OF TRANSPORTATION  
Division of Maintenance, Roadway Maintenance Office  
1120 N Street, MS 31  
Sacramento, CA 95814

**37-2.04C(1)(d) Quality Control and Assurance**

The authorized laboratory must test screenings for retention under the Vialit test method for aggregate in chip seals (french chip). The Vialit test results are not used for acceptance. The Vialit test is available at the METS Web site.

If the test results for polymer asphaltic emulsion do not comply with the specifications, the Engineer assesses a pay factor value for the following properties and increments:

**Polymer Asphaltic Emulsion Pay Factor Table**

Test method and property	Increment	Pay factor
<b>Test on polymer asphaltic emulsion</b>		
AASHTO T 59 (Viscosity, sec Saybolt Furol, at 50 °C)	Each 10 seconds above max or below min	1
AASHTO T 59 (settlement, 5 days, percent)	Each 1.5 percent above max	1
AASHTO T 59 (sieve test, percent max)	Each 0.2 percent above max	1
AASHTO T 59 (demulsibility percent)	Each 2 percent below min	1
<b>Test on residue from evaporation test</b>		
AASHTO T 49 (penetration, 25 °C)	Each 2 dm above max or below min	1
ASTM D 36 (field softening point °C)	2 °C below min	1
California Test 332 (torsional recovery <sup>a</sup> )	For each 1 increment below the min value of 18	1
	For each 2 increments below the min value of 18	3
	For each 3 or more increments below the min value of 18	10
ASTM T 301 (elastic recovery <sup>a</sup> )	For each 1 increment below the min value of 60	1
	For each 2 increment below the min value of 60	3
	For each 3 increment below the min value of 60	10

<sup>a</sup> The highest pay factor applies

07-19-13

The Engineer assesses a pay factor of 1 for sampling not performed in compliance with the specifications, including shipping and sampling containers.

For polymer asphaltic emulsion seal coat, if a test result for the screenings cleanness value is from 75 to 86, you may request that the asphaltic emulsion seal coat represented by the test remain in place. A payment deduction is made as specified in section 37-2.04D. If the screenings cleanness value is less than 75, remove the asphaltic emulsion seal coat.

### **37-2.04C(2) Materials**

Polymer asphaltic emulsion must include elastomeric polymer.

03-21-14

Polymer asphaltic emulsion must comply with section 94, Table 3, under the test on residue from evaporation test for Grades PMRS2, PMRS2h, PMCRS2, and PMCRS2h and the following:

1. The penetration at 39.2 degrees F (200g for 60 seconds) determined under AASHTO T 49 must be at least 6.
2. Elastic recovery determined under AASHTO T 301 must be at least 60 percent.
3. Polymer content in percent by weight does not apply.
4. The ring and ball softening point temperature determined under AASHTO T 53 for Test on Residue from Evaporation Test must comply with the following minimum temperature requirement:
  - 4.1. 126 degrees F for a geographical ambient temperature from 32 to 104 degrees F
  - 4.2. 129 degrees F for a geographical ambient temperature from 18 to 104 degrees F
  - 4.3. 135 degrees F for a geographical ambient temperature from 18 to greater than 104 degrees F

Screenings for polymer asphaltic emulsion seal coat must have the gradation as determined under California Test 202 in the following table:

**Polymer Asphaltic Emulsion Seal Coat Screenings Gradation**

Sieve sizes	Percentage passing			
	Coarse 1/2" max	Medium 3/8" max	Medium fine 5/16" max	Fine 1/4" max
3/4"	100	--	--	--
1/2"	85–100	100	--	--
3/8"	0–30	85–100	100	100
No. 4	0–5	0–15	0–50	60–85
No. 8	--	0–5	0–15	0–25
No. 16	--	--	0–5	0–5
No. 30	--	--	0–3	0–3
No. 200	0–2	0–2	0–2	0–2

03-21-14

The cleanness value determined under California Test 227 must be 86 or greater.

07-19-13

### 37-2.04C(3) Construction

Polymer asphaltic emulsion must be applied within the application rate ranges shown in the following table:

**Polymer Asphaltic Emulsion Application Rates**

Screenings	Application rate range(gallons per square yard)
Fine	0.15–0.30
Medium fine	0.25–0.35
Medium	0.25–0.40
Coarse	0.30–0.40

Apply polymer asphaltic emulsion when the ambient air temperature is from 60 to 105 degrees F and the pavement surface temperature is at least 55 degrees F.

Do not apply polymer asphaltic emulsion when weather forecasts predict the ambient air temperature will fall below 39 degrees F within 24 hours after application.

For double asphaltic emulsion seal coat, polymer asphaltic emulsion must be applied within the application rates shown in the following table:

**Polymer Asphaltic Emulsion Application Rates**

Screenings	Application rate range (gal/sq yd)
Double	
1st application	0.20–0.35
2nd application	0.20–0.30

You may stockpile screenings for polymer emulsion seal coat if you prevent contamination. Screenings must have damp surfaces at spreading. If water visibly separates from the screenings, do not spread. You may redampen them in the delivery vehicle.

Spread screenings before the polymer emulsion sets or breaks.

Spread screenings within 10 percent of the rate determined by the Engineer. Screenings must have a spread rate within the ranges shown in the following table:

**Screening Spread Rates**

Seal coat type	Range (lb/sq yd)
Fine	12–20
Medium fine	16–25
Medium	20–30
Coarse	23–30

Do not spread screenings more than 2,500 feet ahead of the completed initial rolling.

For double seal coat, screenings must have a spread rate within the ranges shown in the following table:

**Screening Spread Rates**

Seal coat type	Range (lb/sq yd)
Double	
1st application	23–30
2nd application	12–20

Remove excess screenings on the 1st application before the 2nd application of asphaltic emulsion.

**37-2.04C(4) Payment**

If polymer asphaltic emulsion seal coat with screenings does not comply with the specifications for cleanness value you may request that the seal coat remain in place with a pay deduction corresponding by the cleanness value shown in the following table:

**Polymer Asphaltic Emulsion Seal Coat Cleanness Value Deductions**

Cleanness value	Deduction
86 or over	None
81–85	\$2.20/ton
77–80	\$4.40/ton
75–76	\$6.60/ton

If test results for polymer asphaltic emulsion aggregate grading and cleanness value test results do not comply with the specifications, all deductions are made. A test for polymer asphaltic emulsion represents the smaller of 55 tons or 1 day's production. A test for the screenings grading or cleanness value represents the smaller of 300 tons or 1 day's production.

The payment deduction for noncompliant polymer asphaltic emulsion is based on the total pay factor value determined from the table titled, "Polymer Asphaltic Emulsion Pay Factor Deduction." You must remove polymer asphaltic emulsion seal coat with a pay factor value greater than 20. You may request seal coat with noncompliant polymer asphaltic emulsion to remain in place with a pay deduction for the total pay factor value shown in the following table:

**Polymer Asphaltic Emulsion Pay Factor Deductions**

Total pay factor value	Deduction
0	none
1–2	\$5.00/ton
3–5	\$10.00/ton
6–9	\$15.00/ton
10–14	\$25.00/ton
15–20	\$50.00/ton

## **37-2.05 ASPHALT BINDER SEAL COATS**

### **37-2.05A General**

Reserved

### **37-2.05B Asphalt Rubber Binder Seal Coats**

#### **37-2.05B(1) General**

##### **37-2.05B(1)(a) Summary**

Section 37-2.05B includes specifications for applying asphalt rubber binder seal coat. Asphalt rubber seal coat includes applying heated asphalt rubber binder, followed by heated screenings precoated with asphalt binder, followed by a flush coat.

##### **37-2.05B(1)(b) Definitions**

**crumb rubber modifier:** Ground or granulated high natural crumb rubber or scrap tire crumb rubber.

**descending viscosity reading:** Subsequent viscosity reading at least 5 percent lower than the previous viscosity reading.

**high natural crumb rubber:** Material containing 40 to 48 percent natural rubber.

**scrap tire crumb rubber:** Any combination of:

1. Automobile tires
2. Truck tires
3. Tire buffing

##### **37-2.05B(1)(c) Submittals**

For each delivery of asphalt rubber binder ingredients and asphalt rubber binder to the job site, submit a certificate of compliance and a copy of the specified test results.

Submit MSDS for each asphalt rubber binder ingredient and the asphalt rubber binder.

At least 15 days before use, submit:

1. Four 1-quart cans of mixed asphalt rubber binder
2. Samples of each asphalt rubber binder ingredient
3. Asphalt rubber binder formulation and data as follows:
  - 3.1. For asphalt binder and asphalt modifier submit:
    - 3.1.1. Source and grade of asphalt binder
    - 3.1.2. Source and type of asphalt modifier
    - 3.1.3. Percentage of asphalt modifier by weight of asphalt binder
    - 3.1.4. Percentage of combined asphalt binder and asphalt modifier by weight of asphalt rubber binder
    - 3.1.5. Test results for the specified quality characteristics
  - 3.2. For crumb rubber modifier submit:
    - 3.2.1. Each source and type of scrap tire crumb rubber and high natural rubber
    - 3.2.2. Percentage of scrap tire crumb rubber and high natural rubber by total weight of asphalt rubber binder
    - 3.2.3. Test results for the specified quality characteristics
  - 3.3. For asphalt rubber binder submit:
    - 3.3.1. Test results for the specified quality characteristics
    - 3.3.2. Minimum reaction time and temperature

At least 5 business days before use, submit the permit issued by the local air quality agency for asphalt rubber binder:

1. Field blending equipment
2. Application equipment

If an air quality permit is not required by the local air quality agency for producing asphalt rubber binder or spray applying asphalt rubber binder, submit verification from the local air quality agency that an air quality permit is not required for this Contract.

Submit a certified volume or weight slip for each delivery of asphalt rubber binder ingredients and asphalt rubber binder.

Submit a certificate of compliance and accuracy verification of test results for viscometers.

When determined by the Engineer, submit notification 15 minutes before each viscosity test or submit a schedule of testing times.

Submit the log of asphalt rubber binder viscosity test results each day of asphalt rubber seal coat work.

#### **37-2.05B(1)(d) Quality Control and Assurance**

Equipment used in producing asphalt rubber binder must be permitted for use by the local air quality agency. Equipment used in spreading asphalt rubber binder must be permitted for use by the local air quality agency.

Each asphalt rubber binder ingredient must be sampled and tested for compliance with the specifications by the manufacturer.

Test and submit results at least once per project or the following, whichever frequency is greater:

1. For crumb rubber modifier except for grading, at least once per 250 tons. Samples of scrap tire crumb rubber and high natural crumb rubber must be sampled and tested separately. Test each delivery of crumb rubber modifier for grading.
2. For asphalt binder, test and submit at least once per 200 tons of asphalt binder production.
3. For asphalt modifier, test and submit at least once per 25 tons of asphalt modifier production.

Scrap tire crumb rubber and high natural crumb rubber must be delivered to the asphalt rubber production site in separate bags.

Take viscosity readings of asphalt rubber binder under ASTM D7741 during asphalt rubber binder production. Start taking viscosity readings of samples taken from the reaction vessel at least 45 minutes after adding crumb rubber modifier and continue taking viscosity readings every 30 minutes until 2 consecutive descending viscosity readings have been obtained and the final viscosity meets the specification requirement. After meeting the 2 descending viscosity readings requirement, continue to take viscosity readings hourly and within 15 minutes before use. Log the test results, including time of testing and temperature of the asphalt rubber binder.

#### **37-2.05B(2) Material**

##### **37-2.05B(2)(a) General**

Reserved

##### **37-2.05B(2)(b) Asphalt Binder**

Asphalt binder must comply with the specifications for asphalt binder. Do not modify asphalt binder with polymer.

##### **37-2.05B(2)(c) Asphalt Modifier**

Asphalt modifier must be a resinous, high flash point, and aromatic hydrocarbon. Asphalt modifier must have the values for the quality characteristics shown in the following table:



**Asphalt Modifier for Asphalt Rubber Binder**

Quality characteristic	Test method	Value
Viscosity, m <sup>2</sup> /s (x 10 <sup>-6</sup> ) at 100 °C	ASTM D 445	X ± 3 <sup>a</sup>
Flash point, C.L.O.C., °C	ASTM D 92	207 min
<b>Molecular analysis</b>		
Asphaltenes, percent by mass	ASTM D 2007	0.1 max
Aromatics, percent by mass	ASTM D 2007	55 min

<sup>a</sup> "X" denotes the proposed asphalt modifier viscosity from 19 to 36. A change in "X" requires a new asphalt rubber binder submittal.

**37-2.05B(2)(d) Crumb Rubber Modifier**

Crumb rubber modifier must be ground or granulated at ambient temperature.

Scrap tire crumb rubber and high natural crumb rubber must be delivered to the asphalt rubber binder production site in separate bags.

Steel and fiber must be separated. If steel and fiber are cryogenically separated, it must occur before grinding and granulating. Cryogenically-produced crumb rubber modifier particles must be large enough to be ground or granulated.

Wire must not be more than 0.01 percent by weight of crumb rubber modifier. Crumb rubber modifier must be free of contaminants except fabric, which must not exceed 0.05 percent by weight of crumb rubber modifier. Method for determining the percent weight of wire and fabric is available under Laboratory Procedure 10 at the following METS Web site:

<http://www.dot.ca.gov/hq/esc/Translab/ofpm/fpmlab.htm>

The length of an individual crumb rubber modifier particle must not exceed 3/16 inch.

Crumb rubber modifier must be dry, free-flowing particles that do not stick together. A maximum of 3 percent calcium carbonate or talc by weight of crumb rubber modifier may be added. Crumb rubber modifier must not cause foaming when combined with the asphalt binder and asphalt modifier.

Specific gravity of crumb rubber modifier must be from 1.1 to 1.2 determined under California Test 208.

When tested under ASTM D 297, crumb rubber modifier must comply with the requirements shown in the following table:

**Crumb Rubber Modifier**

Quality characteristic	Scrap tire crumb rubber (percent)		High natural rubber (percent)	
	Min	Max	Min	Max
Acetone extract	6.0	16.0	4.0	16.0
Rubber hydrocarbon	42.0	65.0	50.0	--
Natural rubber content	22.0	39.0	40.0	48.0
Carbon black content	28.0	38.0	--	--
Ash content	--	8.0	--	--

Scrap tire crumb rubber must have the gradation shown in the following table:

**Scrap Tire Crumb Rubber Gradation**  
Percentage passing

Sieve size	Gradation limit	Operating range	Contract compliance
No. 8	100	100	100
No. 10	98–100	95–100	90–100
No. 16	45–75	35–85	32–88
No. 30	2–20	2–25	1–30
No. 50	0–6	0–10	0–15
No. 100	0–2	0–5	0–10
No. 200	0	0–2	0–5

High natural crumb rubber must have the gradation shown in the following table:

**High Natural Crumb Rubber Gradation**  
Percentage passing

Sieve size	Gradation limit	Operating range	Contract compliance
No. 10	100	100	100
No. 16	95–100	92–100	85–100
No. 30	35–85	25–95	20–98
No. 50	10–30	6–35	2–40
No. 100	0–4	0–7	0–10
No. 200	0–1	0–3	0–5

Test the crumb rubber modifier gradation under ASTM C 136 except

1. Split or quarter  $100 \pm 5$  g from the crumb rubber modifier sample and dry to a constant mass at a temperature from 57 to 63 degrees C and record the dry sample mass. Place the crumb rubber modifier sample and 5 g of talc in a 1/2-liter jar. Seal the jar, then shake the jar by hand for at least 1 minute to mix the crumb rubber modifier and the talc. Continue shaking or open the jar and stir until the particle agglomerates and clumps are broken and the talc is uniformly mixed.
2. Place 1 rubber ball on each sieve. Each ball must weigh  $8.5 \pm 0.5$  g, measure  $24.5 \pm 0.5$  mm in diameter, and have a Shore Durometer "A" hardness of  $50 \pm 5$  determined under ASTM D 2240. After sieving the combined material for  $10 \pm 1$  minutes, disassemble the sieves. Brush material adhering to the bottom of a sieve into the next finer sieve. Weigh and record the mass of the material retained on the 2.36-milimeter sieve and leave this material (do not discard) on the scale or balance. Fabric balls must remain on the scale or balance and be placed together on the side to prevent them from being covered or disturbed when the material from finer sieves is placed onto the scale or balance. The material retained on the 2.00-milimeter sieve must be added to the scale or balance. Weigh and record that mass as the accumulative mass retained on the 2.00-milimeter sieve. Continue weighing and recording the accumulated masses retained on the remaining sieves until the accumulated mass retained in the pan has been determined. Before discarding the crumb rubber modifier sample, separately weigh and record the total mass of fabric balls in the sample.
3. Determine the mass of material passing the 75-micrometer sieve by subtracting the accumulated mass retained on the 75-micrometer sieve from the accumulated mass retained in the pan. If the material passing the 75-micrometer sieve has a mass of 5 g or less, cross out the recorded number for the accumulated mass retained in the pan and copy the number recorded for the accumulated mass retained on the 75-micrometer sieve and record that number, next to the crossed out number, as the accumulated mass retained in the pan. If the material passing the 75-micrometer sieve has a mass greater than 5 g, cross out the recorded number for the accumulated mass retained in the pan, subtract 5 g from that number and record the difference next to the crossed out number. The adjustment to the accumulated mass retained in the pan accounts for the 5 g of talc added to the sample. For calculation purposes, the adjusted total sample mass is the same as the adjusted

accumulated mass retained in the pan. Determine the percent passing based on the adjusted total sample mass and record to the nearest 0.1 percent.

**37-2.05B(2)(e) Asphalt Rubber Binder**

Asphalt rubber binder must be a combination of:

1. Asphalt binder
2. Asphalt modifier
3. Crumb rubber modifier

Asphalt rubber binder blending equipment must be authorized under the Department's material plant quality program.

The blending equipment must allow the determination of weight percentages of each asphalt rubber binder ingredient.

Asphalt rubber binder must be  $79 \pm 1$  percent by weight asphalt binder and  $21 \pm 1$  percent by weight of crumb rubber modifier. The minimum percentage of crumb rubber modifier must be 20.0 percent and lower values may not be rounded up.

Crumb rubber modifier must be  $76 \pm 2$  percent by weight scrap tire crumb rubber and  $24 \pm 2$  percent by weight high natural rubber.

Asphalt modifier and asphalt binder must be blended at the production site. Asphalt modifier must be from 2.5 to 6.0 percent by weight of the asphalt binder in the asphalt rubber binder. The asphalt rubber binder supplier determines the exact percentage.

If blended, the asphalt binder must be from 375 to 440 degrees F when asphalt modifier is added and the mixture must circulate for at least 20 minutes. Asphalt binder, asphalt modifier, and crumb rubber modifier may be proportioned and combined simultaneously.

The blend of asphalt binder and asphalt modifier must be combined with crumb rubber modifier at the asphalt rubber binder production site. The asphalt binder and asphalt modifier blend must be from 375 to 440 degrees F when crumb rubber modifier is added. Combined ingredients must be allowed to react at least 45 minutes at temperatures from 375 to 425 degrees F except the temperature must be at least 10 degrees F below the flash point of the asphalt rubber binder.

After reacting, the asphalt rubber binder must have the values for the quality characteristics shown in the following table:

<b>Asphalt Rubber Binder</b>			
Quality characteristic	Test method	Requirement	
		Min	Max
Cone penetration @ 25 °C, 1/10 mm	ASTM D 217	25	60
Resilience @ 25 °C, percent rebound	ASTM D 5329	18	50
Field softening point, °C	ASTM D 36	55	88
Viscosity @190 °C, Pa • s ( $\times 10^{-3}$ )	ASTM D 7741	1500	2500

Maintain asphalt rubber binder at a temperature from 375 to 415 degrees F.

Stop heating unused asphalt rubber binder 4 hours after the 45-minute reaction period. Reheating asphalt rubber binder that cools below 375 degrees F is a reheat cycle. Do not exceed 2 reheat cycles. If reheating, asphalt rubber binder must be from 375 to 415 degrees F before use.

During reheating, you may add scrap tire crumb rubber. Scrap tire crumb rubber must not exceed 10 percent by weight of the asphalt rubber binder. Allow added scrap tire crumb rubber to react for at least 45 minutes. Reheated asphalt rubber binder must comply with the specifications for asphalt rubber binder.

**37-2.05B(2)(f) Screenings**

Before precoating with asphalt binder and when tested under California Test 202, screenings for asphalt rubber seal coat must have the gradation shown in the following table:

**Asphalt Rubber Seal Coat Screenings Gradation**

Sieve sizes	Percentage passing by weight		
	Coarse 1/2" max	Medium 1/2" max	Fine 3/8" max
3/4"	100	100	100
1/2"	75–90	85–90	95–100
3/8"	0–20	0–30	70–85
No. 4	0–2	0–5	0–15
No. 8	--	--	0–5
No. 200	0–1	0–1	0–1

Screenings must have the values for the properties shown in the following table:

**Seal Coat Screenings**

Properties	Test method	Value
Cleanness value, min	California Test 227	80
Durability, min	California Test 229	52

**37-2.05B(3) Construction****37-2.05B(3)(a) General**

Reserved

**37-2.05B(3)(b) Equipment**

Self-propelled distributor truck for applying asphalt rubber binder must have the following features:

1. Heating unit
2. Internal mixing unit
3. Pumps that spray asphalt rubber binder within 0.05 gal/sq yd of the specified rate
4. Fully circulating spray bar that applies asphalt rubber binder uniformly
5. Tachometer
6. Pressure gages
7. Volume measuring devices
8. Thermometer
9. Observation platform on the rear of the truck for an observer on the platform to see the nozzles and unplug them if needed

**37-2.05B(3)(c) Precoating Screenings**

For asphalt rubber seal coat, do not recombine fine materials collected in dust control systems except cyclone collectors or knock-out boxes with any other aggregate used in the production of screenings.

For asphalt rubber seal coat, screenings must be preheated from 260 to 325 degrees F. Coat with any of the asphalts specified in the table titled "Performance Graded Asphalt Binder" in section 92. Coat at a central mixing plant. The asphalt must be from 0.5 to 1.0 percent by weight of dry screenings. The Engineer determines the exact rate.

Plant must be authorized under the Department's material plant quality program.

Do not stockpile preheated or precoated screenings.

**37-2.05B(3)(d) Asphalt Rubber Binder Application**

Apply asphalt rubber binder immediately after the reaction period. At the time of application, the temperature of asphalt rubber binder must be from 385 to 415 degrees F.

Apply asphalt rubber binder at a rate from 0.55 to 0.65 gal/sq yd. The Engineer determines the exact rate.

Apply asphalt rubber binder when the atmospheric temperature is from 60 to 105 degrees F and the pavement surface temperature is at least 55 degrees F.

Do not apply asphalt rubber binder unless there are sufficient screenings available to cover the asphalt rubber binder within 2 minutes. Intersections, turn lanes, gore points, and irregular areas must be covered within 15 minutes.

Do not apply asphalt rubber binder when weather or road conditions are unsuitable, including high wind or when the pavement is damp. In windy conditions you may adjust the distributor bar height and distribution speed, and use shielding equipment, if the Engineer authorizes your request.

#### **37-2.05B(3)(e) Screenings Application**

During transit, cover precoated screenings for asphalt rubber seal coat with tarpaulins if the ambient air temperature is below 65 degrees F or the haul time exceeds 30 minutes.

At the time of application, screenings for asphalt rubber seal coat must be from 225 to 325 degrees F.

Spread screenings at a rate from 28 to 40 lb/sq yd. The exact rate is determined by the Engineer. Spread to within 10 percent of the determined rate.

#### **37-2.05B(3)(f) Rolling and Sweeping**

Perform initial rolling within 90 seconds of spreading screenings. Do not spread screenings more than 200 feet ahead of the initial rolling.

For final rolling, you may request use of a steel-wheeled roller weighing from 8 to 10 tons, static mode only.

Perform a final sweeping before Contract acceptance. The final sweeping must not dislodge screenings.

Dispose of swept screenings at least 150 feet from any waterway.

#### **37-2.05B(4) Payment**

Screenings for asphalt rubber seal coat are measured by coated weight after they are preheated and precoated with asphalt binder. The weight of screenings must be the coated weight.

If recorded batch weights are printed automatically, the bid item for screenings for asphalt-rubber seal coat are measured using the printed batch weights, provided:

1. Total aggregate weight for screenings per batch is printed
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 are correlated with a load slip
5. A copy of the recorded batch weights is certified by a licensed weighmaster and submitted to the Engineer

Screenings for asphalt rubber seal coat is paid for as precoated screenings.

Asphalt-rubber binder is measured under the specifications for asphalts.

If test results for gradation tests do not comply with the specifications, deductions are taken.

Each gradation test for scrap tire crumb rubber represents 10,000 lbs or the amount used in that day's production, whichever is less.

Each gradation test for high natural rubber represents 3,400 lbs or the amount used in that day's production, whichever is less.

For each gradation test, the following pay deductions will be taken from the asphalt rubber bid item:



**Add to the end of the paragraph in section 39-1.02A:**

10-19-12

as shown

**Replace "less than 10 percent" in note "b" in the table in the 5th paragraph of section 39-1.02E with:**

01-20-12

10 percent or less

**Replace the paragraphs in section 39-1.02F with:**

02-22-13

**39-1.02F(1) General**

You may produce HMA Type A or B using 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 at a substitution rate not exceeding 25 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 JMF submittal. The JMF must include the percent of RAP used.

Provide enough space for meeting RAP handling requirements at your facility. Provide a clean, graded, well-drained area for stockpiles. Prevent material contamination and segregation.

If RAP is from multiple sources, blend the RAP thoroughly and completely. RAP stockpiles must be homogeneous.

Isolate the processed RAP stockpiles from other materials. Store processed RAP in conical or longitudinal stockpiles. Processed RAP must not be agglomerated or be allowed to congeal in large stockpiles.

AASHTO T 324 (Modified) is AASHTO T 324, "Hamburg Wheel-Track Testing of Compacted Hot Mix Asphalt (HMA)," with the following parameters:

07-19-13

1. Target air voids must equal  $7 \pm 1$  percent
2. Specimen height must be  $60 \text{ mm} \pm 1 \text{ mm}$
3. Number of test specimens must be 4
4. Test specimen must be a 150mm gyratory compacted specimen
5. Test temperature must be set at:
  - 5.1.  $122 \pm 2$  degrees F for PG 58
  - 5.2.  $131 \pm 2$  degrees F for PG 64
  - 5.3.  $140 \pm 2$  degrees F for PG 70 and above
6. Measurements for impression must be taken at every 100 passes
7. Inflection point defined as the number of wheel passes at the intersection of the creep slope and the stripping slope
8. Testing shut off must be set at 25,000 passes

02-22-13

**39-1.02F(2) Substitution Rate of 15 Percent or Less**

For a RAP substitution rate of 15 percent or less, you may stockpile RAP during the entire project.

**39-1.02F(3) Substitution Rate Greater than 15 Percent**

07-19-13

For a RAP substitution rate greater than 15 percent, fractionate RAP into 2 sizes, a coarse fraction RAP retained on 3/8-inch screen and a fine fraction RAP passing 3/8-inch screen.

Sample and test processed RAP at a minimum frequency of 1 sample per 1000 tons with a minimum of 6 samples for each processed RAP stockpile. If a processed RAP stockpile is augmented, sample and test processed RAP quality characteristics at a minimum frequency of 1 sample per 500 tons of augmented RAP.

When tested under California Test 202 with a total mechanical shaking time of 10 minutes  $\pm$  15 seconds, the processed RAP must meet the grading requirements shown in the following table:

**Processed RAP Gradation  
(Percentage Passing)**

Sieve sizes	TV limits	Allowable tolerance
1/2"	100	--
3/8"	97	TV + 3

02-22-13

The processed RAP asphalt binder content must be within  $\pm$  2.0 percent of the average processed RAP stockpile asphalt binder content when tested under ASTM D 2172, Method B. If a new processed RAP stockpile is required, the average binder content of the new processed RAP stockpile must be within  $\pm$  2.0 percent of the average binder content of the original processed RAP stockpile.

The maximum specific gravity for processed RAP must be within  $\pm$  0.06 when tested under California Test 309 of the average maximum specific gravity reported on page 4 of your *Contractor Hot Mix Asphalt Design Data* form.

**Replace items 7 and 8 in the 5th paragraph of section 39-1.03A with:**

02-22-13

7. Substitution rate by more than 5 percent if your assigned RAP substitution rate is 15 percent or less
8. Substitution rate by more than 3 percent if your assigned RAP substitution rate is greater than 15 percent
9. Average binder content by more than 2 percent from the average binder content of the original processed RAP stockpile used in the mix design
10. Maximum specific gravity of processed RAP by more than  $\pm$ 0.060 from the average maximum specific gravity of processed RAP reported on page 4 of your *Contractor Hot Mix Asphalt Design Data* form
11. Any material in the JMF

**Replace the 1st paragraph of section 39-1.03B with:**

02-22-13

Perform a mix design that produces HMA with the values for the quality characteristics shown in the following table:



### HMA Mix Design Requirements

Quality characteristic	Test method	HMA type		
		A	B	RHMA-G
Air void content (%)	California Test 367	4.0	4.0	Section 39-1.03B
Voids in mineral aggregate (% min.)	California Test 367			
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
3/4" grading		13.0	13.0	18.0–23.0
Voids filled with asphalt (%)	California Test 367			Note a
No. 4 grading		65.0–75.0	65.0–75.0	
3/8" grading		65.0–75.0	65.0–75.0	
1/2" grading		65.0–75.0	65.0–75.0	
3/4" grading		65.0–75.0	65.0–75.0	
Dust proportion	California Test 367			Note a
No. 4 and 3/8" gradings		0.6–1.2	0.6–1.2	
1/2" and 3/4" gradings		0.6–1.2	0.6–1.2	
Stabilometer value (min.)	California Test 366			
No. 4 and 3/8" gradings		30	30	--
1/2" and 3/4" gradings		37	35	23

<sup>a</sup> Report this value in the JMF submittal.

For RAP substitution rate greater than 15 percent, the mix design must comply with the additional quality characteristics shown in the following table:

### Additional HMA Mix Design Requirements for RAP Substitution Rate Greater Than 15 Percent

Quality characteristic	Test method	HMA type		
		A	B	RHMA-G
Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth)	AASHTO T 324 (Modified) <sup>a</sup>			
PG-58		10,000	10,000	--
PG-64		15,000	15,000	
PG-70		20,000	20,000	
PG-76 or higher		25,000	25,000	
Hamburg wheel track (inflection point minimum number of passes)	AASHTO T 324 (Modified) <sup>a</sup>			
PG-58		10,000	10,000	--
PG-64		10,000	10,000	
PG-70		12,500	12,500	
PG-76 or higher		15000	15000	
Moisture susceptibility (minimum dry strength, psi)	California Test 371 <sup>a</sup>	120	120	--
Moisture susceptibility (tensile strength ration, %)	California Test 371 <sup>a</sup>	70	70	--

<sup>a</sup> Test plant produced HMA.

For HMA with RAP, the maximum binder replacement must be 25.0 percent of OBC for surface course and 40.0 percent of OBC for lower courses.

For HMA with a binder replacement less than or equal to 25 percent of OBC, you may request that the PG asphalt binder grade with upper and lower temperature classifications be reduced by 6 degrees C from the specified grade.

For HMA with a binder replacement greater than 25 percent but less than or equal to 40 percent of OBC, you must use a PG asphalt binder grade with upper and lower temperature classifications reduced by 6 degrees C from the specified grade.

**Replace item 4 in the list in the 1st paragraph of section 39-1.03C with:**

4. JMF renewal on a *Caltrans Job Mix Formula Renewal* form, if applicable

01-20-12

**Add to the end of section 39-1.03C:**

For RAP substitution rate greater than 15 percent, submit with the JMF submittal:

02-22-13

1. California Test 371 tensile strength ratio and minimum dry strength test results
2. AASHTO T 324 (Modified) test results

For RAP substitution rate greater than 15 percent, submit California Test 371 and AASHTO T 324 (Modified) test results to the Engineer and to:

Moisture\_Tests@dot.ca.gov

**Replace the 2nd paragraph of section 39-1.03E with:**

Use the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form. No adjustments to asphalt binder content are allowed. Based on your testing and production experience, you may submit an adjusted aggregate gradation TV on a *Contractor Job Mix Formula Proposal* form before verification testing. Aggregate gradation TV must be within the TV limits specified in the aggregate gradation tables.

04-20-12

**Add between the 3rd and 4th paragraphs of section 39-1.03E:**

Asphalt binder set point for HMA must be the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form. When RAP is used, asphalt binder set point for HMA must be:

04-20-12

$$\text{Asphalt Binder Set Point} = \frac{\frac{BC_{OBC}}{\left(1 - \frac{BC_{OBC}}{100}\right)} - R_{RAP} \left[ \frac{BC_{RAP}}{\left(1 - \frac{BC_{RAP}}{100}\right)} \right]}{100 + \frac{BC_{OBC}}{\left(1 - \frac{BC_{OBC}}{100}\right)}}$$

Where:

$BC_{OBC}$  = optimum asphalt binder content, percent based on total weight of mix

$R_{RAP}$  = RAP ratio by weight of aggregate

$BC_{RAP}$  = asphalt binder content of RAP, percent based on total weight of RAP mix

**Replace item 4 in the list in the 8th paragraph of section 39-1.03E with:**

4. HMA quality specified in the table titled "HMA Mix Design Requirements" except:
  - 4.1. Air void content, design value  $\pm 2.0$  percent
  - 4.2. Voids filled with asphalt, report only

04-20-12

4.3. Dust proportion, report only

**Replace the 12th paragraph of section 39-1.03E with:**

04-20-12

If tests on plant-produced samples do not verify the JMF, the Engineer notifies you and you must submit a new JMF or submit an adjusted JMF based on your testing. JMF adjustments may include a change in aggregate gradation TV within the TV limits specified in the aggregate gradation tables.

**Replace the 14th paragraph of section 39-1.03E with:**

01-20-12

A verified JMF is valid for 12 months.

**Replace the last sentence in the 15th paragraph of section 39-1.03E with:**

01-20-12

This deduction does not apply to verifications initiated by the Engineer or JMF renewal.

**Replace the 16th paragraph of section 39-1.03E with:**

02-22-13

Except for RAP substitution rate greater than 15 percent, for any HMA produced under the QC/QA process the Department does not use California Test 371 test results for verification.

**Add between the 1st and 2nd paragraphs of section 39-1.03F:**

04-20-12

Target asphalt binder content on your Contractor *Job Mix Formula Proposal* form and the OBC specified on your *Contractor Hot Mix Asphalt Design Data* form must be the same.

**Delete the 4th paragraph of section 39-1.03F.**

01-20-12

**Replace items 3 and 5 in the list in the 6th paragraph of section 39-1.03F with:**

01-20-12

3. Engineer verifies each proposed JMF renewal within 20 days of receiving verification samples.
5. For each HMA type and aggregate gradation specified, the Engineer verifies at the Department's expense 1 proposed JMF renewal within a 12-month period.

**Add between the 6th and 7th paragraphs of section 39-1.03F:**

01-20-12

The most recent aggregate quality test results within the past 12 months may be used for verification of JMF renewal or the Engineer may perform aggregate quality tests for verification of JMF renewal.

**Replace section 39-1.03G with:**

04-20-12

**39-1.03G Job Mix Formula Modification**

For an accepted JMF, you may change asphalt binder source one time during production.

Submit your modified JMF request a minimum of 3 business days before production. Each modified JMF submittal must consist of:

1. Proposed modified JMF on *Contractor Job Mix Formula Proposal* form
2. Mix design records on *Contractor Hot Mix Asphalt Design Data* form for the accepted JMF to be modified
3. JMF verification on *Hot Mix Asphalt Verification* form for the accepted JMF to be modified
4. Quality characteristics test results for the modified JMF as specified in section 39-1.03B. Perform tests at the mix design OBC as shown on the *Contractor Asphalt Mix Design Data* form
5. If required, California Test 371 test results for the modified JMF.

With an accepted modified JMF submittal, the Engineer verifies each modified JMF within 5 business days of receiving all verification samples. If California Test 371 is required, the Engineer tests for California Test 371 within 10 days of receiving verification samples.

The Engineer verifies the modified JMF after the modified JMF HMA is placed on the project and verification samples are taken within the first 750 tons following sampling requirements in section 39-1.03E, "Job Mix Formula Verification." The Engineer tests verification samples for compliance with:

1. Stability as shown in the table titled "HMA Mix Design Requirements"
2. Air void content at design value  $\pm 2.0$  percent
3. Voids in mineral aggregate as shown in the table titled "HMA Mix Design Requirements"
4. Voids filled with asphalt, report only
5. Dust proportion, report only

If the modified JMF is verified, the Engineer revises your *Hot Mix Asphalt Verification* form to include the new asphalt binder source. Your revised form will have the same expiration date as the original form.

If a modified JMF is not verified, stop production and any HMA placed using the modified JMF is rejected.

The Engineer deducts \$2,000 from payments for each modified JMF verification. The Engineer deducts an additional \$2,000 for each modified JMF verification that requires California Test 371.

**Add to section 39-1.03:**

01-20-12

**39-1.03H 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.

**Replace "3 days" in the 1st paragraph of section 39-1.04A with:**

01-20-12

3 business days

**Replace the 2nd sentence in the 2nd paragraph of section 39-1.04A with:**

01-20-12

During production, take samples under California Test 125. You may sample HMA from:

**Replace "batch" in the 2nd sentence in the 2nd paragraph of section 39-1.04C with:**

07-19-13

lot. Each asphalt binder lot consist of 1 or multiple batches of combined asphalt binder, asphalt modifier, and CRM proportioned under section 39-1.02D.

**Replace the 2nd paragraph of section 39-1.04E with:**

02-22-13

For RAP substitution rate of 15 percent or less, sample RAP once daily.

For RAP substitution rate of greater than 15percent, sample processed RAP twice daily.

Perform QC testing for processed RAP aggregate gradation under California Test 367, appendix B, and submit the results with the combined aggregate gradation.

**Replace "5 days" in the 1st paragraph of section 39-1.06 with:**

01-20-12

5 business days

**Replace the 3rd paragraph of section 39-1.08A with:**

04-20-12

During production, you may adjust hot or cold feed proportion controls for virgin aggregate and RAP.

**Add to section 39-1.08A:**

04-20-12

During production, asphalt binder set point for HMA Type A, HMA Type B, HMA Type C, and RHMA-G must be the OBC shown in *Contractor Hot Mix Asphalt Design Data* form. For OGFC, asphalt binder set point must be the OBC shown on *Caltrans Hot Mix Asphalt Verification* form. If RAP is used, asphalt binder set point for HMA must be calculated as specified in section 39-1.03E.

07-19-13

For RAP substitution rate of 15 percent or less, you may adjust the RAP by -5 percent.

For RAP substitution greater than 15, you may adjust the RAP by -3 percent.

04-20-12

You must request adjustments to the plant asphalt binder set point based on new RAP stockpiles average asphalt binder content. Do not adjust the HMA plant asphalt binder set point until authorized.

**Replace the 3rd paragraph of section 39-1.08B with:**

09-16-11

Asphalt rubber binder must be from 375 to 425 degrees F when mixed with aggregate.

**Add to the beginning of section 39-1.08C:**

07-19-13

Asphalt rubber binder blending plants must have current qualification under the Department's Material Plant Quality Program.

**Replace section 39-1.11 with:**

01-18-13

**39-1.11 CONSTRUCTION**

**39-1.11A General**

Do not place HMA on wet pavement or a 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, pickup, loading, and paving are continuous
4. HMA temperature in the windrow does not fall below 260 degrees F

You may place 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 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

### **39-1.11B Longitudinal Joints**

#### **39-1.11B(1) General**

Longitudinal joints in the top layer must match specified lane edges. Alternate the longitudinal joint offsets in the lower layers at least 0.5 foot from each side of the specified lane edges. You may request other longitudinal joint placement patterns.

A vertical longitudinal joint of more than 0.15 ft is not allowed at any time between adjacent lanes open to traffic.

For HMA thickness of 0.15 ft or less, the distance between the ends of the adjacent surfaced lanes at the end of each day's work must not be greater than can be completed in the following day of normal paving.

For HMA thickness greater than 0.15 ft, you must place HMA on adjacent traveled way lanes so that at the end of each work shift the distance between the ends of HMA layers on adjacent lanes is from 5 to 10 feet. Place additional HMA along the transverse edge at each lane's end and along the exposed longitudinal edges between adjacent lanes. Hand rake and compact the additional HMA to form temporary conforms. You may place Kraft paper or another authorized bond breaker under the conform tapers to facilitate the taper removal when paving operations resume.

#### **39-1.11B(2) Tapered Notched Wedge**

For divided highways with an HMA lift thickness greater than 0.15 foot, you may construct a 1-foot wide tapered notched wedge joint as a longitudinal joint between adjacent lanes open to traffic. A vertical notch of 0.75 inch maximum must be placed at the top and bottom of the tapered wedge.

The tapered notched wedge must retain its shape while exposed to traffic. Pave the adjacent lane within 1 day.

Construct the tapered portion of the tapered notched wedge with an authorized strike-off device. The strike-off device must provide a uniform slope and must not restrict the main screed of the paver.

You may use a device attached to the screed to construct longitudinal joints that will form a tapered notched wedge in a single pass. The tapered notched wedge must be compacted to a minimum of 91 percent compaction.

Perform QC testing on the completed tapered notch wedge joint as follows:

1. Perform field compaction tests at the rate of 1 test for each 750-foot section along the joint. Select random locations for testing within each 750-foot section.
2. Perform field compaction tests at the centerline of the joint, 6 inches from the upper vertical notch, after the adjacent lane is placed and before opening the pavement to traffic.

3. Determine maximum density test results.
4. Determine percent compaction of the longitudinal joint as the ratio of the average of the field compaction values and the maximum density test results.

For HMA under QC/QA construction process, the additional quality control compaction results associated with the tapered notch wedge will not be included in the computation of any quality factor and process control.

For acceptance of the completed tapered notch wedge joint, take two 4- or 6-inch diameter cores 6 inches from the upper vertical notch of the completed longitudinal joint for every 3,000 feet at locations designated by the Engineer. Take cores after the adjacent lane is placed and before opening the pavement to traffic. Cores must be taken in the presence of the Engineer and must be marked to identify the test sites. Submit the cores. One core will be used for determination of the field density and 1 core will be used for dispute resolution. The Engineer determines:

1. Field compaction by measuring the bulk specific gravity of the cores under California Test 308, Method A
2. Percent compaction as the ratio of the average of the bulk specific gravity of the core for each day's production to the maximum density test value

For HMA under QC/QA construction process, the additional quality assurance testing by the Engineer to determine field compaction associated with the tapered notch wedge will not be included in the Engineer's verification testing and in the computation of any quality factor and process control.

Determine percent compaction values each day the joint is completed and submit values within 24 hours of testing. If the percent compaction of 1 day's production is less than 91 percent, that day's notched wedge joint is rejected. Discontinue placement of the tapered notched wedge and notify the Engineer of changes you will make to your construction process in order to meet the specifications.

For HMA under QC/QA construction process, quantities of HMA placed in the completed longitudinal joint will have a quality factor  $QF_{QC5}$  of 1.0.

#### **39-1.11C Widening Existing Pavement**

If widening existing pavement, construct new pavement structure to match the elevation of the existing pavement's edge before placing HMA over the existing pavement.

#### **39-1.11D Shoulders, Medians, and Other Road Connections**

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. Driveways
6. Curve widenings
7. Chain control lanes
8. Turnouts
9. Turn pockets

If the number of lanes changes, pave each through lane's top layer before paving a tapering 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.

#### **39-1.11E Leveling**

If leveling with HMA is specified, fill and level irregularities and ruts with HMA before spreading HMA over the base, existing surfaces, or bridge decks. You may use mechanical equipment other than a paver for these areas. The equipment must produce uniform smoothness and texture. HMA used to change an existing surface's cross slope or profile is not paid for as 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.

### **39-1.11F Compaction**

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 degrees F for HMA with unmodified binder
2. Below 140 degrees F for HMA with modified binder
3. Below 200 degrees 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 construction processes, if 3/4-inch aggregate grading is specified, you may use a 1/2-inch aggregate grading if the specified total paved thickness is at least 0.15 foot and less than 0.20 foot thick.

Spread and compact HMA under sections 39-3.03 and 39-3.04 if any of the following applies:

1. Specified paved thickness is less than 0.15 foot.
2. Specified paved thickness is less than 0.20 foot and 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. Areas for which the Engineer determines conventional compaction and compaction measurement methods are impeded

Do not open new HMA pavement to public traffic until its mid-depth temperature is below 160 degrees F.

If you request and if authorized, you may cool HMA Type A and Type B with water when rolling activities are complete. Apply water under section 17-3.

Spread sand at a rate from 1 to 2 lb/sq yd 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 90-1.02C(4)(c). Keep traffic off the pavement until spreading sand is complete.

### **Replace the 5th and 6th paragraphs of section 39-1.12C with:**

07-20-12

On tangents and horizontal curves with a centerline radius of curvature 2,000 feet or more, the  $PI_0$  must be at most 2.5 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  $PI_0$  must be at most 5 inches per 0.1-mile section.

### **Add to section 39-1.12:**

01-20-12

### **39-1.12E Reserved**

### **Add to section 39-1.14:**

01-20-12

Prepare the area to receive HMA for miscellaneous areas and dikes, including any excavation and backfill as needed.



**Replace "6.8" in item 3 in the list in the 4th paragraph of section 39-1.14 with:**

6.4

04-20-12

**Replace "6.0" in item 3 in the list in the 4th paragraph of section 39-1.14 with:**

5.7

04-20-12

**Replace "6.8" in the 1st paragraph of section 39-1.15B with:**

6.4

04-20-12

**Replace "6.0" in the 1st paragraph of section 39-1.15B with:**

5.7

04-20-12

**Replace the 1st paragraph of section 39-2.02B with:**

Perform sampling and testing at the specified frequency for the quality characteristics shown in the following table:

02-22-13

**Minimum Quality Control—Standard Construction Process**

Quality characteristic	Test method	Minimum sampling and testing frequency	HMA type			
			A	B	RHMA-G	OGFC
Aggregate gradation <sup>a</sup>	California Test 202	1 per 750 tons and any remaining part at the end of the project	JMF ± Tolerance <sup>b</sup>	JMF ± Tolerance <sup>b</sup>	JMF ± Tolerance <sup>b</sup>	JMF ± Tolerance <sup>b</sup>
Sand equivalent (min) <sup>c</sup>	California Test 217		47	42	47	--
Asphalt binder content (%)	California Test 379 or 382		JMF±0.40	JMF±0.40	JMF ± 0.40	JMF ± 0.40
HMA moisture content (% max)	California Test 226 or 370	1 per 2,500 tons but not less than 1 per paving day	1.0	1.0	1.0	1.0
Field compaction (% max. theoretical density) <sup>d,e</sup>	QC plan	2 per business day (min.)	91–97	91–97	91–97	--
Stabilometer value (min) <sup>c</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 366	1 per 4,000 tons or 2 per 5 business days, whichever is greater	30	30	--	--
			37	35	23	--
Air void content (%) <sup>c,f</sup>	California Test 367		4 ± 2	4 ± 2	TV ± 2	--
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants <sup>g</sup>	California Test 226 or 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	California Test 205	As designated in the QC plan. At least once per project	90	25	--	90
			75	--	90	75
Los Angeles Rattler (% max) Loss at 100 rev.	California Test 211		70	20	70	90
			12	--	12	12

Loss at 500 rev.			45	50	40	40
Flat and elongated particles (% max by weight @ 5:1)	California Test 235		Report only	Report only	Report only	Report only
Fine aggregate angularity (% min) <sup>h</sup>	California Test 234		45	45	45	--
Voids filled with asphalt (%) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367		65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	Report only	--
Voids in mineral aggregate (% min) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367		17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0–23.0 18.0–23.0	--
Dust proportion <sup>l</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 367		0.6-1.2 0.6–1.2	0.6-1.2 0.6–1.2	Report only	--
Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>j</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	1 per 10,000 tons or 1 per project whichever is more	10,000 15,000 20,000 25,000	10,000 15,000 20,000 25,000	--	--
Hamburg wheel track (inflection point minimum number of passes) <sup>j</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	1 per 10,000 tons or 1 per project whichever is more	10,000 10,000 12,500 15000	10,000 10,000 12,500 15000	--	--
Moisture susceptibility (minimum dry strength, psi) <sup>j</sup>	California Test 371	For RAP ≥15% 1 per 10,000 tons or 1 per project whichever is greater	120	120	--	--
Moisture susceptibility (tensile strength ratio, %) <sup>j</sup>	California Test 371	For RAP ≥15% 1 per 10,000 tons or 1	70	70	--	--

		per project whichever is greater				
Smoothness	Section 39-1.12	--	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>
Asphalt rubber binder viscosity @ 375 °F, centipoises	Section 39-1.02D	Section 39-1.04C	--	--	1,500– 4,000	1,500– 4,000
Asphalt modifier	Section 39-1.02D	Section 39-1.04C	--	--	Section 39-1.02D	Section 39-1.02D
CRM	Section 39-1.02D	Section 39-1.04C	--	--	Section 39-1.02D	Section 39-1.02D

<sup>a</sup> Determine combined aggregate gradation containing RAP under California Test 367.

<sup>b</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.

<sup>c</sup> Report the average of 3 tests from a single split sample.

<sup>d</sup> Determine field compaction for any of the following conditions:

1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

<sup>e</sup> To determine field compaction use:

1. In-place density measurements using the method specified in your QC plan.
2. California Test 309 to determine the maximum theoretical density at the frequency specified in California Test 375, Part 5C.

<sup>f</sup> 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.

<sup>g</sup> For adjusting the plant controller at the HMA plant.

<sup>h</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

<sup>i</sup> Report only.

<sup>j</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace the 1st paragraph of section 39-2.03A with:**

02-22-13

The Department samples for acceptance testing and tests for the quality characteristics shown in the following table:

**HMA Acceptance—Standard Construction Process**

Quality characteristic	Test method	HMA type						
		A	B	RHMA-G	OGFC			
Aggregate gradation <sup>a</sup>	California Test 202	JMF ± tolerance <sup>c</sup>	JMF ± tolerance <sup>c</sup>	JMF ± tolerance <sup>c</sup>	JMF ± tolerance <sup>c</sup>			
Sieve						3/4"	1/2"	3/8"
1/2"						X <sup>b</sup>		
3/8"							X	
No. 4								X
No. 8						X	X	X
No. 200	X	X	X					
Sand equivalent (min) <sup>d</sup>	California Test 217	47	42	47	--			
Asphalt binder content (%)	California Test 379 or 382	JMF±0.40	JMF±0.40	JMF ± 0.40	JMF ± 0.40			
HMA moisture content (% max)	California Test 226 or 370	1.0	1.0	1.0	1.0			
Field compaction (% max. theoretical density) <sup>e, f</sup>	California Test 375	91–97	91–97	91–97	--			
Stabilometer value (min) <sup>d</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 366	30 37	30 35	-- 23	-- --			
Air void content (%) <sup>d, g</sup>	California Test 367	4 ± 2	4 ± 2	TV ± 2	--			
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	California Test 205	90 75 70	25 -- 20	-- 90 70	90 75 90			
Los Angeles Rattler (% max) Loss at 100 rev. Loss at 500 rev.	California Test 211	12 45	-- 50	12 40	12 40			
Fine aggregate angularity (% min) <sup>h</sup>	California Test 234	45	45	45	--			
Flat and elongated particles (% max by weight @ 5:1)	California Test 235	Report only	Report only	Report only	Report only			
Voids filled with asphalt (%) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	Report only	--			
Voids in mineral aggregate (% min) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367	17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0–23.0 18.0–23.0	--			
Dust proportion <sup>i</sup>	California			Report only	--			

No. 4 and 3/8" gradings 1/2" and 3/4" gradings	Test 367	0.6-1.2 0.6-1.2	0.6-1.2 0.6-1.2		
Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>j</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	10,000 15,000 20,000 25,000	10,000 15,000 20,000 25,000	--	--
Hamburg wheel track (inflection point minimum number of passes) <sup>j</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	10,000 10,000 12,500 15000	10,000 10,000 12,500 15000	--	--
Moisture susceptibility (minimum dry strength, psi) <sup>j</sup>	California Test 371	120	120	--	--
Moisture susceptibility (tensile strength ration, %) <sup>j</sup>	California Test 371	70	70	--	--
Smoothness	Section 39-1.12	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge, must grind, and PI <sub>0</sub>	12-foot straight- edge and must grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92
Asphalt rubber binder	Various	--	--	Section 92- 1.01D(2) and section 39-1.02D	Section 92-1.01D(2) and section 39-1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
CRM	Various	--	--	Section 39-1.02D	Section 39-1.02D

<sup>a</sup> The Engineer determines combined aggregate gradations containing RAP under California Test 367.

<sup>b</sup> "X" denotes the sieves the Engineer tests for the specified aggregate gradation.

<sup>c</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.

<sup>d</sup> The Engineer reports the average of 3 tests from a single split sample.

<sup>e</sup> The Engineer determines field compaction for any of the following conditions:

1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

<sup>f</sup> To determine field compaction, the Engineer uses:

1. California Test 308, Method A, to determine in-place density of each density core.
2. California Test 309 to determine the maximum theoretical density at the frequency specified in California Test 375, Part 5C.

<sup>g</sup> 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.

<sup>h</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

<sup>i</sup> Report only.

<sup>j</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace the 5th paragraph of section 39-2.03A with:**

01-20-12

The Engineer determines the percent of maximum theoretical density from density cores taken from the final layer measured the full depth of the total paved HMA thickness if any of the following applies:

1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.2 foot and any layer is less than 0.20 foot.

**Replace the 1st paragraph of section 39-3.02A with:**

02-22-13

The Department samples for acceptance testing and tests for the quality characteristics shown in the following table:

**HMA Acceptance—Method Construction Process**

Quality characteristic	Test method	HMA type			
		A	B	RHMA-G	OGFC
Aggregate gradation <sup>a</sup>	California Test 202	JMF ± tolerance <sup>b</sup>	JMF ± tolerance <sup>b</sup>	JMF ± tolerance <sup>b</sup>	JMF ± tolerance <sup>b</sup>
Sand equivalent (min) <sup>c</sup>	California Test 217	47	42	47	--
Asphalt binder content (%)	California Test 379 or 382	JMF±0.40	JMF±0.40	JMF ± 0.40	JMF ± 0.40
HMA moisture content (% max)	California Test 226 or 370	1.0	1.0	1.0	1.0
Stabilometer value (min) <sup>c</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 366	30 37	30 35	-- 23	-- --
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	California Test 205	90 75 70	25 -- 20	-- 90 70	90 75 90
Los Angeles Rattler (% max) Loss at 100 rev. Loss at 500 rev.	California Test 211	12 45	-- 50	12 40	12 40
Air void content (%) <sup>c, d</sup>	California Test 367	4 ± 2	4 ± 2	TV ± 2	--
Fine aggregate angularity (% min) <sup>e</sup>	California Test 234	45	45	45	--
Flat and elongated particles (% max by weight @ 5:1)	California Test 235	Report only	Report only	Report only	Report only
Voids filled with asphalt (%) <sup>f</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	Report only	--
Voids in mineral aggregate (% min) <sup>f</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367	17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0–23.0 18.0–23.0	--
Dust proportion <sup>f</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 367	0.6–1.2 0.6–1.2	0.6–1.2 0.6–1.2	Report only	--
Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>g</sup> PG-58 PG-64	AASHTO T 324 (Modified)	10,000 15,000	10,000 15,000	--	--



PG-70 PG-76 or higher		20,000 25,000	20,000 25,000		
Hamburg wheel track (inflection point minimum number of passes) <sup>g</sup>	AASHTO T 324 (Modified)			--	--
PG-58		10,000	10,000		
PG-64		10,000	10,000		
PG-70		12,500	12,500		
PG-76 or higher		15000	15000		
Moisture susceptibility (minimum dry strength, psi) <sup>g</sup>	California Test 371	120	120	--	--
Moisture susceptibility (tensile strength ration, %) <sup>g</sup>	California Test 371	70	70	--	--
Smoothness	Section 39-1.12	12-foot straight- edge and must-grind	12-foot straight- edge and must-grind	12-foot straight- edge and must-grind	12-foot straight- edge and must-grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92
Asphalt rubber binder	Various	--	--	Section 92- 1.01D(2) and section 39-1.02D	Section 92- 1.01D(2) and section 39-1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
CRM	Various	--	--	Section 39-1.02D	Section 39-1.02D

<sup>a</sup> The Engineer determines combined aggregate gradations containing RAP under California Test 367.

<sup>b</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.

<sup>c</sup> The Engineer reports the average of 3 tests from a single split sample.

<sup>d</sup> 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.

<sup>e</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

<sup>f</sup> Report only.

<sup>g</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace "280 degrees F" in item 2 in the list in the 6th paragraph of section 39-3.04 with:**

285 degrees F

01-20-12

**Replace "5,000" in the 5th paragraph of section 39-4.02C with:**

10,000

02-22-13

**Replace the 7th paragraph of section 39-4.02C with:**

Except for RAP substitution rate of greater than 15 percent, the Department does not use results from California Test 371 to determine specification compliance.

02-22-13

**Replace the 8th paragraph of section 39-4.02C with:**

02-22-13

Comply with the values for the HMA quality characteristics and minimum random sampling and testing for quality control shown in the following table:

**Minimum Quality Control—QC/QA Construction Process**

Quality characteristic	Test method	Minimum sampling and testing frequency	HMA Type			Location of sampling	Maximum report-ing time allow-ance
			A	B	RHMA-G		
Aggregate gradation <sup>a</sup>	California Test 202	1 per 750 tons	JMF ± tolerance <sup>b</sup>	JMF ± tolerance <sup>b</sup>	JMF ± tolerance <sup>b</sup>	California Test 125	24 hours
Asphalt binder content (%)	California Test 379 or 382		JMF±0.40	JMF±0.40	JMF ±0.40	Loose mix behind paver See California Test 125	
Field compaction (% max. theoretical density) <sup>c,d</sup>	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 <sup>e</sup>	California Test 226 or 370	2 per day during production	--	--	--	Stock-piles or cold feed belts	--
Sand equivalent (min) <sup>f</sup>	California Test 217	1 per 750 tons	47	42	47	California Test 125	24 hours
HMA moisture content (% max)	California Test 226 or 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 California Test 125	24 hours
Stabilometer value (min) <sup>f</sup>	California Test 366	1 per 4,000 tons or 2 per 5 business days, whichever is greater	30	30	--		48 hours
No. 4 and 3/8" gradings 1/2" and 3/4" gradings			37	35	23		
Air void content (%) <sup>f,g</sup>	California Test 367		4 ± 2	4 ± 2	TV ± 2		

Percent of crushed particles coarse aggregate (% min.): One fractured face Two fractured faces	California Test 205	As designated in QC plan.  At least once per project.	90	25	--	California Test 125	48 hours
			75	--	90		
Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve): One fractured face			70	20	70		
Los Angeles Rattler (% max): Loss at 100 rev. Loss at 500 rev.	California Test 211		12	--	12	California Test 125	
			45	50	40		
Fine aggregate angularity (% min) <sup>n</sup>	California Test 234		45	45	45	California Test 125	
Flat and elongated particle (% max by weight @ 5:1)	California Test 235		Report only	Report only	Report only	California Test 125	
Voids filled with asphalt (%) <sup>i</sup>  No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367				Report only		
			65.0–75.0	65.0–75.0			
		65.0–75.0	65.0–75.0				
		65.0–75.0	65.0–75.0				
		65.0–75.0	65.0–75.0				
Voids in mineral aggregate (% min.) <sup>i</sup>  No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367						
		17.0	17.0	--			
		15.0	15.0	--			
		14.0	14.0	18.0–23.0			
		13.0	13.0	18.0–23.0			

Dust proportion <sup>i</sup>	California Test 367							
No. 4 and 3/8" gradings 1/2" and 3/4" gradings			0.6–1.2 0.6–1.2	0.6–1.2 0.6–1.2	Report only			
Hamburg wheel track (minimum number of passes at 0.5 inch average rut depth) <sup>i</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	1 per 10,000 tons or 1 per project whichever is greater	10,000 15,000 20,000 25,000	10,000 15,000 20,000 25,000	--	--		
Hamburg wheel track (inflection point minimum number of passes) <sup>j</sup> PG-58 PG-64 PG-70 PG-76 or higher	AASHTO T 324 (Modified)	1 per 10,000 tons or 1 per project whichever is greater	10,000 10,000 12,500 15000	10,000 10,000 12,500 15000	--	--		
Moisture susceptibility (minimum dry strength, psi) <sup>j</sup>	California Test 371	1 per 10,000 tons or 1 per project whichever is greater	120	120	--	--		
Moisture susceptibility (tensile strength ratio, %) <sup>j</sup>	California Test 371	1 per 10,000 tons or 1 per project whichever is greater	70	70	70	--		
Smoothness	Section 39-1.12	--	12-foot straight-edge, must-grind, and Pl <sub>0</sub>	12-foot straight-edge, must-grind, and Pl <sub>0</sub>	12-foot straight-edge, must-grind, and Pl <sub>0</sub>	--		
Asphalt rubber binder viscosity @ 375 °F, centipoises	Section 39-1.02D	--	--	--	1,500–4,000	Section 39-1.02D	24 hours	
CRM	Section 39-1.02D	--	--	--	Section 39-1.02D	Section 39-1.02D	48 hours	

- <sup>a</sup> Determine combined aggregate gradation containing RAP under California Test 367.
- <sup>b</sup> The tolerances must comply with the allowable tolerances in section 39-1.02E.
- <sup>c</sup> Determines field compaction for any of the following conditions:
  - 1. 1/2-inch, 3/8-inch, or no. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
  - 2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.
- <sup>d</sup> To determine field compaction use:
  - 1. In-place density measurements using the method specified in your QC plan.
  - 2. California Test 309 to determine the maximum theoretical density at the frequency specified in California Test 375, Part 5C.
- <sup>e</sup> For adjusting the plant controller at the HMA plant.
- <sup>f</sup> Report the average of 3 tests from a single split sample.
- <sup>g</sup> 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.
- <sup>h</sup> The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.
- <sup>i</sup> Report only.
- <sup>j</sup> Applies to RAP substitution rate greater than 15 percent.

**Replace the 1st sentence in the 1st paragraph of section 39-4.03B(2) with:**

01-20-12

For aggregate gradation and asphalt binder content, the minimum ratio of verification testing frequency to quality control testing frequency is 1:5.

**Replace the 2nd "and" in the 7th paragraph of section 39-4.03B(2) with:**

01-20-12

or

**Replace the 1st paragraph of section 39-4.04A with:**

02-22-13

The Engineer samples for acceptance testing and tests for the following quality characteristics:

**HMA Acceptance—QC/QA Construction Process**

Index (i)	Quality characteristic				Weight -ing factor (w)	Test method	HMA type		
							A	B	RHMA-G
		Aggregate gradation <sup>a</sup>				California Test 202	JMF ± Tolerance <sup>c</sup>		
	Sieve	3/4"	1/2"	3/8"					
1	1/2"	X <sup>b</sup>	--	--	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	California Test 379 or 382	JMF±0.40	JMF±0.40	JMF ± 0.40
5	Field compaction (% max. theoretical density) <sup>d, e</sup>				0.40	California Test 375	92–96	92–96	91–96
	Sand equivalent (min) <sup>f</sup>					California Test 217	47	42	47
	Stabilometer value (min) <sup>f</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings					California Test 366	30 37	30 35	-- 23
	Air void content (%) <sup>f, g</sup>					California Test 367	4 ± 2	4 ± 2	TV ± 2
	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					California Test 205	90 75	25 --	-- 90
	HMA moisture content (% max)					California Test 226 or 370	1.0	1.0	1.0
	Los Angeles Rattler (% max) Loss at 100 rev. Loss at 500 rev.					California Test 211	12 45	-- 50	12 40
	Fine aggregate angularity (% min) <sup>h</sup>					California Test 234	45	45	45
	Flat and elongated particle (% max by weight @ 5:1)					California Test 235	Report only	Report only	Report only
	Voids in mineral aggregate (% min) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading					California Test 367	17.0 15.0 14.0 13.0	17.0 15.0 14.0 13.0	-- -- 18.0–23.0 18.0–23.0

	Voids filled with asphalt (%) <sup>i</sup> No. 4 grading 3/8" grading 1/2" grading 3/4" grading		California Test 367	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	65.0–75.0 65.0–75.0 65.0–75.0 65.0–75.0	Report only
	Dust proportion <sup>1</sup> No. 4 and 3/8" gradings 1/2" and 3/4" gradings		California Test 367	0.6–1.2 0.6–1.2	0.6–1.2 0.6–1.2	Report only
	Hamburg Wheel Tracker (minimum number of passes at 0.5 inch average rut depth) <sup>j</sup> PG-58 PG-64 PG-70 PG-76 or higher		AASHTO T 324 (Modified)	10,000 15,000 20,000 25,000	10,000 15,000 20,000 25,000	--
	Hamburg Wheel Tracker (inflection point minimum number of passes) <sup>j</sup> PG-58 PG-64 PG-70 PG-76 or higher		AASHTO T 324 (Modified)	10,000 15,000 20,000 25,000	10,000 15,000 20,000 25,000	--
	Moisture susceptibility (minimum dry strength, psi) <sup>j</sup>		California Test 371	120	120	--
	Moisture susceptibility (tensile strength ratio %) <sup>j</sup>		California Test 371	70	70	70
	Smoothness		Section 39-1.12	12-foot straight-edge, must grind, and PI <sub>0</sub>	12-foot straight-edge, must grind, and PI <sub>0</sub>	12-foot straight-edge, must grind, and PI <sub>0</sub>
	Asphalt binder		Various	Section 92	Section 92	Section 92
	Asphalt rubber binder		Various	--	--	Section 92-1.01D(2) and section 39-1.02D
	Asphalt modifier		Various	--	--	Section 39-1.02D
	CRM		Various	--	--	Section 39-1.02D





**suspension limit:** Value at which production must be suspended while corrections are made.

#### **40-1.01C Submittals**

##### **40-1.01C(1) General**

At least 15 days before delivery to the job site, submit manufacturer's recommendations and instructions for storage and installation of:

1. Threaded tie bar splice couplers
2. Joint filler

As an informational submittal, submit calibration documentation and operational guidelines for frequency measuring devices (tachometer) for concrete consolidation vibrators.

Submit updated quality control charts each paving day.

##### **40-1.01C(2) Certificates of Compliance**

Submit a certificate of compliance for:

1. Tie bars
2. Threaded tie bar splice couplers
3. Dowel bars
4. Tie bar baskets
5. Dowel bar baskets
6. Joint filler
7. Epoxy powder coating

##### **40-1.01C(3) Quality Control Plan**

Submit a concrete pavement QC plan. Allow 30 days for review.

##### **40-1.01C(4) Mix Design**

At least 15 days before testing for mix proportions, submit a copy of the AASHTO accreditation for your laboratory determining the mix proportions. At least 15 days before starting field qualification, submit the proposed concrete mix proportions, the corresponding mix identifications, and laboratory test reports including the modulus of rupture for each trial mixture at 10, 21, 28, and 42 days.

##### **40-1.01C(5) Concrete Field Qualification**

Submit field qualification data and test reports including:

1. Mixing date
2. Mixing equipment and procedures used
3. Batch volume in cubic yards. The minimum batch size is 5 cu yd.
4. Type and source of ingredients used
5. Penetration of the concrete
6. Air content of the plastic concrete
7. Age and strength at time of concrete beam testing

Field qualification test reports must be certified with a signature by an official in responsible charge of the laboratory performing the tests.

##### **40-1.01C(6) Cores**

Submit for authorization the name of the laboratory you propose to use for testing the cores for air content.

Submit each core in an individual plastic bag marked with a location description.

##### **40-1.01C(7) Profile Data and Straightedge Measurements**

At least 5 business days before start of initial profiling or changing profiler or operator, submit:

1. Inertial profiler (IP) certification issued by the Department. The certification must not be more than 12 months old.

2. Operator certification for the IP issued by the Department. The operator must be certified for each different model of IP device operated. The certification must not be more than 12 months old.
3. List of manufacturer's recommended test procedures for IP calibration and verification.

Within 2 business days after cross correlation testing, submit ProVAL profiler certification analysis report for cross correlation test results performed on test section. ProVAL is FHWA's software. Submit the certification analysis report to the Engineer and to the electronic mailbox address:

smoothness@dot.ca.gov

Within 2 business days after each day of inertial profiling, submit profile data to the Engineer and to the electronic mailbox address:

smoothness@dot.ca.gov

Within 2 business days of performing straightedge testing, submit a report of areas requiring smoothness correction.

#### **40-1.01C(8)–40-1.01C(12) Reserved**

#### **40-1.01D Quality Control and Assurance**

##### **40-1.01D(1) General**

If the pavement quantity is at least 2000 cu yd, provide a QC manager.

Core pavement as described for, thickness, bar placement, and air content.

For the Department's modulus of rupture testing, assist the Engineer in fabricating test beams by providing materials and labor.

Allow at least 25 days for the Department to schedule testing for coefficient of friction. Notify the Engineer when the pavement is scheduled to be opened to traffic. Notify the Engineer when the pavement is ready for testing which is the latter of:

1. Seven days after paving
2. When the pavement has attained a modulus of rupture of at least 550 psi

The Department tests for coefficient of friction within 7 days of receiving notification that the pavement is ready for testing.

##### **40-1.01D(2) Prepaving Conference**

Schedule a prepaving conference at a mutually agreed upon time and place to meet with the Engineer. Make the arrangements for the conference facility. Discuss QC plan and methods of performing each item of the work.

Prepaving conference attendees must sign an attendance sheet provided by the Engineer. The prepaving conference must be attended by your:

1. Project superintendent
2. QC manager
3. Paving construction foreman
4. Workers and your subcontractor's workers, including:
  - 4.1. Foremen including subcontractor's Foremen
  - 4.2. Concrete plant manager
  - 4.3. Concrete plant operator

Do not start paving activities including test strips until the listed personnel have attended a prepaving conference.

##### **40-1.01D(3) Just-In-Time-Training**

Reserved

#### **40-1.01D(4) Quality Control Plan**

Establish, implement, and maintain a QC plan for pavement. The QC plan must describe the organization and procedures used to:

1. Control the production process
2. Determine if a change to the production process is needed
3. Implement a change

The QC plan must include action and suspension limits and details of corrective action to be taken if any process is out of those limits. Suspension limits must not exceed specified acceptance criteria.

The QC plan must address the elements affecting concrete pavement quality including:

1. Mix proportions
2. Aggregate gradation
3. Materials quality
4. Stockpile management
5. Line and grade control
6. Proportioning
7. Mixing and transportation
8. Placing and consolidation
9. Contraction and construction joints
10. Bar reinforcement placement and alignment
11. Dowel bar placement, alignment, and anchorage
12. Tie bar placement
13. Modulus of rupture
14. Finishing and curing
15. Protecting pavement
16. Surface smoothness

#### **40-1.01D(5) Mix Design**

Use a laboratory that complies with ASTM C 1077 to determine the mix proportions for concrete pavement. The laboratory must have a current AASHTO accreditation for:

1. AASHTO T 97 or ASTM C 78
2. ASTM C 192/C 192M

Make trial mixtures no more than 24 months before field qualification.

Using your trial mixtures, determine the minimum cementitious materials content. Use your value for minimum cementitious material content for *MC* in equation 1 and equation 2 of section 90-1.02B(3).

To determine the minimum cementitious materials content or maximum water to cementitious materials ratio, use modulus of rupture values of at least 570 psi for 28 days age and at least 650 psi for 42 days age.

If changing an aggregate supply source or the mix proportions, produce a trial batch and field-qualify the new concrete. The Engineer does not adjust contract time for performing sampling, testing, and qualifying new mix proportions or changing an aggregate supply source.

#### **40-1.01D(6) Quality Control Testing**

##### **40-1.01D(6)(a) General**

Testing laboratories and testing equipment must comply with the Department's Independent Assurance Program.

##### **40-1.01D(6)(b) Concrete Mix**

Before placing pavement, your mix design must be field qualified. Use an ACI certified "Concrete Laboratory Technician, Grade I" to perform field qualification tests and calculations. Test for modulus of rupture under California Test 523 at 10, 21, and 28 days of age.

When placing pavement, your quality control must include testing properties at the frequencies shown in the following table:

**QC Testing Frequency**

Property	Test method	Minimum frequency
Cleanness value	California Test 227	2 per day
Sand equivalent	California Test 217	2 per day
Aggregate gradation	California Test 202	2 per day
Air content (air entrainment specified)	California Test 504	1 per hour
Air content (air entrainment not specified)	California Test 504	1 per 4 hours
Density	California Test 518	1 per 4 hours
Penetration	California Test 533	1 per 4 hours
Aggregate moisture meter calibration <sup>a</sup>	California Test 223 or California Test 226	1 per day

<sup>a</sup> Check calibration of the plant moisture meter by comparing moisture meter readings with California Test 223 or California Test 226 test results.

Maintain control charts to identify potential problems and assignable causes. Post a copy of each control chart at a location determined by the Engineer.

Individual measurement control charts must use the target values in the mix proportions as indicators of central tendency.

Develop linear control charts for:

1. Cleanness value
2. Sand equivalent
3. Fine and coarse aggregate gradation
4. Air content
5. Penetration

Control charts must include:

1. Contract number
2. Mix proportions
3. Test number
4. Each test parameter
5. Action and suspension limits
6. Specification limits
7. Quality control test results

For fine and coarse aggregate gradation control charts, record the running average of the previous 4 consecutive gradation tests for each sieve and superimpose the specification limits.

For air content control charts, the action limit is  $\pm 1.0$  percent of the specified value. If no value is specified, the action limit is  $\pm 1.0$  percent of the value used for your approved mix design.

As a minimum, a process is out of control if any of the following occurs:

1. For fine and coarse aggregate gradation, 2 consecutive running averages of 4 tests are outside the specification limits
2. For individual penetration or air content measurements:
  - 2.1. One point falls outside the suspension limit line
  - 2.2. Two points in a row fall outside the action limit line

Stop production and take corrective action for out of control processes or the Engineer rejects subsequent material.

Before each day's concrete pavement placement and at intervals not to exceed 4 hours of production, use a tachometer to test and record vibration frequency for concrete consolidation vibrators.

#### **40-1.01D(6)(c) Pavement Smoothness**

##### **40-1.01D(6)(c)(i) General**

Notify the Engineer 2 business days before performing smoothness testing including IP calibration and verification testing. The notification must include start time and locations by station.

Before testing the pavement smoothness, remove foreign objects from the surface, and mark the beginning and ending station on the pavement shoulder.

Test pavement smoothness using an IP except use a 12-foot straightedge at the following locations:

1. Traffic lanes less than 1,000 feet in length including ramps, turn lanes, and acceleration and deceleration lanes
2. Areas within 15 feet of manholes
3. Shoulders
4. Weigh-in-motion areas
5. Miscellaneous areas such as medians, gore areas, turnouts, and maintenance pullouts

##### **40-1.01D(6)(c)(ii) Straightedge Testing**

Identify locations of areas requiring correction by:

1. Location Number
2. District-County-Route
3. Beginning station or post mile to the nearest 0.01 mile
4. For correction areas within a lane:
  - 4.1. Lane direction as NB, SB, EB, or WB
  - 4.2. Lane number from left to right in direction of travel
  - 4.3. Wheel path as "L" for left, "R" for right, or "B" for both
5. For correction areas not within a lane:
  - 5.1. Identify pavement area (e.g., shoulder, weight station, turnout)
  - 5.2. Direction and distance from centerline as "L" for left or "R" for right
6. Estimated size of correction area

##### **40-1.01D(6)(c)(iii) Inertial Profile Testing**

IP equipment must display a current certification decal with expiration date.

Conduct cross correlation IP verification test in the Engineer's presence before performing initial profiling. Verify cross correlation IP verification test at least annually. Conduct 5 repeat runs of the IP on an authorized test section. The test section must be on an existing concrete pavement surface 0.1 mile long. Calculate a cross correlation to determine the repeatability of your device under Section 8.3.1.2 of AASHTO R 56 using ProVAL profiler certification analysis with a 3 feet maximum offset. The cross correlation must be a minimum of 0.92.

Conduct the following IP calibration and verification tests in the Engineer's presence each day before performing inertial profiling:

1. Block test. Verify the height sensor accuracy under AASHTO R 57, section 5.3.2.3.
2. Bounce test. Verify the combined height sensor and accelerometer accuracy under AASHTO R 57, section 5.3.2.3.2.
3. DMI test. Calibrate the accuracy of the testing procedure under AASHTO R 56, section 8.4.
4. Manufacturer's recommended tests.

Collect IP data using the specified ProVAL analysis with 250 mm and IRI filters. Comply with the requirements for data collection under AASHTO R 56.

For IP testing, wheel paths are 3 feet from and parallel to the edge of a lane. Left and right are relative to the direction of travel. The IRI is the pavement smoothness along a wheel path of a given lane. The MRI is the average of the IRI values for the left and right wheel path from the same lane.

Operate the IP according to the manufacturer's recommendations and AASHTO R 57 at 1-inch recording intervals and a minimum 4 inch line laser sensor.

Collect IP data under AASHTO R 56. IP data must include:

1. Raw profile data for each lane.
2. ProVAL ride quality analysis report for the international roughness index (IRI) of left and right wheel paths of each lane. Submit in pdf file format.
3. ProVAL ride quality analysis report for the mean roughness index (MRI) of each lane. Submit in pdf file format.
4. ProVAL smoothness assurance analysis report for IRIs of left wheel path. Submit in pdf file format.
5. ProVAL smoothness assurance analysis report for IRIs of right wheel path. Submit in pdf file format.
6. GPS data file for each lane in GPS exchange. Submit in GPS eXchange file format.
7. Manufacturer's recommended IP calibration and verification tests results.
8. AASHTO IP calibration and verification test results including bounce, block, and distance measurement instrument (DMI).

Submit the IP raw profile data in unfiltered electronic pavement profile file (PPF) format. Name the PPF file using the following naming convention:

YYYYMMDD\_TTCCRRR\_D\_L\_W\_S\_X\_PT.PPF

where:

YYYY = year

MM = Month, leading zero

DD = Day of month, leading zero

TT = District, leading zero

CCC = County, 2 or 3 letter abbreviation as shown in section 1-1.08

RRR = Route number, no leading zeros

D = Traffic direction as NB, SB, WB, or EB

L = Lane number from left to right in direction of travel

W = Wheel path as "L" for left, "R" for right, or "B" for both

S = Beginning station to the nearest foot (e.g., 10+20) or beginning post mile to the nearest hundredth (e.g., 25.06) no leading zero

X = Profile operation as "EXIST" for existing pavement, "PAVE" for after paving, or "CORR" for after final surface pavement correction

PT = Pavement type (e.g., "concrete", etc.)

Determine IRIs using the ProVAL ride quality analysis with a 250 mm and IRI filters. While collecting the profile data to determine IRI, record the following locations in the raw profile data:

1. Begin and end of all bridge approach slabs
2. Begin and end of all bridges
3. Begin and end of all culverts visible on the roadway surface

For each 0.1 mile section, your IRI values must be within 10 percent of the Department's IRI values. The Engineer may order you to recalibrate your IP equipment and reprofile. If your results are inaccurate due to operator error, the Engineer may disqualify your IP operator.

Determine the MRI for 0.1-mile fixed sections. A partial section less than 0.1 mile that is the result of an interruption to continuous pavement surface must comply with the MRI specifications for a full section. Adjust the MRI for a partial section to reflect a full section based on the proportion of a section paved.

Determine the areas of localized roughness. Use the ProVAL smoothness assurance with a continuous IRI for each wheel path, 25-foot interval, and 250 mm and IRI filters.

**40-1.01D(6)(c)(iv) Reserved**

**40-1.01D(6)(d)–40-1.01D(6)(h) Reserved**

**40-1.01D(7) Pavement Acceptance**

**40-1.01D(7)(a) Acceptance Testing**

**40-1.01D(7)(a)(i) General**

The Department's acceptance testing includes testing the pavement properties at the minimum frequencies shown in the following table:

Property	Acceptance Testing Test Method		Frequency <sup>a</sup>
	CRCP	JPCP	
Modulus of rupture (28 day)	California Test 523		1,000 cu yd
Air content <sup>b</sup>	California Test 504		1 day's paving
Dowel bar placement	--	Measurement <sup>a</sup>	700 sq yd
Tie bar placement	--	Measurement <sup>a</sup>	4,000 sq yd
Thickness	California Test 531		1,200 sq yd
Coefficient of friction	California Test 342		1 day's paving

<sup>a</sup>A single test represents no more than the frequency specified.

<sup>b</sup>Tested only when air entrainment is specified.

Pavement smoothness may be accepted based on your testing in the absence of the Department's testing.

**40-1.01D(7)(a)(ii) Air Content**

If air-entraining admixtures are specified, the Engineer uses a t-test to compare your QC test results with the Department's test results. The t-value for test data is determined using the following equation:

$$t = \frac{|\bar{X}_c - \bar{X}_v|}{S_p \sqrt{\frac{1}{n_c} + \frac{1}{n_v}}} \quad \text{and} \quad S_p^2 = \frac{S_c^2(n_c - 1) + S_v^2(n_v - 1)}{n_c + n_v - 2}$$

where:

- $n_c$  = Number of your quality control tests (minimum of 6 required)
- $n_v$  = Number of Department's tests (minimum of 2 required)
- $\bar{X}_c$  = Mean of your quality control tests
- $\bar{X}_v$  = Mean of the Department's tests
- $S_p$  = Pooled standard deviation  
(When  $n_v = 1$ ,  $S_p = S_c$ )
- $S_c$  = Standard deviation of your quality control tests
- $S_v$  = Standard deviation of the Department's tests (when  $n_v > 1$ )

The Engineer compares your QC test results with the Department's test results at a level of significance of  $\alpha = 0.01$ . The Engineer compares the t-value to  $t_{crit}$ , using degrees of freedom showing in the following table:



degrees of freedom (nc+nv-2)	tcrit (for $\alpha = 0.01$ )
1	63.657
2	9.925
3	5.841
4	4.604
5	4.032
6	3.707
7	3.499
8	3.355
9	3.250
10	3.169

If the t-value calculated is less than or equal to tcrit, your quality control test results are verified. If the t-value calculated is greater than tcrit, quality control test results are not verified.

If your quality control test results are not verified, core at least 3 specimens from concrete pavement under section 40-1.03P. The Engineer selects the core locations. The authorized laboratory must test these specimens for air content under ASTM C 457. The Engineer compares these test results with your quality control test results using the t-test method. If your quality control test results are verified based on this comparison, the Engineer uses the quality control test results for acceptance of concrete pavement for air content. If your quality control test results are not verified based on this comparison, the Engineer uses the air content of core specimens determined by the authorized laboratory under ASTM C 457 for acceptance.

#### **40-1.01D(7)(a)(iii) Dowel and Tie Bar Placement**

For JPCP, drill cores under section 40-1.03P for the Department's acceptance testing.

The Engineer identifies which joint and dowel or tie bar are to be tested. Core each day's paving within 2 business days. Each dowel or tie bar test consists of 2 cores, 1 on each bar end to expose both ends and allow measurement.

If the tests indicate dowel or tie bars are not placed within the specified tolerances or if there is unconsolidated concrete around the dowel or tie bars, core additional specimens identified by Engineer to determine the limits of unacceptable work.

#### **40-1.01D(7)(a)(iv) Thickness**

Drill cores under section 40-1.03P for the Department's acceptance testing in the primary area, which is the area placed in 1 day for each thickness. Core at locations determined by the Engineer and in the Engineer's presence.

Do not core until any grinding has been completed.

The core specimen diameter must be 4 inches. To identify the limits of concrete pavement deficient in thickness by more than 0.05 foot, you may divide primary areas into secondary areas. The Engineer measures cores under California Test 531 to the nearest 0.01 foot. Core at least 1 foot from existing, contiguous, and parallel concrete pavement not constructed as part of this Contract.

You may request the Engineer make additional thickness measurements and use them to determine the average thickness variation. The Engineer determines the locations with random sampling methods.

If each thickness measurement in a primary area is less than 0.05 foot deficient, the Engineer calculates the average thickness deficiency in that primary area. The Engineer uses 0.02 foot for a thickness difference more than 0.02 foot over the specified thickness.

For each thickness measurement in a primary area deficient by more than 0.05 foot, the Engineer determines a secondary area where the thickness deficiency is more than 0.05 foot. The Engineer determines this secondary area by measuring the thickness of each concrete pavement slab adjacent to

the measurement found to be more than 0.05 foot deficient. The Engineer continues to measure the thickness until an area that is bound by slabs with thickness deficient by 0.05 foot or less is determined.

Slabs without bar reinforcement are defined by the areas bound by longitudinal and transverse joints and concrete pavement edges. Slabs with bar reinforcement are defined by the areas bound by longitudinal joints and concrete pavement edges and 15-foot lengths. Secondary area thickness measurements in a slab determine that entire slab's thickness.

The Engineer measures the remaining primary area thickness after removing the secondary areas from consideration for determining the average thickness deficiency.

**40-1.01D(7)(a)(v)–40-1.01D(7)(a)(ix) Reserved**

**40-1.01D(7)(b) Acceptance Criteria**

**40-1.01D(7)(b)(i) General**

Reserved

**40-1.01D(7)(b)(ii) Modulus of Rupture**

For field qualification, the modulus of rupture at no later than 28 days must be at least:

1. 550 psi for each single beam
2. 570 psi for the average of 5 beams

For production, the modulus of rupture for the average of the individual test results of 2 beams aged for 28 days must be at least 570 psi.

**40-1.01D(7)(b)(iii) Air Content**

The air content must be within  $\pm 1.5$  percent of the specified value. If no value is specified, the air content must be within  $\pm 1.5$  percent of, the value used for your approved mix design.

**40-1.01D(7)(b)(iv) Bar Reinforcement**

In addition to requirements of Section 52, bar reinforcement must be more than 1/2 inch below the saw cut depth at concrete pavement joints.

**40-1.01D(7)(b)(v) Dowel Bar and Tie Bar Placement**

Tie bar placement must comply with the tolerances shown in the following table:

<b>Tie Bar Tolerance</b>	
Dimension	Tolerance
Horizontal and vertical skew	5 1/4 inch, max
Longitudinal translation	$\pm 2$ inch
Horizontal offset (embedment)	$\pm 2$ inch
Vertical depth	1. At least 1/2 inch below the bottom of the saw cut 2. When measured at any point along the bar, not less than 2 inches clear of the pavement's surface and bottom

NOTE: Tolerances are measured relative to the completed joint.

Dowel bar placement must comply with the tolerances shown in the following table:

### Dowel Bar Tolerances

Dimension	Tolerance
Horizontal offset	±1 inch
Longitudinal translation	±2 inch
Horizontal skew	5/8 inch, max
Vertical skew	5/8 inch, max
Vertical depth	<p>The minimum distance measured from concrete pavement surface to any point along the top of dowel bar must be:  <math>DB + 1/2</math> inch</p> <p>where:            DB = one third of pavement thickness in inches, or the saw cut depth, whichever is greater</p> <p>The maximum distance below the depth shown must be 5/8 inch.</p>

NOTE: Tolerances are measured relative to the completed joint.

The Engineer determines the limits for removal and replacement.

#### **40-1.01D(7)(b)(vi) Pavement Thickness**

Concrete pavement thickness must not be deficient by more than 0.05 foot.

The minimum thickness is not reduced for specifications that may affect concrete pavement thickness such as allowable tolerances for subgrade construction.

The Engineer determines the areas of noncompliant pavement, the thickness deficiencies, and the limits where removal is required.

Pavement with an average thickness deficiency less than 0.01 foot is acceptable. If the thickness deficiency is 0.01 foot or more and less than 0.05 foot, you may request authorization to leave the pavement in place and accept a pay adjustment. If the deficiency is more than 0.05 foot the pavement must be removed and replaced.

#### **40-1.01D(7)(b)(vii) Pavement Smoothness**

Where testing with an IP is required, the pavement surface must have:

1. No areas of localized roughness with an IRI greater than 120 in/mi
2. MRI of 60 in/mi or less within a 0.1 mile section

Where testing with a straightedge is required, the pavement surface must not vary from the lower edge of the straightedge by more than:

1. 0.01 foot when the straightedge is laid parallel with the centerline
2. 0.02 foot when the straightedge is laid perpendicular to the centerline and extends from edge to edge of a traffic lane
3. 0.02 foot when the straightedge is laid within 24 feet of a pavement conform

#### **40-1.01D(7)(b)(viii) Coefficient of Friction**

Initial and final texturing must produce a coefficient of friction of at least 0.30. Do not open the pavement to traffic unless the coefficient of friction is at least 0.30.

**40-1.01D(7)(b)(ix)–40-1.01D(7)(b)(xii) Reserved**

**40-1.02 MATERIALS**

**40-1.02A General**

Water for coring must comply with section 90.

Tack coat must comply with section 39.

**40-1.02B Concrete**

**40-1.02B(1) General**

PCC for pavement must comply with section 90-1 except as otherwise specified.

**40-1.02B(2) Cementitious Material**

Concrete must contain from 505 pounds to 675 pounds cementitious material per cubic yard. The specifications for reducing cementitious material content in section 90-1.02E(2) do not apply .

**40-1.02B(3) Aggregate**

Aggregate must comply with section 90-1.02C except the specifications for reduction in operating range and contract compliance for cleanness value and sand equivalent specified in section 90-1.02C(2) and section 90-1.02C(3) do not apply.

For coarse aggregate in high desert and high mountain climate regions, the loss must not exceed 25 percent when tested under California Test 211 with 500 revolutions.

For combined aggregate gradings, the difference between the percent passing the 3/8-inch sieve and the percent passing the no. 8 sieve must not be less than 16 percent of the total aggregate.

**40-1.02B(4) Air Entrainment**

The second paragraph of section 90-1.02I(2)(a) does not apply.

For a project shown in the low and south mountain climate regions, add air-entraining admixture to the concrete at the rate required to produce an air content of 4 percent in the freshly mixed concrete.

For a project shown in the high desert and high mountain climate regions, add air-entraining admixture to the concrete at the rate required to produce an air content of 6 percent in the freshly mixed concrete.

**40-1.02B(5)–40-1.02B(8) Reserved**

**40-1.02C Reinforcement, Bars, and Baskets**

**40-1.02C(1) Bar Reinforcement**

Bar reinforcement must be deformed bars.

If the project is not shown to be in high desert or any mountain climate region, bar reinforcement must comply with section 52.

If the project is shown to be in high desert or any mountain climate regions, bar reinforcement must be one of the following:

1. Epoxy-coated bar reinforcement under section 52-2.03B except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60. Bars must be handled under ASTM D 3963/D 3963M and section 52-2.02C.
2. Low carbon, chromium steel bar complying with ASTM A 1035/A 1035M

**40-1.02C(2) Dowel Bars**

Dowel bars must be plain bars. Fabricate, sample, and handle epoxy-coated dowel bars under ASTM D 3963/D 3963M and section 52-2.03C except each sample must be 18 inches long.

If the project is not shown to be in high desert or any mountain climate region, dowel bars must be one of the following:

1. Epoxy-coated bars. Bars must comply with ASTM A 615/A 615M, Grade 40 or 60. Epoxy coating must comply with either section 52-2.02B or 52-2.03B.

2. Stainless-steel bars. Bars must be descaled solid stainless-steel bars under ASTM A 955/A 955M, UNS Designation S31603 or S31803.
3. Low carbon, chromium-steel bars under ASTM A 1035/A 1035M.

If the project is shown to be in high desert or any mountain climate region, dowel bars must be one of the following:

1. Epoxy-coated bars. Bars must comply with ASTM A 615/A 615M, Grade 40 or 60. Epoxy coating must comply with section 52-2.03B.
2. Stainless-steel bars. Bars must be descaled solid stainless-steel bars under ASTM A 955/A 955M, UNS Designation S31603 or S31803.

#### **40-1.02C(3) Tie Bars**

Tie bars must be deformed bars.

If the project is not shown to be in high desert or any mountain climate region, tie bars must be one of the following:

1. Epoxy-coated bar reinforcement. Bars must comply with either section 52-2.02B or 52-2.03B except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60.
2. Stainless-steel bars. Bars must be descaled solid stainless-steel bars under ASTM A 955/A 955M, UNS Designation S31603 or S31803.
3. Low carbon, chromium-steel bars under ASTM A 1035/A 1035M.

If the project is shown to be in high desert or any mountain climate region, tie bars must be one of the following:

1. Epoxy-coated bar reinforcement. Bars must comply with section 52-2.03B except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60.
2. Stainless-steel bars. Bars must be descaled solid stainless-steel bars under ASTM A 955/A 955M, UNS Designation S31603 or S31803.

Fabricate, sample, and handle epoxy-coated tie bars under ASTM D 3963/D 3963M, section 52-2.02, or section 52-2.03.

Do not bend tie bars.

#### **40-1.02C(4) Dowel and Tie Bar Baskets**

For dowel and tie bar baskets, wire must comply with ASTM A 82/A 82M and be welded under ASTM A 185/A 185M, Section 7.4. The minimum wire-size no. is W10. Use either U-frame or A-frame shaped assemblies.

If the project is not shown to be in high desert or any mountain climate region, baskets may be epoxy-coated, and the epoxy coating must comply with either section 52-2.02B or 52-2.03B.

If the project is shown to be in high desert or any mountain climate region, wire for dowel bar and tie bar baskets must be one of the following:

1. Epoxy-coated wire complying with section 52-2.03B
2. Stainless-steel wire. Wire must be descaled solid stainless-steel. Wire must comply with (1) the chemical requirements in ASTM A 276/A 276M, UNS Designation S31603 or S31803 and (2) the tension requirements in ASTM A 1022/ A 1022M.

Handle epoxy-coated tie bar and dowel bar baskets under ASTM D 3963/D 3963M and either section 52-2.02 or 52-2.03.

Fasteners must be driven fasteners under ASTM F 1667. Fasteners on lean concrete base or HMA must have a minimum shank diameter of 3/16 inch and a minimum shank length of 2-1/2 inches. For asphalt treated permeable base or cement treated permeable base, the shank diameter must be at least 3/16 inch and the shank length must be at least 5 inches.

Fasteners, clips, and washers must have a minimum 0.2-mil thick zinc coating applied by either electroplating or galvanizing.

**40-1.02D Dowel Bar Lubricant**

Dowel bar lubricant must be petroleum paraffin based or a curing compound. Paraffin-based lubricant must be Dayton Superior DSC BB-Coat or Valvoline Tectyl 506 or an approved equal and must be factory-applied. Curing compound must be curing compound no. 3.

**40-1.02E Joint Filler**

Joint filler for isolation joint must be preformed expansion joint filler for concrete (bituminous type) under ASTM D 994.

**40-1.02F Curing Compound**

Curing compound must be curing compound no. 1 or 2.

**40-1.02G Nonshrink Hydraulic Cement Grout**

Nonshrink hydraulic cement grout must comply with ASTM C 1107/C 1107M. Clean, uniform, rounded aggregate filler may be used to extend the grout. Aggregate filler must not exceed 60 percent of the grout mass or the maximum recommended by the manufacturer, whichever is less. Aggregate filler moisture content must not exceed 0.5 percent when tested under California Test 223 or California Test 226. Aggregate filler tested under California Test 202 must comply with the grading shown in the following table:

Sieve size	Percentage passing
1/2-inch	100
3/8-inch	85–100
No. 4	10–30
No. 8	0–10
No. 16	0–5

**40-1.02H Temporary Roadway Pavement Structure**

Temporary roadway pavement structure must comply with section 41-1.02E.

**40-1.02I–40-1.02N Reserved**

**40-1.03 CONSTRUCTION**

**40-1.03A General**

Aggregate and bulk cementitious material must be proportioned by weight by means of automatic proportioning devices of approved types.

For widenings and lane reconstruction, construct only the portion of pavement where the work will be completed during the same lane closure. If you fail to complete the construction during the same lane closure, construct a temporary pavement structure under section 41-1.

**40-1.03B Water Supply**

Before placing concrete pavement, develop enough water supply.

**40-1.03C Test Strips**

Construct a test strip for each type of pavement with a quantity of more than 2,000 cu yd. Obtain authorization of the test strip before constructing pavement. Test strips must be:

1. 700 to 1,000 feet long
2. Same width as the planned paving, and
3. Constructed using the same equipment proposed for paving

The Engineer selects from 6 to 12 core locations for dowel bars and up to 6 locations for tie bars per test strip. If you use mechanical dowel bar inserters, the test strip must demonstrate they do not leave voids, segregations, or surface irregularities such as depressions, dips, or high areas.

Test strips must comply with the acceptance criteria for:

1. Smoothness, except IP is not required
2. Dowel bars and tie bars placement
3. Pavement thickness
4. Final finishing, except the coefficient of friction is not considered

Allow 3 business days for evaluation. If the test strip is noncompliant, stop paving and submit a plan for changed materials, methods, or equipment. Allow 3 business days for authorization of the plan. Construct another test strip per the authorized plan.

Remove and dispose of noncompliant test strips.

If the test strip is compliant except for smoothness and final finishing, you may grind the surface. After grinding retest the test strip smoothness under section 40-1.01D(6)(c).

If the test strip is compliant for smoothness and thickness, construction of an additional test strip is not required and the test strip may remain in place.

Construct additional test strips if you:

1. Propose different paving equipment including:
  - 1.1. Paver
  - 1.2. Dowel bar inserter
  - 1.3. Tie bar inserter
  - 1.4. Tining
  - 1.5. Curing equipment
2. Change concrete mix proportions

You may request authorization to eliminate the test strip if you use paving equipment and personnel from a Department project (1) for the same type of pavement and (2) completed within the past 12 months. Submit supporting documents and previous project information with your request.

#### **40-1.03D Joints**

##### **40-1.03D(1) General**

Do not bend tie bars or reinforcement in existing concrete pavement joints.

For contraction joints and isolation joints, saw cut a groove with a power-driven saw. After cutting, immediately wash slurry from the joint with water at less than 100 psi pressure.

Keep joints free from foreign material including soil, gravel, concrete, and asphalt. To keep foreign material out of the joint, you may use filler material. Filler material must not react adversely with the concrete or cause concrete pavement damage. After sawing and washing, install filler material that keeps moisture in the adjacent concrete during the 72 hours after paving. If you install filler material, the specifications for spraying the sawed joint with additional curing compound in section 40-1.03K does not apply. If using absorptive filler material, moisten the filler immediately before or after installation.

##### **40-1.03D(2) Construction Joints**

Construction joints must be vertical.

Before placing fresh concrete against hardened concrete, existing concrete pavement, or structures, apply curing compound no. 1 or 2 to the vertical surface of the hardened concrete, existing concrete pavement, or structures and allow it to dry.

At joints between concrete pavement and HMA, apply tack coat between the concrete pavement and HMA.

Use a metal or wooden bulkhead to form transverse construction joints. If dowel bars are described, the bulkhead must allow dowel bar installation.

#### **40-1.03D(3) Contraction Joints**

Saw contraction joints before cracking occurs and after the concrete is hard enough to saw without spalling, raveling, or tearing.

Saw cut using a power saw with a diamond blade. After cutting, immediately wash slurry from the joint with water at less than 100 psi pressure.

Except for longitudinal joints parallel to a curving centerline, transverse and longitudinal contraction joints must not deviate by more than 0.1 foot from either side of a 12-foot straight line

Cut transverse contraction joints within 0.5 foot of the spacing described. Adjust spacing if needed such that slabs are at least 10 feet long.

For widenings, do not match transverse contraction joints with existing joint spacing or skew unless otherwise described.

Cut transverse contraction joints straight across the full concrete pavement width, between isolation joints and edges of pavement. In areas of converging and diverging pavements, space transverse contraction joints such that the joint is continuous across the maximum pavement width. Longitudinal contraction joints must be parallel with the concrete pavement centerline, except when lanes converge or diverge.

#### **40-1.03D(4) Isolation Joints**

Before placing concrete at isolation joints, prepare the existing concrete face and secure joint filler. Prepare by saw cutting and making a clean flat vertical surface. Make the saw cut the same depth as the depth of the new pavement.

#### **40-1.03E Bar Reinforcement**

Place bar reinforcement under section 52.

#### **40-1.03F Dowel Bar Placement**

If using curing compound as lubricant, apply the curing compound to dowels in 2 separate applications. Lubricate each dowel bar entirely before placement. The last application must be applied not more than 8 hours before placing the dowel bars. Apply each curing compound application at a rate of 1 gallon per 150 square feet.

Install dowel bars using one of the following methods:

1. Drill and bond bars. Comply with section 41-10.
2. Mechanical insertion. Eliminate evidence of the insertion by reworking the concrete over the dowel bars.
3. Dowel bar baskets. Anchor baskets with fasteners. Use at least 1 fastener per foot for basket sections. Baskets must be anchored at least 200 feet in advance of the concrete placement activity unless your waiver request is authorized. If requesting a waiver, describe the construction limitations or restricted access preventing the advanced anchoring. After the baskets are anchored and before the concrete is placed, cut and remove temporary spacer wires and demonstrate the dowel bars do not move from their specified depth and alignment during concrete placement.

If dowel bars are noncompliant, stop paving activities, demonstrate your correction, and obtain verbal approval from the Engineer.

#### **40-1.03G Tie Bar Placement**

Install tie bars at longitudinal joints using one of the following methods:

1. Drill and bond bars. Comply with section 41-10.
2. Insert bars. Mechanically insert tie bars into plastic slip-formed concrete before finishing. Inserted tie bars must have full contact between the bar and the concrete. Eliminate evidence of the insertion by reworking the concrete over the tie bars.
3. Threaded couplers. Threaded tie bar splice couplers must be fabricated from deformed bar reinforcement and free of external welding or machining.
4. Tie bar baskets. Anchor baskets at least 200 feet in advance of pavement placement activity. If you request a waiver, describe the construction limitations or restricted access preventing the advanced



anchoring. After the baskets are anchored and before paving, demonstrate the tie bars do not move from their specified depth and alignment during paving. Use fasteners to anchor tie bar baskets.

If tie bars are noncompliant, stop paving activities, demonstrate your correction, and obtain verbal approval from the Engineer.

#### **40-1.03H Placing Concrete**

##### **40-1.03H(1) General**

Immediately prior to placing concrete, the surface to receive concrete must be:

1. In compliance with specified requirements, including compaction and elevation tolerances
2. Free of loose and extraneous material
3. Uniformly moist, but free of standing or flowing water

Place concrete pavement with stationary side forms or slip-form paving equipment.

Place consecutive concrete loads within 30 minutes of each other. Construct a transverse construction joint when concrete placement is interrupted by more than 30 minutes. The transverse construction joint must coincide with the next contraction joint location, or you must remove fresh concrete pavement to the preceding transverse joint location.

Place concrete pavement in full slab widths separated by construction joints or monolithically in multiples of full lane widths with a longitudinal contraction joint at each traffic lane line.

Do not retemper concrete.

If the concrete pavement surface width is constructed as specified, you may construct concrete pavement sides on a batter not flatter than 6:1 (vertical:horizontal).

##### **40-1.03H(2) Paving Adjacent to Existing Concrete Pavement**

Where pavement is placed adjacent to existing concrete pavement:

1. Grinding adjacent pavement must be completed before placing the pavement
2. Use paving equipment with padded crawler tracks or rubber-tired wheels with enough offset to prevent damage
3. Match pavement grade with the elevation of existing concrete pavement after grinding.

##### **40-1.03H(3) Concrete Pavement Transition Panel**

For concrete pavement placed in a transition panel, texture the surface with a drag strip of burlap, broom, or spring steel tine device that produces scoring in the finished surface. Scoring must be either parallel or transverse to the centerline. Texture at the time that produces the coarsest texture.

##### **40-1.03H(4) Stationary Side Form Construction**

Stationary side forms must be straight and without defects including warps, bends, and indentations. Side forms must be metal except at end closures and transverse construction joints where other materials may be used.

You may build up side forms by attaching a section to the top or bottom. If attached to the top of metal forms, the attached section must be metal.

The side form's base width must be at least 80 percent of the specified concrete pavement thickness.

Side forms including interlocking connections with adjoining forms must be rigid enough to prevent springing from subgrading and paving equipment and concrete pressure.

Construct subgrade to final grade before placing side forms. Side forms must bear fully on the foundation throughout their length and base width. Place side forms to the specified grade and alignment of the finished concrete pavement's edge. Support side forms during concrete placing, compacting, and finishing.

After subgrade work is complete and immediately before placing concrete, true side forms and set to line and grade for a distance that avoids delays due to form adjustment.

Clean and oil side forms before each use.

Side forms must remain in place for at least 1 day after placing concrete and until the concrete pavement edge no longer requires protection from the forms.

Spread, screed, shape, and consolidate concrete with 1 or more machines. The machines must uniformly distribute and consolidate the concrete. The machines must operate to place the concrete pavement to the specified cross section with minimal hand work.

Consolidate the concrete without segregation. If vibrators are used:

1. The vibration rate must be at least 3,500 cycles per minute for surface vibrators and 5,000 cycles per minute for internal vibrators
2. Amplitude of vibration must cause perceptible concrete surface movement at least 1 foot from the vibrating element
3. Use a calibrated tachometer for measuring frequency of vibration
4. Vibrators must not rest on side forms or new concrete pavement
5. Power to vibrators must automatically cease when forward or backward motion of the paving machine is stopped
6. Uniformly consolidate the concrete across the paving width including adjacent to forms by using high-frequency internal vibrators within 15 minutes of depositing concrete on the subgrade
7. Do not shift the mass of concrete with vibrators.

#### **40-1.03H(5) Slip-Form Construction**

If slip-form construction is used, spread, screed, shape, and consolidate concrete to the specified cross section with slip-form machines and minimal hand work. Slip-form paving machines must be equipped with traveling side forms and must not segregate the concrete.

Do not deviate from the specified concrete pavement alignment by more than 0.1 foot.

Slip-form paving machines must use high frequency internal vibrators to consolidate concrete. You may mount vibrators with their axes parallel or normal to the concrete pavement alignment. If mounted with axes parallel to the concrete pavement alignment, space vibrators no more than 2.5 feet measured center to center. If mounted with axes normal to the concrete pavement alignment, space the vibrators with a maximum 0.5-foot lateral clearance between individual vibrators.

Each vibrator must have a vibration rate from 5,000 to 8,000 cycles per minute. The amplitude of vibration must cause perceptible concrete surface movement at least 1 foot from the vibrating element. Use a calibrated tachometer to measure frequency of vibration.

#### **40-1.03I Edge Treatment**

Construct edge treatments as shown. Regrade when required for the preparation of safety edge areas.

Sections 40-1.03J(2) and 40-1.03J(3) do not apply to safety edges.

For safety edges placed after the concrete pavement is complete, concrete may comply with the requirements for minor concrete.

For safety edges placed after the concrete pavement is complete, install connecting bar reinforcement under section 52.

Saw cutting or grinding may be used to construct safety edges.

For safety edges, the angle of the slope must not deviate by more than  $\pm 5$  degrees from the angle shown. Measure the angle from the plane of the adjacent finished pavement surface.

#### **40-1.03J Finishing**

##### **40-1.03J(1) General**

Reserved

#### **40-1.03J(2) Preliminary Finishing**

##### **40-1.03J(2)(a) General**

Preliminary finishing must produce a smooth and true-to-grade finish. After preliminary finishing, mark each day's paving with a stamp. The stamp must be authorized before paving starts. The stamp must be approximately 1 by 2 feet in size. The stamp must form a uniform mark from 1/8 to 1/4 inch deep. Locate the mark  $20 \pm 5$  feet from the transverse construction joint formed at each day's start of paving and  $1 \pm 0.25$  foot from the pavement's outside edge. The stamp mark must show the month, day, and year of placement and the station of the transverse construction joint. Orient the stamp mark so it can be read from the pavement's outside edge.

Do not apply water to the pavement surface before float finishing.

##### **40-1.03J(2)(b) Stationary Side Form Finishing**

If stationary side form construction is used, give the pavement a preliminary finish by the machine float method or the hand method.

If using the machine float method:

1. Use self-propelled machine floats.
2. Determine the number of machine floats required to perform the work at a rate equal to the pavement delivery rate. If the time from paving to machine float finishing exceeds 30 minutes, stop pavement delivery. When machine floats are in proper position, you may resume pavement delivery and paving.
3. Run machine floats on side forms or adjacent pavement lanes. If running on adjacent pavement, protect the adjacent pavement surface under section 40-1.03L. Floats must be hardwood, steel, or steel-shod wood. Floats must be equipped with devices that adjust the underside to a true flat surface.

If using the hand method, finish pavement smooth and true to grade with manually operated floats or powered finishing machines.

##### **40-1.03J(2)(c) Slip-Form Finishing**

If slip-form construction is used, the slip-form paver must give the pavement a preliminary finish. You may supplement the slip-form paver with machine floats.

Before the pavement hardens, correct pavement edge slump in excess of 0.02 foot exclusive of edge rounding.

##### **40-1.03J(3) Final Finishing**

After completing preliminary finishing, round the edges of the initial paving widths to a 0.04-foot radius. Round transverse and longitudinal construction joints to a 0.02-foot radius.

Before curing, texture the pavement. Perform initial texturing with a burlap drag or broom device that produces striations parallel to the centerline. Perform final texturing with a steel-tined device that produces grooves parallel with the centerline.

Construct longitudinal grooves with a self-propelled machine designed specifically for grooving and texturing pavement. The machine must have tracks to maintain constant speed, provide traction, and maintain accurate tracking along the pavement surface. The machine must have a single row of rectangular spring steel tines. The tines must be from 3/32 to 1/8 inch wide, on 3/4-inch centers, and must have enough length, thickness, and resilience to form grooves approximately 3/16 inch deep. The machine must have horizontal and vertical controls. The machine must apply constant down pressure on the pavement surface during texturing. The machines must not cause raveling.

Construct grooves over the entire pavement width in a single pass except do not construct grooves 3 inches from the pavement edges and longitudinal joints. Final texture must be uniform and smooth. Use a guide to properly align the grooves. Grooves must be parallel and aligned to the pavement edge across the pavement width. Grooves must be from 1/8 to 3/16 inch deep after the pavement has hardened.

For irregular areas and areas inaccessible to the grooving machine, you may hand-construct grooves using the hand method. Hand-constructed grooves must comply with the specifications for machine-constructed grooves.

For ramp termini, use heavy brooming normal to the ramp centerline to produce a coefficient of friction of at least 0.35 determined on the hardened surface under California Test 342.

#### **40-1.03K Curing**

Cure the concrete pavement's exposed area under section 90-1.03B using the waterproof membrane method or curing compound method. If using the curing compound method use curing compound no. 1 or 2. When side forms are removed within 72 hours of the start of curing, also cure the concrete pavement edges.

Apply curing compound with mechanical sprayers. Reapply curing compound to saw cuts and disturbed areas.

#### **40-1.03L Protecting Concrete Pavement**

Protect concrete pavement under section 90-1.03C.

Maintain the concrete pavement surface temperature at not less than 40 degrees F for the initial 72 hours.

Protect the concrete pavement surface from activities that cause damage and reduce texture and coefficient of friction. Do not allow soil, gravel, petroleum products, concrete, or asphalt mixes on the concrete pavement surface.

Construct crossings for traffic convenience. If authorized, you may use RSC for crossings. Do not open crossings until the Department determines that the pavement's modulus of rupture is at least 550 psi under California Test 523 or California Test 524.

Do not open concrete pavement to traffic or use equipment on the concrete pavement for 10 days after paving nor before the concrete has attained a modulus of rupture of 550 psi based on Department's testing except:

1. If the equipment is for sawing contraction joints
2. If authorized, one side of paving equipment's tracks may be on the concrete pavement after a modulus of rupture of 350 psi has been attained, provided:
  - 2.1. Unit pressure exerted on the concrete pavement by the paver does not exceed 20 psi
  - 2.2. You change the paving equipment tracks to prevent damage or the paving equipment tracks travel on protective material such as planks
  - 2.3. No part of the track is closer than 1 foot from the concrete pavement's edge

If concrete pavement damage including visible cracking occurs, stop operating paving equipment on the concrete pavement and repair the damage.

#### **40-1.03M Early Use of Concrete Pavement**

If requesting early use of concrete pavement:

1. Furnish molds and machines for modulus of rupture testing
2. Sample concrete
3. Fabricate beam specimens
4. Test for modulus of rupture under California Test 523

If you request early use, concrete pavement must have a modulus of rupture of at least 350 psi. Protect concrete pavement under section 40-1.03L.

#### **40-1.03N Reserved**

#### **40-1.03O Shoulder Rumble Strip**

##### **40-1.03O(1) General**

Construct shoulder rumble strips by rolling or grinding indentations in new concrete pavement.

Do not construct shoulder rumble strips on structures or approach slabs.

Construct rumble strips within 2 inches of the specified alignment. Rumble strip equipment must be equipped with a sighting device enabling the operator to maintain the rumble strip alignment.

Indentations must not vary from the specified dimensions by more than 1/16 inch in depth nor more than 10 percent in length and width.

Grind or remove and replace noncompliant rumble strip indentations at locations determined by the Engineer. Ground surface areas must be neat and uniform in appearance.

Remove grinding residue under section 42-1.03B.

#### **40-1.03O(2) Rolled-In Indentations**

Construct rolled-in indentations before final concrete set. Indentation construction must not displace adjacent concrete.

#### **40-1.03O(3) Ground-In Indentations**

Concrete pavement must be hardened before grinding rumble strips indentations. Do not construct indentations until the following occurs:

1. 10 days elapse after concrete placement
2. Concrete has developed a modulus of rupture of 550 psi determined under California Test 523,

#### **40-1.03P Drilling Cores**

Drill concrete pavement cores under ASTM C 42/C 42M. Use diamond impregnated drill bits.

Clean, dry, and fill core holes with hydraulic cement grout (nonshrink) or pavement concrete. Coat the core hole walls with epoxy adhesive for bonding new concrete to old concrete under section 95. Finish the backfill to match the adjacent surface elevation and texture.

#### **40-1.03Q Pavement Repair and Replacement**

##### **40-1.03Q(1) General**

If surface raveling or full-depth cracks occur within one year of Contract acceptance, repair or replace the pavement under section 6-3.06.

Repair and replace pavement in the following sequence:

1. Replace pavement
2. Repair spall, ravel, and working cracks
3. Correct smoothness and coefficient of friction
4. Treat partial depth cracks
5. Replace damaged joint seals under section 41-5

In addition to removing pavement for other noncompliance, remove and replace JPCP slabs that:

1. Have one or more full depth crack
2. Have raveled surfaces such that either:
  - 2.1. Combined raveled areas are more than 5 percent of the total slab area
  - 2.2. Single area is more than 4 sq ft

Remove and replace JPCP 3 feet on both sides of a joint with a rejected dowel bar.

##### **40-1.03Q(2) Spall and Ravel Repair**

Repair spalled or raveled areas that are:

1. Deeper than 0.05 foot
2. Wider than 0.10 foot
3. Longer than 0.3 foot

Repairs must comply with section 41-4 and be completed before opening pavement to traffic.

##### **40-1.03Q(3) Crack Repair**

Treat partial depth cracks for JPCP under section 41-3.

If the joints are sealed, repair working cracks by routing and sealing. Use a powered rotary router mounted on wheels, with a vertical shaft and a routing spindle that casters as it moves along the crack. Form a reservoir 3/4 inch deep by 3/8 inch wide in the crack. Equipment must not cause raveling nor spalling

Treat the contraction joint adjacent to the working crack by either:

1. Epoxy resin under ASTM C 881/C 881M, Type IV, Grade 2
2. Pressure injecting epoxy resin under ASTM C 881/C881M, Type IV, Grade 1

**40-1.03Q(4) Smoothness and Friction Correction**

Correct pavement that is noncompliant for:

1. Smoothness by grinding under section 42-3
2. Coefficient of friction by grooving or grinding under section 42

Do not start corrective work until:

1. Pavement has cured 10 days
2. Pavement has at least a 550 psi modulus of rupture
3. Your corrective method is authorized

Correct the entire lane width. Begin and end grinding at lines perpendicular to the roadway centerline. The corrected area must have a uniform texture and appearance.

If corrections are made within areas where testing with an IP is required, retest the entire lane length with an IP under sections 40-1.01D(6)(c) and 40-1.01D(7)(b)(vii).

If corrections are made within areas where testing with a 12-foot straightedge is required, retest the corrected area with a straightedge under sections 40-1.01D(6)(c) and 40-1.01D(7)(b)(vii).

Allow 25 days for the Department's coefficient of friction retesting.

**40-1.03R–40-1.03U Reserved**

**40-1.04 PAYMENT**

The payment quantity for pavement is based on the dimensions shown.

The deduction for pavement thickness deficiency in each primary area is shown in the following table:

<b>Deduction for Thickness Deficiency</b>	
Average thickness deficiency (foot) <sup>a</sup>	Deduction(\$/sq yd)
0.01	0.90
0.02	2.30
0.03	4.10
0.04	6.40
0.05	9.11

<sup>a</sup>Values greater than 0.01 are rounded to the nearest 0.01 foot.

Shoulder rumble strips are measured by the station along each shoulder on which the rumble strips are constructed without deductions for gaps between indentations.

If the initial cores show that dowel bars or tie bars are within alignment tolerances and the Engineer orders more dowel or tie bar coring, the additional cores are paid for as change order work.

The Department does not pay for additional coring to check dowel or tie bar alignment which you request.

If the Engineer accepts a test strip and it remains as part of the paving surface, the test strip is paid for as the type of pavement involved.

If the curvature of a slab affects tie bar spacing and additional tie bars are required, no additional payment is made for the additional tie bars.

Payment for grinding existing pavement is not included in the payment for the type of pavement involved.

## **40-2 CONTINUOUSLY REINFORCED CONCRETE PAVEMENT**

### **40-2.01 GENERAL**

#### **40-2.01A Summary**

Section 40-2 includes specifications for constructing CRCP.

Terminal joints include saw cutting, dowel bars, drill and bond dowel bars, support slab, support slab reinforcement, tack coat, and temporary hot mix asphalt.

Expansion joints include polystyrene, support slab, support slab reinforcement, dowel bars, drill and bond dowel bars, and bond breaker.

Wide flange beam terminals include polyethylene foam, support slab, and support slab reinforcement.

Pavement anchors include cross drains, anchor reinforcement, filter fabric, and permeable material.

#### **40-2.01B Definitions**

Reserved

#### **40-2.01C Submittals**

Reserved

#### **40-2.01D Quality Control and Assurance**

##### **40-2.01D(1) General**

Reserved

##### **40-2.01D(2) Testing for Coefficient of Thermal Expansion**

For field qualification, test coefficient of thermal expansion under AASHTO T 336. The coefficient of thermal expansion must not exceed 6.0 microstrain/degree Fahrenheit.

### **40-2.02 MATERIALS**

#### **40-2.02A General**

Class 1 permeable material, filter fabric, and slotted plastic pipe cross drain as shown for pavement anchors must comply with section 68-3.

#### **40-2.02B Concrete**

Concrete for terminal joints, support slabs, and pavement anchors must comply with section 40-1.02.

#### **40-2.02C Transverse Bar Assembly**

Instead of transverse bar and other support devices, you may use transverse bar assemblies to support longitudinal bar. Bar reinforcement and wire must comply with section 40-1.02C.

#### **40-2.02D Wide Flange Beam**

Wide flange beams and studs must be either rolled structural steel shapes under ASTM A 36/A 36M or structural steel under ASTM A 572/A 572M.

#### **40-2.02E Joints**

Joint seals for wide flange beam terminals must comply with section 51-2.02.

Joint seals for transverse expansion joints must comply with section 51-2.02.

Expanded polystyrene for transverse expansion joints must comply with section 51-2.01B(1).

### **40-2.03 CONSTRUCTION**

#### **40-2.03A General**

Reserved

#### **40-2.03B Test Strips**

Comply with section 40-1.03C except during the evaluation, the Engineer visually checks reinforcement, dowel and tie bar placement.

#### **40-2.03C Construction Joints**

Transverse construction joints must be perpendicular to the lane line. Construct joints to allow for lap splices of the longitudinal bar. Comply with the lap splice lengths shown for CRCP.

Clean construction joint surfaces before placing fresh concrete against the joint surfaces. Remove surface laitance, curing compound, and other foreign materials.

#### **40-2.03D Bar Reinforcement**

Place bar reinforcement under section 52-1.03D, except you may request to use plastic chairs. Plastic chairs will only be considered for support directly under the transverse bars. Your request to use plastic chairs must include a sample of the plastic chair, the manufacturer's written recommendations for the applicable use and load capacity, chair spacing, and your calculation for the load on a chair for the area of bar reinforcement sitting on it. Vertical and lateral stability of the bar reinforcement and plastic chairs must be demonstrated during construction of the test strip. Obtain authorization before using the proposed plastic chairs for work after the test strip is accepted.

For transverse bar in a curve with a radius under 2,500 feet, place the reinforcement in a single continuous straight line across the lanes and aligned with the radius point as shown.

#### **40-2.03E Wide Flange Beams**

Weld stud ends with an electric arc welder completely fusing the studs to the wide flange beam. Replace studs dislodged in shipping or that can be dislodged with a hammer.

#### **40-2.03F Repair and Replacement**

##### **40-2.03F(1) General**

Requirements for repair of cracks under section 40-1.03Q do not apply to CRCP. High molecular weight methacrylate is not to be applied to cracks in CRCP.

New CRCP will be monitored for 1 year from contract acceptance or relief from maintenance, whichever is less. CRCP that develops raveling areas of 6 inches by 6 inches or greater will require partial depth repair under section 6-3.06. CRCP that develops one or more full-depth transverse cracks with faulting greater than 0.25 inch or one or more full-depth longitudinal cracks with faulting greater 0.50 inch will require full depth repair.

##### **40-2.03F(2) Partial Depth Repair**

Partial depth repair must comply with section 41-4 except:

1. Determine a rectangular boundary which extends 6 inches beyond the damaged area. The limits of saw depth must be between 2 inches from the surface to 1/2 inch above the longitudinal bars.
2. If each length of the repair boundaries is equal to or greater than 3 ft, additional reinforcement is needed for the repair area. Submit a plan for authorization before starting the repair.

##### **40-2.03F(3) Full Depth Repair**

###### **40-2.03F(3)(a) General**

Removal of CRCP must be full depth except for portion of reinforcement to remain. Provide continuity of reinforcement. Comply with section 52-6. Submit a plan for authorization, before starting the repair. Do not damage the base, concrete and reinforcement to remain. Place concrete in the removal area.

###### **40-2.03F(3)(b) Transverse Cracks**

Make initial full-depth transverse saw cuts normal to the lane line a distance of 3 feet on each side of the transverse crack.

###### **40-2.03F(3)(c) Longitudinal Cracks**

Remove the cracked area normal to the lane line for the full width of the lane a distance of 1 foot beyond the ends of the crack. You may propose alternate limits with your repair plan for authorization.



**40-2.03G Reserved**

**40-2.04 PAYMENT**

Not Used

**40-3 RESERVED**

**40-4 JOINTED PLAIN CONCRETE PAVEMENT**

**40-4.01 GENERAL**

**40-4.01A Summary**

Section 40-4 includes specifications for constructing JPCP.

**40-4.01B Definitions**

Reserved

**40-4.01C Submittals**

**40-4.01C(1) General**

Reserved

**40-4.01C(2) Early Age Crack Mitigation System**

At least 24 hours before each paving shift, submit the following information as an informational submittal:

1. Early age stress and strength predictions
2. Scheduled sawing and curing activities
3. Contingency plan if cracking occurs

**40-4.01C(3)–40-4.01C(8) Reserved**

**40-4.01D Quality Control and Assurance**

**40-4.01D(1) General**

Reserved

**40-4.01D(2) Quality Control Plan**

The QC plan must include a procedure for identifying transverse contraction joint locations relative to the dowel bars longitudinal center and a procedure for consolidating concrete around the dowel bars.

**40-4.01D(3) Early Age Crack Mitigation System**

For JPCP, develop and implement a system for predicting stresses and strength during the initial 72 hours after paving. The system must include:

1. Subscription to a weather service to obtain forecasts for wind speed, ambient temperatures, humidity, and cloud cover
2. Portable weather station with an anemometer, temperature and humidity sensors, located at the paving site
3. Early age concrete pavement stress and strength prediction plan
4. Analyzing, monitoring, updating, and reporting the system's predictions

**40-4.01D(4)–40-4.01D(9) Reserved**

**40-4.02 MATERIALS**

Not Used

**40-4.03 CONSTRUCTION**

**40-4.03A General**

Transverse contraction joints on a curve must be on a single straight line through the curve's radius point. If transverse joints do not align in a curve, drill a full depth 2" diameter hole under ASTM C 42/C 42M where the joint meets the adjacent slab. Fill the hole with joint filler. If joints are not sealed, avoid joint filler material penetration into the joint.

**40-4.03B Repair and Replacement**

If replacing concrete, saw cut and remove to full depth.



#### 41-1.02B Fast-Setting Concrete

Fast-setting concrete must be one of the following:

1. Magnesium phosphate concrete that is either:
  - 1.1. Single component water activated
  - 1.2. Dual component with a prepackaged liquid activator
2. Modified high-alumina based concrete
3. Portland cement based concrete

Fast-setting concrete must be stored in a cool and dry environment.

If used, the addition of retarders must comply with the manufacturer's instructions.

You may use any accelerating chemical admixtures complying with ASTM C494/C494M, Type C and section 90-1.02E.

Fast-setting concrete properties must have the values shown in the following table:

Fast-Setting Concrete		
Property	Test method	Value
Compressive strength <sup>a</sup> (psi, min)		
at 3 hours	California Test 551	3,000
at 24 hours	California Test 551	5,000
Flexural strength <sup>a</sup> (psi, min, at 24 hours)	California Test 551	500
Bond strength <sup>a</sup> (psi, min, at 24 hours)		
Saturated surface dry concrete	California Test 551	300
Dry concrete	California Test 551	400
Water absorption (% max)	California Test 551	10
Abrasion resistance <sup>a</sup> (g, max, at 24 hours)	California Test 550	25
Drying shrinkage (% max, at 4 days)	ASTM C596	0.13
Water soluble chlorides <sup>d</sup> (% max, by weight)	California Test 422	0.05
Water soluble sulfates <sup>d</sup> (% max, by weight)	California Test 417	0.25
Thermal stability (% min)	California Test 553	90

<sup>a</sup>Perform test with aggregate filler if used.

<sup>b</sup>Test must be performed on a cube specimen, fabricated under California Test 551, cured at least 14 days, and then pulverized to 100% passing the no. 50 sieve.

Aggregate filler may be used to extend prepackaged concrete. Aggregate filler must:

1. Be clean and uniformly rounded.
2. Have a moisture content of 0.5-percent by weight or less when tested under California Test 226.
3. Comply with sections 90-1.02C(2) and 90-1.02C(3).
4. Not exceed 50 percent of the concrete volume or the maximum recommended by the fast-setting concrete manufacturer, whichever is less.

When tested under California Test 202, aggregate filler must comply with the grading in the following table:

Aggregate Filler Grading	
Sieve size	Percentage passing
3/8 inch	100
No. 4	50–100
No. 16	0–5

#### 41-1.02C Polyester Concrete

Polyester concrete consists of polyester resin binder and dry aggregate. The polyester resin binder must be an unsaturated isophthalic polyester-styrene copolymer.

Polyester resin binder properties must have the values shown in the following table:

**Polyester Resin Binder**

Property	Test method	Value
Viscosity <sup>a</sup> (Pa·s) RVT, No. 1 spindle, 20 RPM at 77 °F	ASTM D2196	0.075– 0.200
Specific gravity <sup>a</sup> (77 °F)	ASTM D1475	1.05–1.10
Elongation (%), min Type I specimen, 0.25 ± 0.03 inch thick Speed of testing = 0.45 inch/minute Condition 18/25/50+5/70: T—23/50	ASTM D638	35
Tensile strength (psi), min Type I specimen, 0.25 ± 0.03 inch thick Speed of testing = 0.45 inch/minute Condition 18/25/50+5/70: T—23/50	ASTM D638	2,500
Styrene content <sup>a</sup> (%), by weight	ASTM D2369	40–50
Silane coupler (%), min, by weight of polyester resin binder)	--	1.0
PCC saturated surface-dry bond strength at 24 hours and 70 ± 2 °F (psi, min)	California Test 551	500
Static volatile emissions <sup>a</sup> (g/sq m, max)	South Coast Air Quality Management District, Method 309-91 <sup>b</sup>	60

<sup>a</sup>Perform the test before adding initiator.

<sup>b</sup>For the test method, go to:

<http://www.aqmd.gov/tao/methods/lab/309-91.pdf>

Silane coupler must be an organosilane ester, gamma-methacryloxypropyltrimethoxysilane. Promoter must be compatible with suitable methyl ethyl ketone peroxide (MEKP) and cumene hydroperoxide (CHP) initiators.

Aggregate for polyester concrete must comply with section 90-1.02C(1), 90-1.02C(2), and 90-1.02C(3).

When tested under California Test 202, the combined aggregate grading must comply with one of the gradations in the following table:

**Combined Aggregate Grading**

Sieve size	Percentage passing		
	A	B	C
1/2"	100	100	100
3/8"	83–100	100	100
No. 4	65–82	62–85	45–80
No. 8	45–64	45–67	35–67
No. 16	27–48	29–50	25–50
No. 30	12–30	16–36	15–36
No. 50	6–17	5–20	5–20
No. 100	0–7	0–7	0–9
No. 200	0–3	0–3	0–6

Aggregate retained on the no. 8 sieve must have a maximum of 45 percent crushed particles under California Test 205. Fine aggregate must be natural sand.

The weighted average absorption must not exceed 1 percent when tested under California Tests 206 and 207.

You may submit an alternative grading or request to use manufactured sand as fine aggregate but 100 percent of the combined grading must pass the 3/8 inch sieve. Allow 21 days for authorization.

Polyester concrete must have a minimum compressive strength of 1250 psi at 3 hours and 30 minutes under California Test 551 or ASTM C109.

#### **41-1.02D Bonding Agent**

Bonding agent must comply with the concrete manufacturer's recommendations.

#### **41-1.02E Temporary Pavement Structure**

Temporary pavement structure consists of RSC or aggregate base with HMA. RSC not conforming to the specifications may serve as temporary pavement structure if:

1. The modulus of rupture is at least 200 psi before opening to traffic
2. RSC thickness is greater than or equal to the existing concrete pavement surface layer
3. RSC is replaced during the next paving shift

Aggregate base for temporary pavement structure must comply with the 3/4-inch maximum grading specified in section 26-1.02B.

HMA must comply with section 39-1.15 except do not use HMA Type B.

#### **41-1.02F Reserved**

### **41-1.03 CONSTRUCTION**

#### **41-1.03A General**

Repair only the portion of pavement where the work will be completed during the same lane closure. If removal is required, remove only the portion of pavement where the repair will be completed during the same traffic closure. Completion of concrete repair includes curing until the concrete attains the specified minimum properties required before opening the repaired pavement to traffic.

If you fail to complete the concrete pavement repair during the same lane closure, construct temporary pavement before opening the lane to traffic.

Before starting repair work, except saw cutting: the equipment, materials, and personnel for constructing temporary pavement structure must be at the job site or an approved location. If HMA can be delivered to the job site within 1 hour, you may request 1-hour delivery as an alternative to having the HMA at the job site.

Maintain the temporary pavement structure and replace it as a first order of work as soon as you resume concrete pavement repair work.

After removing temporary pavement structure, you may stockpile that aggregate base at the job site and reuse it for temporary pavement structure.

#### **41-1.03B Mixing and Applying Bonding Agent**

Mix and apply the bonding agent at the job site under the manufacturer's instructions and in small quantities.

Apply bonding agent after cleaning the surface and before placing concrete.

Apply a thin, even coat of bonding agent with a stiff bristle brush until the entire repair surface is scrubbed and coated with bonding agent.

#### **41-1.03C Mixing Concrete**

##### **41-1.03C(1) General**

Mix concrete in compliance with the manufacturer's instructions. For repairing spalls, mix in a small mobile drum or paddle mixer. Comply with the manufacturer's recommended limits for the quantity of aggregate filler, water, and liquid activator.

Mix the entire contents of prepackaged dual-component magnesium phosphate concrete as supplied by the manufacturer. Use the full amount of each component and do not add water to dual-component magnesium phosphate concrete.

Magnesium phosphate concrete must not be mixed in containers or worked with tools containing zinc, cadmium, aluminum, or copper.

Modified high-alumina based concrete must not be mixed in containers or worked with tools containing aluminum.

#### **41-1.03C(2) Polyester Concrete**

When mixing with resin, the moisture content of the combined aggregate must not exceed 1/2 of the average aggregate absorption when tested under California Test 226.

Proportion the polyester resin and aggregate to produce a mixture with suitable workability for the intended work. Only a minimal amount of resin may rise to the surface after finishing.

#### **41-1.03D Placing Concrete**

The pavement surface temperature must be at least 40 degrees F before placing concrete. You may propose methods to heat the surfaces.

Place magnesium phosphate concrete on a dry surface.

Place portland cement and modified high-alumina concrete on surfaces treated with a bonding agent recommended by the concrete manufacturer. If no bonding agent is recommended by the manufacturer, place concrete on damp surfaces that are not saturated.

Do not retemper concrete. Use dry finishing tools cleaned with water before working the concrete.

#### **41-1.03E Curing Concrete**

Cure concrete under the manufacturer's instructions. When curing compound is used, comply with section 90-1.03B for curing compound no. 1 or 2.

#### **41-1.03F Reserved**

#### **41-1.04 PAYMENT**

Not Used

### **41-2 SUBSEALING AND JACKING**

#### **41-2.01 GENERAL**

##### **41-2.01A Summary**

Section 41-2 includes specifications for filling voids under existing concrete pavement.

##### **41-2.01B Definitions**

Reserved

##### **41-2.01C Submittals**

Submit shipping invoices with packaged or bulk fly ash and cement.

Before grouting activities begin, submit a proposal for the materials to be used. Include authorized laboratory test data for the grout indicating:

1. Time of initial setting under ASTM C266.
2. Compressive strength results at 1, 3, and 7 days for 10, 12, and 14-second grout efflux times.

If requesting a substitution of grout materials, submit a proposal that includes test data.

##### **41-2.01D Quality Control and Assurance**

Reserved

#### **41-2.02 MATERIALS**

##### **41-2.02A General**

Reserved

#### **41-2.02B Grout**

Grout must consist of Type II portland cement, fly ash, and water. Use from 2.4 to 2.7 parts fly ash to 1 part portland cement by weight. Use enough water to produce the following grout efflux times determined under California Test 541, Part D:

1. From 10 to 16 seconds for subsealing
2. From 10 to 26 seconds for jacking

Cement for grout must comply with the specifications for Type II portland cement in section 90-1.02B(2).

Fly ash must comply with AASHTO M 295, Class C or Class F. Fly ash sources must be on the Authorized Material List.

You may use chemical admixtures and calcium chloride. Chemical admixtures must comply with section 90-1.02E(2). Calcium chloride must comply with ASTM D98.

Test grout compressive strength under California Test 551, Part 1 at 7-days with 12 seconds efflux time. Follow the procedures for moist cure. The 7-day compressive strength must be at least 750 psi.

#### **41-2.02C Mortar**

Mortar must be a prepackaged fast-setting mortar that complies with ASTM C928.

#### **41-2.02D Reserved**

### **41-2.03 CONSTRUCTION**

#### **41-2.03A General**

Drill holes in the pavement, inject grout, plug the holes, and finish the holes with mortar.

Drill holes through the pavement and underlying base to a depth from 15 to 18 inches below the pavement surface. The hole diameter must match the fitting for the grout injecting equipment.

#### **41-2.03B Injecting Grout**

##### **41-2.03B(1) General**

Inject grout within 2 days of drilling holes.

Immediately before injecting grout, clean the drilled holes with water at a minimum pressure of 40 psi. The cleaning device must have at least 4 jets that direct water horizontally at the slab-base interface.

Do not inject grout if the atmospheric or subgrade temperature is below 40 degrees F. Do not inject grout in inclement weather. If water is present in the holes, obtain the Engineer's authorization before injecting grout.

Do not inject grout until at least 2 consecutive slabs requiring subsealing are drilled ahead of the grouting activities.

The grout plant must have a positive displacement cement injection pump and a high-speed colloidal mixer capable of operating from 800 to 2,000 rpm. The injection pump must sustain 150 psi if pumping grout with a 12-second efflux time. A pressure gauge must be located immediately adjacent to the supply valve of the grout hose supply valve and positioned for easy monitoring.

Before mixing, weigh dry cement and fly ash if delivered in bulk. If the materials are packaged, each container must weigh the same.

Introduce water to the mixer through a meter or scale.

Inject grout under pressure until the voids under the pavement slab are filled. The injection nozzle must not leak. Do not inject grout if the nozzle is below the bottom of the slab. Inject grout 1 hole at a time.

Stop injecting grout in a hole if either:

1. Grout does not flow under a sustained pump gauge pressure of 150 psi after 7 seconds and there is no indication the slab is moving.
2. Injected grout rises to the surface at any joint or crack, or flows into an adjacent hole.

Dispose of unused grout within 1 hour of mixing.

#### **41-2.03B(2) Subsealing**

If a slab raises more than 1/16 inch due to grout injection, stop injecting grout in that hole.

#### **41-2.03B(3) Jacking**

The positive displacement pump used for grout injection must be able to provide a sustained gauge pressure of 200 psi. Gauge pressures may be from 200 to 600 psi for brief periods to start slab movement.

You may add additional water to initiate pressure injection of grout. Do not reduce the grout efflux time below 10 seconds.

Raise the slabs uniformly. Use string lines to monitor the pavement movement.

Do not move adjacent slabs not specified for pavement jacking. If you move adjacent slabs, correct the grade within the tolerances for final pavement elevation.

#### **41-2.03B(4) Finishing**

Immediately after removing the injection nozzle, plug the hole with a round, tapered wooden plug. Do not remove plugs until adjacent holes are injected with grout and no grout surfaces through previously injected holes.

After grouting, remove grout from drilled holes at least 4 inches below the pavement surface. Clean holes and fill with mortar. Finish filled holes flush with the pavement surface.

#### **41-2.03B(5) Tolerances**

The final pavement elevation must be within 0.01 foot of the required grade. If the final pavement elevation is between 0.01 and 0.10 foot higher than the required grade, grind the noncompliant pavement surface under section 42 to within 0.01 foot of the required grade.

If the final pavement elevation is higher than 0.10 foot from the required grade, remove and replace the noncompliant pavement under section 41-9.

#### **41-2.04 PAYMENT**

The payment quantity for subsealing is calculated by adding the dry weight of cement and fly ash used for the placed grout. The payment quantity for jacking is calculated by adding the dry weight of cement and fly ash used for the placed grout.

The Department does not pay for wasted grout.

The Department does not adjust the unit price for an increase or decrease in the subsealing quantity.

The Department does not adjust the unit price for an increase or decrease in the jacking quantity.

### **41-3 CRACK TREATMENT**

#### **41-3.01 GENERAL**

##### **41-3.01A Summary**

Section 41-3 includes specifications for applying high-molecular-weight methacrylate (HMWM) to concrete pavement surface cracks that do not extend the full slab depth.

##### **41-3.01B Definitions**

Reserved

##### **41-3.01C Submittals**

###### **41-3.01C(1) General**

Submit HMWM samples 20 days before use.

If sealant is to be removed, submit the proposed removal method at least 7 days before sealant removal. Do not remove sealant until the proposed sealant removal method is authorized.



#### **41-3.01C(2) Public Safety and Placement Plans**

Before starting crack treatment, submit a public safety plan for HMWM and a placement plan for construction activity as shop drawings.

The public safety and placement plans must identify the materials, equipment, and methods to be used.

In the public safety plan, include the MSDS for each component of HMWM and details for:

1. Shipping
2. Storage
3. Handling
4. Disposal of residual HMWM and containers

If the project is in an urban area adjacent to a school or residence, the public safety plan must also include an airborne emissions monitoring plan prepared by a CIH certified in comprehensive practice by the American Board of Industrial Hygiene. Submit a copy of the CIH's certification. The CIH must monitor the emissions at a minimum of 4 points including the mixing point, the application point, and the point of nearest public contact. At work completion, submit a report by the industrial hygienist with results of the airborne emissions monitoring plan.

The placement plan must include:

1. Crack treatment schedule including coefficient of friction testing
2. Methods and materials including:
  - 2.1. Description of equipment for applying HMWM
  - 2.2. Description of equipment for applying sand
  - 2.3. Gel time range and final cure time for resin

Revise rejected plans and resubmit. With each plan rejection, the Engineer gives revision directions including detailed comments in writing. The Engineer notifies you of a plan's acceptance or rejection within 2 weeks of receiving that plan.

#### **41-3.01C(3) Reserved**

#### **41-3.01D Quality Control and Assurance**

##### **41-3.01D(1) General**

Use test tiles to evaluate the HMWM cure time. Coat at least one 4 by 4 inch smooth glazed tile for each batch of HMWM. Place the coated tile adjacent to the area being treated. Do not apply sand to the test tiles.

Use the same type of crack treatment equipment for testing and production.

##### **41-3.01D(2) Test Area**

Before starting crack treatment, treat a test area of at least 500 square feet within the project limits at a location accepted by the Engineer. Use test areas outside the traveled way if available.

Treat the test area under weather and pavement conditions similar to those expected during crack treatment production.

The Engineer evaluates the test area based on the acceptance criteria. Do not begin crack treatment until the Engineer accepts the test area.

##### **41-3.01D(3) Reserved**

##### **41-3.01D(4) Acceptance Criteria**

The Engineer accepts a treated area if:

1. Corresponding test tiles are dry to the touch
2. Treated surface is tack-free and not oily
3. Sand cover adheres enough to resist hand brushing
4. Excess sand is removed
5. Coefficient of friction is at least 0.30 when tested under California Test 342

### 41-3.02 MATERIALS

HMWM consists of compatible resin, promoter, and initiator. HMWM resin may be prepromoted by mixing promoter and resin together before filling containers. Identify prepromoted resin on the container label.

Adjust the gel time to compensate for temperature changes throughout the application.

HMWM resin properties must have the following values:

Property	Test method	Value
Viscosity <sup>a</sup> (cP, max, Brookfield RVT with UL adapter, 50 RPM at 77 °F)	ASTM D2196	25
Specific gravity <sup>a</sup> (min, at 77 °F)	ASTM D1475	0.90
Flash point <sup>a</sup> (°F, min)	ASTM D3278	180
Vapor pressure <sup>a</sup> (mm Hg, max, at 77 °F)	ASTM D323	1.0
Tack-free time (minutes, max, at 77 °F)	Specimen prepared under California Test 551	400
Volatile content <sup>a</sup> (% , max)	ASTM D2369	30
PCC saturated surface-dry bond strength (psi, min, at 24 hours and 77 ± 2 °F)	California Test 551	500

<sup>a</sup>Perform the test before adding initiator.

Sand must be commercial quality dry blast sand. At least 95 percent of the sand must pass the no. 8 sieve and at least 95 percent must be retained on the no. 20 sieve when tested under California Test 202.

### 41-3.02D Reserved

### 41-3.03 CONSTRUCTION

#### 41-3.03A General

Before applying HMWM, clean the pavement surface by abrasive blasting and blow loose material from visible cracks with high-pressure air. Remove concrete curing seals from the pavement to be treated. The pavement must be dry when blast cleaning is performed. If the pavement surface becomes contaminated before applying the HMWM, clean the pavement surface by abrasive blasting.

If performing abrasive blasting within 10 feet of a lane occupied by traffic, operate abrasive blasting equipment with a concurrently operating vacuum attachment.

During pavement treatment, protect pavement joints, working cracks, and surfaces not being treated.

The equipment applying HMWM must combine the components by either static in-line mixers or by external intersecting spray fans. The pump pressure at the spray bars must not cause atomization. Do not use compressed air to produce the spray. Use a shroud to enclose the spray bar apparatus.

You may apply HMWM manually to prevent overspray onto adjacent traffic. If applying resin manually, limit the batch quantity of HMWM to 5 gallons.

Apply HMWM at a rate of 90 square feet per gallon. The prepared area must be dry and the surface temperature must be from 50 to 100 degrees F while applying HMWM. Do not apply HMWM if the ambient relative humidity is more than 90 percent.

Protect existing facilities from HMWM. Repair or replace existing facilities contaminated with HMWM at your expense.

Flood the treatment area with HMWM to penetrate the pavement and cracks. Apply HMWM within 5 minutes after complete mixing. Mixed HMWM viscosity must not increase. Redistribute excess material with squeegees or brooms within 10 minutes of application. Remove excess material from tined grooves.

Wait at least 20 minutes after applying HMWM before applying sand. Apply sand at a rate of approximately 2 pounds per square yard or until refusal. Remove excess sand by vacuuming or sweeping.

Do not allow traffic on the treated surface until:

1. Treated surface is tack-free and non-oily
2. Sand cover adheres enough to resist hand brushing
3. Excess sand is removed
4. Coefficient of friction is at least 0.30 determined under California Test 342

#### **41-3.04 PAYMENT**

Not Used

### **41-4 SPALL REPAIR**

#### **41-4.01 GENERAL**

Section 41-4 includes specifications for repairing spalls in concrete pavement.

#### **41-4.02 MATERIALS**

Repair spalls using polyester concrete with a bonding agent. The bonding agent must comply with the requirements for HMWM in section 41-3.02 except tack-free time requirements do not apply and the HMWM must not contain wax.

Form board must be corrugated cardboard with a 6-mil polyethylene covering.

#### **41-4.03 CONSTRUCTION**

##### **41-4.03A General**

Prepare spall areas by removing concrete and cleaning. Use a form board to provide compression relief at joints and cracks.

After completing spall repairs do not allow traffic on the repairs for at least 2 hours after the time of final setting under ASTM C403/403M.

##### **41-4.03B Remove Pavement**

The Engineer determines the rectangular limits of unsound concrete pavement. Before removing pavement, mark the saw cut lines and spall repair area on the pavement surface.

Do not remove pavement until the Engineer verbally authorizes the saw cut area.

Use a power-driven saw with a diamond blade.

Remove pavement as shown and:

1. From the center of the repair area towards the saw cut
2. To the full saw cut depth
3. At least 2 inches beyond the saw cut edge to produce a rough angled surface

Produce a rough surface by chipping or other removal methods that do not damage the pavement remaining in-place. Completely remove any saw overcuts. Pneumatic hammers used for concrete removal must weigh 15 lbs or less.

If you damage concrete pavement outside the removal area, enlarge the area to remove the damaged pavement.

If dowel bars are exposed during removal, remove concrete from the exposed surface and cover with duct tape.

##### **41-4.03C Cleaning**

After pavement has been removed, clean the exposed faces of the concrete by:

1. Sand or water blasting. Water blasting equipment must be capable of producing a blast pressure of 3,000 to 6,000 psi.

2. Blowing the exposed concrete area with compressed air free of moisture and oil to remove debris after blasting. Air compressors must deliver air at a minimum of 120 cfm and develop 90 psi of nozzle pressure.

#### **41-4.03D Form Board Installation**

After cleaning, place the form board to match the existing joint or crack alignment. Extend the form board at least 3 inches beyond each end of the repair and at least 1 inch deeper than the repair. Remove the form board before sealing joints or cracks.

#### **41-4.03E–41-4.03I Reserved**

#### **41-4.04 PAYMENT**

Payment is calculated based on the authorized saw cut area.

The Department does not adjust the unit price for an increase or decrease in the spall repair quantity.

### **41-5 JOINT SEALS**

#### **41-5.01 GENERAL**

##### **41-5.01A Summary**

Section 41-5 includes specifications for sealing concrete pavement joints or replacing existing concrete pavement joint seals. Pavement joints include isolation joints.

##### **41-5.01B Definitions**

Reserved

##### **41-5.01C Submittals**

At least 15 days before delivery to the job site, submit a certificate of compliance, MSDS, manufacturer's recommendations, and instructions for storage and installation of:

1. Liquid joint sealant.
2. Backer rods. Include the manufacturer data sheet verifying compatibility with the liquid joint sealant.
3. Preformed compression joint seal. Include the manufacturer data sheet used to verify the seal for the joint dimensions shown.
4. Lubricant adhesive.

Asphalt rubber joint sealant containers must comply with ASTM D6690. Upon delivery of asphalt rubber joint sealant to the job site, submit a certified test report for each lot based on testing performed within 12 months.

Submit a work plan for removing pavement and joint materials. Allow 10 days for authorization. Include descriptions of the equipment and methods for removal of existing pavement and joint material.

##### **41-5.01D Quality Control and Assurance**

###### **41-5.01D(1) General**

Before sealing joints, arrange for a representative from the manufacturer to provide training on cleaning and preparing the joint and installing the liquid joint sealant or preformed compression joint seal. Do not seal joints until your personnel and the Department's personnel have been trained.

The Engineer accepts joint seals based on constructed dimensions and visual inspection of completed seals for voids.

###### **41-5.01D(2) Reserved**

#### **41-5.02 MATERIALS**

##### **41-5.02A General**

Use the type of seal material described.

Silicone or asphalt rubber joint sealant must not bond or react with the backer rod.

##### **41-5.02B Silicone Joint Sealant**

Silicone joint sealant must be on the Authorized Material List.

#### **41-5.02C Asphalt Rubber Joint Sealant**

Asphalt rubber joint sealant must:

1. Be paving asphalt mixed with not less than 10 percent ground rubber by weight. Ground rubber must be vulcanized or a combination of vulcanized and devulcanized materials that pass a no. 8 sieve.
2. Comply with ASTM D6690 for Type II.
3. Be capable of melting at a temperature below 400 degrees F and applied to cracks and joints.

#### **41-5.02D Backer Rods**

Backer rods must:

1. Comply with ASTM D5249:
  - 1.1. Type 1 for asphalt rubber joint sealant
  - 1.2. Type 1 or Type 3 for silicone joint sealant
2. Be expanded, closed-cell polyethylene foam
3. Have a diameter at least 25 percent greater than the saw cut joint width

#### **41-5.02E Preformed Compression Joint Seals**

Preformed compression joint seals must:

1. Comply with ASTM D2628
2. Have 5 or 6 cells, except seals 1/2 inch wide or less may have 4 cells

Lubricant adhesive used to install seals must comply with ASTM D2835.

#### **41-5.02F–41-5.02K Reserved**

### **41-5.03 CONSTRUCTION**

#### **41-5.03A General**

If joint sealing is described for new concrete pavement, do not start joint sealing activities until the pavement has been in place for at least 7 days. Seal new concrete pavement joints at least 7 days after concrete pavement placement if shown.

Remove existing pavement and joint material by sawing, rectangular plowing, cutting, or manual labor. Saw cut the reservoir before cleaning the joint. Use a power-driven saw with a diamond blade.

If you damage a portion of the pavement to remain in place, repair the pavement under section 41-4.

#### **41-5.03B Joint Cleaning**

##### **41-5.03B(1) General**

Clean the joint after removal and any repair is complete before installing joint seal material. Cleaning must be completed no more than 4 hours before installing backer rods, liquid joint seal, or preformed compression seals using the following sequence:

1. Removing debris
2. Drying
3. Sandblasting
4. Air blasting
5. Vacuuming

Clean in 1 direction to minimize contamination of surrounding areas.

##### **41-5.03B(2) Removing Debris**

Remove debris including dust, dirt, and visible traces of old sealant from the joint after sawing, plowing, cutting, or manual removal. Do not use chemical solvents to wash the joint.

##### **41-5.03B(3) Drying**

After removing debris, allow the reservoir surfaces to dry or remove moisture and dampness at the joint with compressed air that may be moderately hot.

#### **41-5.03B(4) Sandblasting**

After the joint is dry, sandblast the reservoir to remove remaining residue using a 1/4-inch diameter nozzle and 90 psi minimum pressure. Do not sandblast straight into the reservoir. Angle the sandblasting nozzle within 1 to 2 inches from the concrete and make at least 1 pass to clean each reservoir face.

#### **41-5.03B(5) Air Blasting**

After sandblasting, air blast the reservoir to remove sand, dirt, and dust 1 hour before sealing the joint. Use compressed air free of oil and moisture delivered at a minimum rate of 120 cfm and 90 psi nozzle pressure.

#### **41-5.03B(6) Vacuuming**

After air blasting, use a vacuum sweeper to remove debris and contaminants from the pavement surfaces surrounding the joint.

#### **41-5.03B(7) Reserved**

#### **41-5.03C Installing Liquid Joint Sealant**

Where backer rods are shown, place the rods before installing liquid joint sealant. Place backer rods under the manufacturer's instructions unless otherwise specified. The pavement and reservoir surfaces must be dry and the ambient air temperature must be at least 40 degrees F and above the dew point. The reservoir surface must be free of residue or film. Do not puncture the backer rod.

Immediately after placing the backer rod, install liquid joint sealant under the manufacturer's instructions unless otherwise specified. Before installing, demonstrate that fresh liquid sealant is ejected from the nozzle free of cooled or cured material. For asphalt rubber joint sealant, the pavement surface temperature must be at least 50 degrees F before installing.

Pump liquid joint sealant through a nozzle sized for the width of the reservoir so that liquid joint sealant is placed directly onto the backer rod. The installer must draw the nozzle toward his body and extrude liquid joint sealant evenly. Liquid joint sealant must maintain continuous contact with the reservoir walls during extrusion.

After placing liquid joint sealant, recess it to the depth shown within 10 minutes of installation and before a skin begins to form.

After each joint is sealed, remove excess liquid joint sealant on the pavement surface. Do not allow traffic over the sealed joints until the liquid joint sealant is set, tack free, and firm enough to prevent embedment of roadway debris.

#### **41-5.03D Installing Preformed Compression Joint Seals**

Install preformed compression joint seals using lubricant adhesive as shown and under the manufacturer's instructions.

Install longitudinal seals before transverse seals. Longitudinal seals must be continuous except splicing is allowed at intersections with transverse seals. Transverse seals must be continuous for the entire transverse length of concrete pavement except splices are allowed for widening and staged construction. With a sharp instrument, cut across the longitudinal seal at the intersection with transverse construction joints. If the longitudinal seal does not relax enough to properly install the transverse seal, trim the longitudinal seal to form a tight seal between the 2 joints.

If splicing is authorized, comply with the manufacturer's instructions.

Use a machine specifically designed for preformed compression joint seal installation. The machine must install the seal:

1. To the specified depth
2. To make continuous contact with the joint walls
3. Without cutting, nicking, or twisting the seal
4. Without stretching the seal more than 4 percent

Cut preformed compression joint seal material to the exact length of the pavement joint to be sealed. The Engineer measures this length. After you install the preformed compression joint seal, the Engineer

measures the excess length of material at the joint end. The Engineer divides the excess length by the measured cut length to determine the stretch percentage.

Seals must be compressed from 30 to 50 percent of the joint width when complete in place.

**41-5.03E Reserved**

**41-5.04 PAYMENT**

Not Used

**41-6 CRACK AND SEAT**

**41-6.01 GENERAL**

**41-6.01A Summary**

Section 41-6 includes specifications for cracking, seating, and preparing the surface of existing concrete pavement.

**41-6.01B Definitions**

Reserved

**41-6.01C Submittals**

Submit each core in a plastic bag or tube for acceptance at the time of sampling. Mark each core with a location description.

**41-6.01D Quality Control and Assurance**

**41-6.01D(1) General**

If cracking is noncompliant:

1. Stop crack and seat work
2. Modify your equipment and procedures and crack the noncompliant pavement again
3. Construct another test section
4. Take additional core samples to verify compliance
5. Construct an inspection strip if the concrete pavement has HMA on the surface

**41-6.01D(2) Test Section**

The Engineer determines and marks a test section up to 1000 square feet within the crack and seat area shown. Construct the test section and obtain the Engineer's verbal authorization before starting crack and seat work.

Immediately before cracking the test section, apply water to the pavement surface so that cracking can be readily evaluated. Crack the test section and vary impact energy and striking patterns to verify your procedure.

**41-6.01D(3) Coring**

Drill cores at least 6 inches in diameter under ASTM C42 to verify cracking in the Engineer's presence. Take at least 2 cores per test section and 1 core per lane mile for each pavement cracking machine used. The Engineer determines the core locations.

**41-6.01D(4) Reserved**

**41-6.02 MATERIALS**

**41-6.02A General**

Use fast-setting or polyester concrete to fill core holes.

**41-6.03 CONSTRUCTION**

**41-6.03A Cracking**

Crack existing concrete pavement using the procedures and equipment from the authorized test section.

Do not allow flying debris during cracking operations.

Crack existing concrete pavement into segments that nominally measure 6 feet transversely by 4 feet longitudinally. If the existing pavement is already cracked into segments, crack it into equal-sized square

or rectangular pieces that nominally measure not more than 6 feet transversely and from 3 to 5 feet longitudinally. Do not impact the pavement within 1 foot of another break line, pavement joint, or edge of pavement.

Cracks must be vertical, continuous, and penetrate the full depth of pavement. Cracks must be within 6 inches of vertical along the full depth of pavement. Do not cause surface spalling over 0.10-foot deep or excessive shattering of the pavement or base.

Cracking equipment must impact the pavement with a variable force in a controlled location. Do not use unguided free-falling weights such as "headache balls."

If the concrete pavement has no more than 0.10 foot of asphalt concrete on the surface, you may crack the pavement without removing the asphalt concrete. After cracking, construct an inspection strip by removing at least 500 square feet of asphalt concrete at a location determined by the Engineer. Construct additional inspection strips to demonstrate compliance where ordered by the Engineer.

After cracking, allow public traffic on the cracked or initial pavement layer for no more than 15 days.

#### **41-6.03B Seating**

Seat cracked concrete by making at least 5 passes over the cracked concrete with either:

1. Oscillating pneumatic-tired roller under section 39-3.03 and at least 15 tons
2. Vibratory pad-foot roller exerting a dynamic centrifugal force of at least 10 tons

A pass is 1 movement of a roller in either direction at 5 mph or less.

After all segments have been seated, clean loose debris from joints and cracks using compressed air free of moisture and oil.

Reseat any segment of cracked pavement that has not been overlaid within 24 hours of seating.

#### **41-6.03C Surface Preparation**

Before opening cracked and seated pavement to traffic or overlaying:

1. Fill joints, cracks, and spalls wider than 3/4 inch and deeper than 1 inch by applying tack coat and placing HMA under section 39-1.15, except use the no. 4 gradation instead of 3/8-inch.
2. Remove all loose debris and sweep the pavement.

#### **41-6.03D Reserved**

#### **41-6.04 PAYMENT**

Crack and seat existing concrete pavement is measured from the area of pavement cracked and seated. No deduction is made for existing cracked segments. The Department does not pay for HMA used to fill joints, cracks, and spalls.

### **41-7 TRANSITION TAPER**

#### **41-7.01 GENERAL**

Section 41-7 includes specifications for constructing transition tapers in existing pavement.

#### **41-7.02 MATERIALS**

Not Used

#### **41-7.03 CONSTRUCTION**

Construct transition tapers by either grinding or removing and replacing the existing concrete. Do not allow flying debris during the construction of tapers.

Grinding must comply with section 42.

Replacement concrete must comply with section 41-9 except place concrete to the taper level shown and finish the surface with a coarse broom.



If the transition taper will be overlaid with HMA that is not placed before opening to traffic and there is a grade difference of more than 0.04 foot, construct a temporary taper by placing HMA that complies with section 39-1.15. Remove the temporary HMA taper before constructing the transition taper.

#### **41-7.04 PAYMENT**

Pavement transition tapers are measured using the dimensions shown. The Department does not pay for temporary HMA tapers.

### **41-8 DOWEL BAR RETROFIT**

Reserved

### **41-9 INDIVIDUAL SLAB REPLACEMENT WITH RAPID STRENGTH CONCRETE**

#### **41-9.01 GENERAL**

##### **41-9.01A Summary**

Section 41-9 includes specifications for removing existing concrete pavement and constructing individual slab replacement with rapid strength concrete (ISR—RSC).

##### **41-9.01B Definitions**

**concrete raveling:** Disintegration of the concrete surface layer from aggregate loss.

**early age:** Any age less than 10 times the time of final setting for concrete determined under ASTM C403/C403M.

**full-depth crack:** Crack that runs from one edge of the concrete slab to the opposite or adjacent side of the slab.

**opening age:** Age when the minimum modulus of rupture specified for opening to traffic and equipment is attained.

**time of final setting:** Elapsed time required to develop a concrete penetration resistance that is at least 4,000 psi under ASTM C403/C403M.

##### **41-9.01C Submittals**

###### **41-9.01C(1) General**

At least 15 days before delivery to the job site, submit manufacturer's recommendations, MSDS and instructions for storage and installation of joint filler material.

At least 45 days before starting ISR—RSC work submit a sample of cement from each proposed lot and samples of proposed admixtures in the quantities ordered by the Engineer.

During ISR—RSC placement operations, submit uniformity reports for hydraulic cement at least once every 30 days to the Engineer and METS, attention Cement Laboratory. Uniformity reports must comply with ASTM C917 except testing age and water content may be modified to suit the particular material.

Except for modulus of rupture tests, submit QC test result forms within 48 hours of the paving shift. Submit modulus of rupture results within:

1. 15 minutes of opening age test completion
2. 24 hours of 3-day test completion

###### **41-9.01C(2) Quality Control Plan**

If the quantity of ISR—RSC is at least 300 cu yd, submit a QC plan at least 20 days before placing trial slabs. If the quantity of ISR—RSC is less than 300 cu yd, submit proposed forms for RSC inspection, sampling, and testing.

###### **41-9.01C(3) Mix Design**

At least 10 days before use in a trial slab, submit a mix design. The maximum ambient temperature range for a mix design is 18 degrees F. Submit more than 1 mix design based on ambient temperature variations anticipated during RSC placement. Each mix design must include:

1. Mix design identification number

2. Aggregate source
3. Opening age
4. Aggregate gradation
5. Types of cement and chemical admixtures
6. Mix proportions
7. Maximum time allowed between batching and placing
8. Range of effective ambient temperatures
9. Time of final setting
10. Modulus of rupture development data from laboratory-prepared samples, including tests at:
  - 10.1. 1 hour before opening age
  - 10.2. Opening age
  - 10.3. 1 hour after opening age
  - 10.4. 1 day
  - 10.5. 3 days
  - 10.6. 7 days
  - 10.7. 28 days
11. Shrinkage test data
12. Any special instructions or conditions such as water temperature requirements

**41-9.01C(4) Reserved**

**41-9.01D Quality Control and Assurance**

**41-9.01D(1) General**

Designate a QC manager and assistant QC managers to administer the QC plan. The QC managers must hold current American Concrete Institute (ACI) certification as a Concrete Field Testing Technician-Grade I and a Concrete Laboratory Testing Technician-Grade II, except the assistant QC managers may hold Concrete Laboratory Testing Technician-Grade I instead of Grade II.

The QC manager responsible for the production period involved must review and sign the sampling, inspection, and test reports before submitting them. The QC manager must be present for:

1. Each stage of mix design
2. Trial slab construction
3. Production and construction of RSC
4. Meetings with the Engineer relating to production, placement, or testing

The QC manager must not be a member of this project's production or paving crews, an inspector, or a tester. The QC manager must have no duties during the production and placement of RSC except those specified.

Testing laboratories and equipment must comply with the Department's Independent Assurance Program. At the time of the QC plan submittal, the Department evaluates the quality control samplers and testers.

**41-9.01D(2) Just-in-time Training**

Reserved

**41-9.01D(3) Quality Control Plan**

Establish, implement, and maintain a QC plan for pavement. The QC plan must describe the organization and procedures used to:

1. Control the production process
2. Determine if a change to the production process is needed
3. Implement a change

The QC plan must include:

1. Names, qualifications, and certifications of QC personnel, including:
  - 1.1. QC manager
  - 1.2. Assistant QC managers
  - 1.3. Samplers and testers
2. Outline of procedure for the production, transportation, placement, and finishing of RSC

3. Outline of procedure and forms for concrete QC, sampling, and testing to be performed during and after RSC construction, including testing frequencies for modulus of rupture
4. Contingency plan for identifying and correcting problems in production, transportation, placement, or finishing RSC including:
  - 4.1. Action limits
  - 4.2. Suspension limits that do not exceed specified material requirements
  - 4.3. Detailed corrective action if limits are exceeded
  - 4.4. Temporary pavement structure provisions, including:
    - 4.4.1. The quantity and location of standby material
    - 4.4.2. Determination of need
5. Location of your quality control testing laboratory and testing equipment during and after paving operations
6. List of the testing equipment to be used, including the date of last calibration
7. Production target values for material properties that impact concrete quality or strength including cleanness value and sand equivalent
8. Outline procedure for placing and testing trial slabs, including:
  - 8.1. Locations and times
  - 8.2. Production procedures
  - 8.3. Placing and finishing methods
  - 8.4. Sampling methods, sample curing, and sample transportation
  - 8.5. Testing and test result reporting
9. Name of source plant with approved Material Plant Quality Program (MPQP)
10. Procedures or methods for controlling pavement quality including:
  - 10.1. Materials quality
  - 10.2. Contraction and construction joints
  - 10.3. Protecting pavement before opening to traffic

#### **41-9.01D(4) Prepaving Conference**

Schedule a prepaving conference and provide a facility to meet with the Engineer.

Prepaving conference attendees must sign an attendance sheet provided by the Engineer. The prepaving conference must be attended by your:

1. Project superintendent
2. Project manager
3. QC manager
4. Workers and your subcontractor's workers, including:
  - 4.1. Foremen
  - 4.2. Concrete plant manager
  - 4.3. Concrete plant operator
  - 4.4. Concrete plant inspectors
  - 4.5. Personnel performing saw cutting and joint sealing
  - 4.6. Paving machine operators
  - 4.7. Inspectors
  - 4.8. Samplers
  - 4.9. Testers

The purpose of the prepaving conference is to familiarize personnel with the project's specifications. Discuss the QC plan and processes for constructing each item of work, including:

1. Production
2. Transportation
3. Trial slabs
4. Pavement structure removal
5. Placement
6. Contingency plan
7. Sampling
8. Testing
9. Acceptance

Do not start trial slabs or paving activities until the listed personnel have attended the prepaving conference.

#### **41-9.01D(5) Trial Slabs**

Before starting individual slab replacement work, complete 1 trial slab for each mix design.

Place trial slabs near the job site at a mutually-agreed location that is neither on the roadway nor within the project limits. Trial slabs must be 10 by 20 feet and at least 10 inches thick.

During trial slab construction, sample and split the aggregate for grading, cleanness value, and sand equivalent testing.

Fabricate and test beams under California Test 524 to determine the modulus of rupture values.

Cure beams fabricated for early age testing such that the monitored temperatures in the beams and the slab are always within 5 degrees F of each other.

Monitor and record the internal temperatures of trial slabs and early age beams at intervals of at least 5 minutes. Install thermocouples or thermistors connected to strip-chart recorders or digital data loggers to monitor the temperatures. Temperature recording devices must be accurate to within 2 degrees F. Measure internal temperatures at 1 inch from the top, 1 inch from the bottom, and no closer than 3 inches from any edge until early age testing is completed.

Cure beams fabricated for 3-day testing under California Test 524 except place them into sand at a time that is from 5 to 10 times the time of final setting measured under ASTM C403/403M or 24 hours, whichever is earlier.

Trial slabs must have an opening age modulus of rupture of not less than 400 psi and a 3-day modulus of rupture of not less than 600 psi.

After authorization, remove and dispose of trial slabs and testing materials.

#### **41-9.01D(6) Quality Control Testing**

##### **41-9.01D(6)(a) General**

Provide continuous process control and quality control sampling and testing throughout RSC production and placement. Notify the Engineer at least 2 business days notice before any sampling and testing. Establish a testing facility at the job site or at an authorized location.

Sample under California Test 125.

During ISR—RSC placement, sample and fabricate beams for modulus of rupture testing within the first 30 cubic yards, at least once every 130 cu yd, and within the final truckload. Submit split samples and fabricate test beams for the Department's testing unless the Engineer informs you otherwise.

Determine the modulus of rupture at opening age under California Test 524, except beam specimens may be fabricated using an internal vibrator under ASTM C 31. Cure beams under the same conditions as the pavement until 1 hour before testing. Test 3 beam specimens in the presence of the Engineer and average the results. A single test represents no more than that day's production or 130 cu yd, whichever is less.

Determine the modulus of rupture at other ages using beams cured and tested under California Test 524 except place them in sand from 5 to 10 times the time of final setting under ASTM C403/C403M or 24 hours, whichever is earlier.

##### **41-9.01D(6)(b) Rapid Strength Concrete**

Your quality control must include testing RSC for the properties at the frequencies shown in the following table:

### RSC Minimum Quality Control

Property	Test method	Minimum testing frequency <sup>a</sup>
Cleanness value	California Test 227	650 cu yd or 1 per shift
Sand equivalent	California Test 217	650 cu yd or 1 per shift
Aggregate gradation	California Test 202	650 cu yd or 1 per shift
Air content	California Test 504	130 cu yd or 2 per shift
Yield	California Test 518	2 per shift
Slump or penetration	ASTM C143 or California Test 533	1 per 2 hours of paving
Unit weight	California Test 518	650 cubic yards or 2 per shift
Aggregate Moisture Meter Calibration <sup>b</sup>	California Test 223 or California Test 226	1 per shift
Modulus of rupture	California Test 524	Comply with section 41-9.01D(6)(a)

<sup>a</sup>Test at the most frequent interval.

<sup>b</sup>Check calibration of the plant moisture meter by comparing moisture meter readings with California Test 223 or California Test 226 test results

Maintain control charts to identify potential problems and causes. Post a copy of each control chart at a location determined by the Engineer.

Individual measurement control charts must use the target values in the mix proportions as indicators of central tendency.

Develop linear control charts for:

1. Cleanness value
2. Sand equivalent
3. Fine and coarse aggregate gradation
4. Air content
5. Penetration

Control charts must include:

1. Contract number
2. Mix proportions
3. Test number
4. Each test parameter
5. Action and suspension limits
6. Specification limits
7. Quality control test results

For fine and coarse aggregate gradation control charts, record the running average of the previous 4 consecutive gradation tests for each sieve and superimpose the specification limits.

For air content control charts, the action limit is  $\pm 1.0$  percent and the suspension limit is  $\pm 1.5$  percent of the specified values. If no value is specified, apply the air content value used in the approved mix design.

As a minimum, a process is out of control if any of the following occurs:

1. For fine and coarse aggregate gradation, 2 consecutive running averages of 4 tests are outside the specification limits
2. For individual penetration or air content measurements:
  - 2.1. One point falls outside the suspension limit line
  - 2.2. Two points in a row fall outside the action limit line

Stop production and take corrective action for out of control processes or the Engineer rejects subsequent RSC.

Before each day's concrete pavement placement and at intervals not to exceed 4 hours of production, use a tachometer to test and record vibration frequency for concrete consolidation vibrators.

#### **41-9.01D(6)(c) Reserved**

#### **41-9.01D(7) Acceptance Criteria**

##### **41-9.01D(7)(a) General**

The final texture of ISR—RSC must pass visual inspection and have a coefficient of friction of at least 0.30 determined under California Test 342.

Allow at least 25 days for the Department to schedule testing for coefficient of friction. Notify the Engineer when the pavement is scheduled to be opened to traffic.

##### **41-9.01D(7)(b) Modulus of Rupture**

ISR—RSC is accepted based on your testing for modulus of rupture at opening age and the Department's testing for modulus of rupture at 3 days.

ISR—RSC must have a modulus of rupture at opening age that is at least 400 psi and a modulus of rupture at 3 days that is at least 600 psi.

Calculate the test result as the average from testing 3 beams for each sample. The test result represents 1 paving shift or 130 cu yd, whichever is less.

##### **41-9.01D(7)(c) Concrete Pavement Smoothness**

The Department tests for concrete pavement smoothness using a 12-foot straightedge. Straightedge smoothness specifications do not apply to the pavement surface placed within 12 inches of existing concrete pavement except parallel to the centerline at the midpoint of a transverse construction joint.

The concrete pavement surface must not vary from the lower edge of a 12-foot straightedge by more than:

1. 0.01 feet when parallel to the centerline
2. 0.02 feet when perpendicular to the centerline extending from edge to edge of a traffic lane

##### **41-9.01D(7)(d) Cracking and Raveling**

The Engineer rejects an ISR—RSC slab under section 6-3.06 if within 1 year of contract acceptance there is either:

1. Partial or full-depth cracking
2. Concrete raveling consisting of either:
  - 2.1. Combined raveled areas more than 5 percent of each ISR—RSC slab area
  - 2.2. Any single raveled area of more than 4 sq ft

#### **41-9.01D(8) Reserved**

### **41-9.02 MATERIALS**

#### **41-9.02A General**

Reserved

#### **41-9.02B Rapid Strength Concrete**

RSC for ISR—RSC must comply with section 90-3.

Use either the 1-1/2 inch maximum or the 1-inch maximum combined grading specified in section 90-1.02C(4)(d).

Air content must comply with the minimum requirements in section 40-1.02B(4).

#### **41-9.02C Base Bond Breaker**

Use base bond breaker no. 3, 4, or 5 under section 36-2.

#### **41-9.02D Reserved**

### **41-9.03 CONSTRUCTION**

#### **41-9.03A General**

Complete ISR—RSC adjacent to new pavement or existing pavement shown for construction as a 1st order of work. Replace individual slabs damaged during construction before placing final pavement delineation.

#### **41-9.03B Removing Existing Pavement**

Remove pavement under section 15-2.02. The Engineer determines the exact ISR—RSC limits after overlying layers are removed.

After removing pavement to the depth shown, grade to a uniform plane. Water as needed and compact the material remaining in place to a firm and stable base. The finished surface of the remaining material must not extend above the grade established by the Engineer.

#### **41-9.03C Drill and Bond Dowel Bars**

Drill existing concrete and bond dowel bars under section 41-10 if described. Do not install dowel bars in contraction joints.

#### **41-9.03D Base Bond Breaker**

Place base bond breaker before placing ISR—RSC. Comply with section 36-2.

#### **41-9.03E Placing Rapid Strength Concrete**

Do not place RSC if the ambient air temperature is forecast by the National Weather Service to be less than 40 degrees F within 72 hours of final finishing.

Before placing RSC against existing concrete, place 1/4-inch thick commercial quality polyethylene flexible foam expansion joint filler across the original transverse and longitudinal joint faces and extend the full depth of pavement to the top of the base layer. Place the top of the joint filler flush with the top of the pavement. Secure joint filler to the joint face of the existing pavement to prevent the joint filler from moving during the placement of RSC.

Use metal or wood side forms. Wood side forms must not be less than 1-1/2 inches thick. Side forms and connections must be of sufficient rigidity that movement will not occur under forces from equipment or RSC. Clean and oil side forms before each use. Side forms must remain in place until the pavement edge no longer requires the protection of forms.

After you place RSC, consolidate it using high-frequency internal vibrators adjacent to forms and across the full paving width. Place RSC as nearly as possible to its final position. Do not use vibrators for extensive shifting of concrete pavement.

Spread and shape RSC with powered finishing machines supplemented by hand finishing. After you mix and place RSC, do not add water to the surface to facilitate finishing. You may request authorization to use surface finishing additives. Submit the manufacturer's instructions with your request.

Place consecutive concrete loads without interruption. Do not allow cold joints where a visible lineation forms after concrete is placed, sets, and hardens before additional concrete placed.

Where the existing transverse joint spacing in an adjacent lane exceeds 15 feet, construct an additional transverse contraction joint midway between the existing joints. Complete sawing of contraction joints within 2 hours of completion of final finishing.

Cut contraction joints a minimum of 1/3 the slab depth.

#### **41-9.03F Final Finishing**

After preliminary finishing, round the edges of the initial paving width to a 0.04-foot radius. Round transverse and longitudinal construction joints to a 0.02-foot radius. Mark each ISR—RSC area with a stamp. The stamp mark must show the month, day, and year of placement and contract number. Level the location of the stamp with a steel trowel below the pavement texture. Orient the stamp mark so it can be read from the outside edge of ISR—RSC.

Before curing, texture the pavement. Perform initial texturing with a burlap drag or broom device that produces striations parallel to the centerline. Perform final texturing with a steel-tined device that produces grooves parallel with the centerline.

Tines must be from 3/32 to 1/8 inch wide on 3/4-inch centers and have enough length, thickness, and resilience to form grooves from 1/8 to 3/16 inch deep after the concrete has hardened. Grooves must extend over the entire pavement width except do not construct grooves 3 inches from longitudinal pavement edges or joints.

Final texture must be uniform and smooth. Grooves must be parallel and aligned to the pavement edge across the pavement width. The groove alignment must not vary more than 0.1 foot for every 12 foot length.

Protect RSC under section 90-1.03C.

#### **41-9.03G Temporary Pavement Structure**

Temporary pavement structure must be RSC or 3-1/2 inch thick HMA over aggregate base.

#### **41-9.03H Noncompliant Individual Slab Replacement**

Replace an ISR—RSC slab with any of the following:

1. One or more full-depth cracks.
2. Concrete raveling.
3. Noncompliant smoothness except you may request authorization for grinding under section 42 and retesting. Grinding that causes a depression will not be considered. Smoothness must be corrected within 48 hours of placing ISR—RSC.
4. Noncompliant modulus of rupture.

If the modulus of rupture at opening age is at least 400 psi and the modulus of rupture at 3 days is at least 500 psi but less than 600 psi, you may request authorization to leave the ISR—RSC in place and accept the specified deduction.

If pavement is noncompliant for coefficient of friction, groove or grind the pavement under section 42. Comply with section 40-1.03Q(4) and groove or grind before the installation of any required joint seal or edge drains adjacent to the areas to the noncompliant area.

If an ISR—RSC slab has partial depth cracking, treat it with high-molecular-weight methacrylate under section 41-3.

#### **41-9.03I Replace Pavement Delineation**

Replace traffic stripes, pavement markings, and markers that are removed, obliterated, or damaged by ISR—RSC under sections 84 and 85.

#### **41-9.03J Reserved**

#### **41-9.04 PAYMENT**

Replace base is not included in the payment for individual slab replacement (RSC).

Drill and bond dowel bars are not included in payment for individual slab replacement (RSC).

For individual slab replacement (RSC) with a modulus of rupture at opening age that is at least 400 psi and a modulus of rupture at 3 days that is greater than or equal to 500 psi but less than 550 psi, the Department deducts 10 percent of the payment for individual slab replacement (RSC).

For individual slab replacement (RSC) with a modulus of rupture at opening age that is at least 400 psi and a modulus of rupture at 3 days that is greater than or equal to 550 psi but less than 600 psi, the Department deducts 5 percent of the payment for individual slab replacement (RSC).



## 41-10 DRILL AND BOND BARS

### 41-10.01 GENERAL

#### 41-10.01A Summary

Section 41-10 includes specifications for drilling, installing, and bonding tie bars and dowel bars in concrete pavement.

#### 41-10.01B Definitions

Reserved

#### 41-10.01C Submittals

Submit a certificate of compliance for:

1. Tie bars
2. Dowel bars
3. Dowel bar lubricant
4. Chemical adhesive
5. Epoxy powder coating

At least 15 days before delivery to the job site, submit the manufacturer's recommendations and instructions for storage, handling, and use of chemical adhesive.

#### 41-10.01D Quality Control and Assurance

##### 41-10.01D(1) General

Drill and bond bar is accepted based on inspection before concrete placement.

##### 41-10.01D(2) Reserved

#### 41-10.02 MATERIALS

##### 41-10.02A General

Dowel bar lubricant must comply with section 40-1.02D.

Chemical adhesive for drilling and bonding bars must be on the Authorized Material List. The Authorized Material List indicates the appropriate chemical adhesive system for concrete temperature and installation conditions.

Each chemical adhesive system container must clearly and permanently show the following:

1. Manufacturer's name
2. Model number of the system
3. Manufacture date
4. Batch number
5. Expiration date
6. Current International Conference of Building Officials Evaluation Report number
7. Directions for use
8. Storage requirement
9. Warnings or precautions required by state and federal laws and regulations

##### 41-10.02B Reserved

#### 41-10.03 CONSTRUCTION

##### 41-10.03A General

Drill holes for bars. Clean drilled holes in compliance with the chemical adhesive manufacturer's instructions. Holes must be dry at the time of placing the chemical adhesive and bars. Use a grout retention ring when drilling and bonding dowel bars. Immediately after inserting the bar into the chemical adhesive, support the bar to prevent movement until chemical adhesive has cured the minimum time recommended by the manufacturer.

Apply dowel bar lubricant to the entire exposed portion of the dowel bar.

If the Engineer rejects a bar installation: stop paving, drilling, and bonding activities. Adjust your procedures and obtain the Engineer's verbal authorization before resuming paving, drilling, and bonding.

Cut the rejected bar flush with the pavement joint surface and coat the exposed end of the bar with chemical adhesive. Offset the new hole 3 inches horizontally from the rejected hole’s center.

**41-10.03B Tie Bar Tolerance**

Place tie bars within the tolerances shown in the following table:

<b>Tie Bar Tolerances</b>	
Dimension	Tolerance
Horizontal skew (vertical skew: bar length)	1:6
Vertical skew (vertical skew: bar length)	1:6
Longitudinal translation (inch)	±1
Horizontal offset (embedment, inch)	±1
Height relative to the adjacent bar	±1
Vertical Depth (clearance from the pavement surface or bottom, inches, min)	3

**41-10.03C Dowel Bar Tolerance**

Place dowel bars within the tolerances specified in section 40-1.01D(7)(b)(v).

**41-10.03D Reserved**

**41-10.04 PAYMENT**

Not Used

**41-11–41-15 RESERVED**

^

**42 GROOVE AND GRIND CONCRETE**

07-19-13

**Replace the paragraph of section 42-1.01A with:**

Section 42-1 includes general specifications for grooving and grinding concrete.

07-19-13

**Replace the headings and paragraphs in section 42-3 with:**

07-19-13

**42-3.01 GENERAL**

**42-3.01A Summary**

Section 42-3 includes specifications for grinding the surfaces of pavement, bridge decks, and approach slabs.

**42-3.01B Definitions**

Reserved

**42-3.01C Submittals**

Reserved

**42-3.01D Quality Control and Assurance**

Reserved

**42-3.02 MATERIALS**

Not Used

### **42-3.03 CONSTRUCTION**

#### **42-3.03A General**

Grind surfaces in the longitudinal direction of the traveled way and grind the full lane width. Begin and end grinding at lines perpendicular to the roadway centerline.

Grinding must result in a parallel corduroy texture with grooves from 0.08 to 0.12 inch wide and from 55 to 60 grooves per foot of width. Grooves must be from 0.06 to 0.08 inch from the top of the ridge to the bottom of the groove.

Grind with abrasive grinding equipment using diamond cutting blades mounted on a self-propelled machine designed for grinding and texturing concrete pavements.

#### **42-3.03B Pavement**

Grind existing concrete pavement that is adjacent to an individual slab replacement. Grind the replaced individual slab and all the existing slabs immediately surrounding it. Grind after the individual slab is replaced.

Grind existing concrete pavement that is adjacent to new lanes of concrete pavement. Grind before paving.

After grinding, the existing pavement must comply with requirements for smoothness and coefficient of friction in section 40 except:

1. At the midpoint of a joint or crack, test smoothness with a straightedge. Both sides must have uniform texture.
2. Straightedge and inertial profiler requirements do not apply to areas abnormally depressed from subsidence or other localized causes. End smoothness testing 15 feet before and resume 15 feet after these areas.
3. Cross-slope must be uniform and have positive drainage across the traveled way and shoulder.

As an alternative to grinding existing concrete pavement, you may replace the existing pavement. The new concrete pavement must be the same thickness as the removed pavement. Replace existing pavement between longitudinal joints or pavement edges and transverse joints. Do not remove portions of slabs.

Replacement of existing concrete pavement must comply with requirements for individual slab replacement in section 41-9.

#### **42-3.03C Bridge Decks, Approach Slabs, and Approach Pavement**

Grind bridge decks, approach slabs, and approach pavement only if described.

The following ground areas must comply with the specifications for smoothness and concrete cover over reinforcing steel in section 51-1.01D(4):

1. Bridge decks
2. Approach slabs
3. Adjacent 50 feet of approach pavement

After grinding, the coefficient of friction must comply with section 51-1.01D(4).

#### **42-3.04 PAYMENT**

Grinding existing approach slabs and adjacent 50 feet of approach pavement is paid for as grind existing bridge deck.

The Department does not pay for grinding replacement concrete pavement or for additional grinding to comply with smoothness requirements.



section 90, except they must not contain chloride ions in excess of 0.25 percent by weight. Do not exceed 5 gallons of water per 94 lb of cement.

Mix the grout as follows:

1. Add water to the mixer followed by cement and any admixtures or fine aggregate.
2. Mix the grout with mechanical mixing equipment that produces a uniform and thoroughly mixed grout.
3. Agitate the grout continuously until the grout is pumped.
4. Do not add water after the initial mixing.

**Add to section 46-1.03B:**

04-20-12

Dispose of drill cuttings under section 19-2.03B.

**Add to the end of section 46-1.03C:**

07-19-13

Grouting equipment must be:

1. Capable of grouting at a pressure of at least 100 psi
2. Equipped with a pressure gage having a full-scale reading of not more than 300 psi

07-19-13

**Delete the 3rd paragraph of section 46-2.01A.**

**Add to the beginning of section 46-2.01C:**

07-19-13

Submittals for strand tendons, bar tendons, bar couplers, and anchorage assemblies must comply with section 50-1.01C.

**Add to section 46-2.01D:**

07-19-13

**46-2.01D(3) Steel**

Strand tendons, bar tendons, bar couplers, and anchorage assemblies must comply with section 50-1.01D.

**46-2.01D(4) Grout**

The Department tests the efflux time of the grout under California Test 541.

**Add to the beginning of section 46-2.02B:**

07-19-13

Strand tendons, bar tendons, and bar couplers must comply with section 50-1.02B.

**Replace the 1st paragraph of section 46-2.02E with:**

07-19-13

The efflux time of the grout immediately after mixing must be at least 11 seconds.



**Replace the 1st paragraph of section 47-2.02E with:**

02-17-12

Steel wire must comply with ASTM A 82/A 82M. Welded wire reinforcement must comply with ASTM A 185/A 185M.

**Replace section 47-3 with:**

07-19-13

**47-3 REINFORCED CONCRETE CRIB WALLS**

**47-3.01 General**

Section 47-3 includes specifications for constructing reinforced concrete crib walls.

Reinforced concrete crib walls must comply with section 51.

Reinforcement must comply with section 52.

Concrete crib walls consist of a series of rectangular cells composed of interlocking, precast, reinforced concrete headers, stretchers, and blocks.

**47-3.02 Materials**

**47-3.02A General**

Pads shown to be placed between bearing surfaces must either be (1) neoprene complying with the specifications for strip waterstops in section 51-2.05 or (2) commercial quality no. 30 asphalt felt. The protective board is not required for neoprene pads.

**47-3.02B Crib Members**

**47-3.02B(1) General**

All members may be manufactured to dimensions 1/8 inch greater in thickness than shown. The thickness of the lowest step must not be less than the dimension shown.

Stretchers may be manufactured 1/2 inch less in length than shown.

When an opening is shown in the face of the wall, special length stretchers and additional headers may be necessary.

For non-tangent wall alignments, special length stretchers may be required.

For non-tangent wall alignments and at locations where filler blocks are required, special length front face closure members may be required.

**47-3.02B(2) Reinforcement**

Reinforcing wire must comply with ASTM A 496/A 496M.

For hoops or stirrups use either (1) reinforcing wire or (2) deformed steel welded wire reinforcement. The size must be equivalent to the reinforcing steel shown. Deformed steel welded wire reinforcement must comply with ASTM A 497/A 497M.

**47-3.02B(3) Concrete**

Concrete test cylinders must comply with section 90-1.01D(5), except when the penetration of fresh concrete is less than 1 inch, the concrete in the test mold must be consolidated by vibrating the mold equivalent to the consolidating effort being used to consolidate the concrete in the members.

Cure crib members under section 51-4.02C.

When removed from forms, the members must present a true surface of even texture, free from honeycombs and voids larger than 1 inch in diameter and 5/16 inch in depth. Clean and fill other pockets with mortar under sections 51-1.02F and 51-1.03E(2).

External vibration resulting in adequate consolidation may be used.

If the Engineer determines that rock pockets are of the extent or character as to affect the strength of the member or to endanger the life of the steel reinforcement, replace the member.

Finish concrete-to-concrete bearing surfaces to a smooth plane. Section 51-1.03F does not apply to concrete crib members.

**47-3.03 Construction**

Place reinforced concrete crib walls to the lines and grades established by the Engineer. The foundation must be accepted by the Engineer before any crib members are placed.

The gap between bearing surfaces must not exceed 1/8 inch.

Where a gap of 1/16 inch to 1/8 inch exists or where shown, place a 1/16-inch pad of asphalt felt or sheet neoprene between the bearing surfaces.

**47-3.04 Payment**

The area of reinforced concrete crib wall is measured on the batter at the outer face for the height from the bottom of the bottom stretcher to the top of the top stretcher and for a length measured from end to end of each section of wall.

**Add between the 3rd and 4th paragraphs of section 47-5.01:**

Reinforcement must comply with section 52.

10-19-12

**Add to section 47-6.01A:**

The alternative earth retaining system must comply with the specifications for the type of wall being constructed.

10-19-12

**Replace "sets" at each occurrence in the 1st paragraph of section 47-6.01C with:**

copies

04-19-13

AA

**48 TEMPORARY STRUCTURES**

07-19-13

**Replace "previously welded splice" and its definition in section 48-2.01B with:**

**previously welded splice:** Splice made in a falsework member in compliance with AWS D1.1 or other recognized welding standard before contract award.

04-19-13

**Add to section 48-2.01B:**

**independent support system:** Support system that is in addition to the falsework removal system employing methods of holding falsework from above by winches, hydraulic jacks with prestressing steel, HS rods, or cranes.

07-19-13



**Delete "field" in the 1st sentence of the 5th paragraph of section 48-2.01C(1).**

04-19-13

**Replace item 1 in the list in the 6th paragraph of section 48-2.01C(1) with:**

04-19-13

1. Itemize the testing, inspection methods, and acceptance criteria used

**Replace "sets" at each occurrence in the 4th paragraph of section 48-2.01C(2) with:**

07-19-13

copies

**Replace the 7th paragraph of section 48-2.01C(2) with:**

09-16-11

If you submit multiple submittals at the same time or additional submittals before review of a previous submittal is complete:

1. You must designate a review sequence for submittals
2. Review time for any submittal is the review time specified plus 15 days for each submittal of higher priority still under review

**Add to section 48-2.01C(2):**

07-19-13

Shop drawings and calculations for falsework removal systems employing methods of holding falsework from above by winches, hydraulic jacks with prestressing steel, HS rods, or cranes must include:

1. Design code used for the analysis of the structural members of the independent support system
2. Provisions for complying with current Cal/OSHA requirements
3. Load tests and ratings within 1 year of intended use of hydraulic jacks and winches
4. Location of the winches, hydraulic jacks with prestressing steel, HS rods, or cranes
5. Analysis showing that the bridge deck and overhang are capable of supporting all loads at all time
6. Analysis showing that winches will not overturn or slide during all stages of loading
7. Location of deck and soffit openings if needed
8. Details of repair for the deck and soffit openings after falsework removal

**Replace the 1st paragraph of section 48-2.01D(2) with:**

04-19-13

Welding must comply with AWS D1.1 or other recognized welding standard, except for fillet welds where the load demands are 1,000 lb or less per inch for each 1/8 inch of fillet weld.

**Replace the 1st through 3rd sentences in the 2nd paragraph of section 48-2.01D(2) with:**

04-19-13

Perform NDT on welded splices using UT or RT. Each weld and any repair made to a previously welded splice must be tested.

**Replace the 3rd paragraph of section 48-2.01D(2) with:**

04-19-13

For previously welded splices, perform and document all necessary testing and inspection required to certify the ability of the falsework members to sustain the design stresses.



**Replace the paragraph of section 49-2.01A(1) with:**

07-19-13

Section 49-2.01 includes general specifications for fabricating and installing driven piles.  
Epoxy-coated bar reinforcing steel used for pile anchors must comply with section 52-2.02.

**Replace the 2nd paragraph of section 49-2.01D with:**

01-20-12

Furnish piling is measured along the longest side of the pile from the specified tip elevation shown to the plane of pile cutoff.

**Replace the paragraph of section 49-2.02A(1) with:**

07-19-13

Section 49-2.02 includes specifications for fabricating and installing steel pipe piles.

**Replace the definitions in section 49-2.02A(2) with:**

07-19-13

**shop welding:** Welding performed at a plant on the Department's Authorized Facility Audit List.

**field welding:** Welding not performed at a plant on the Department's Authorized Facility Audit List.

**Replace item 2 in the list in the paragraph of section 49-2.02A(3)(b) with:**

07-19-13

2. Certified mill test reports for each heat number of steel used in pipe piles being furnished.

**Replace the paragraph of section 49-2.02A(4)(a) with:**

07-19-13

Section 11-3.02 does not apply to shop welds in steel pipe piles fabricated at a facility on the Department's Authorized Facility Audit List.

For groove welds using submerged arc welding from both sides without backgouging, qualify the WPS under Table 4.5 of AWS D1.1.

**Replace "0.45" in the 2nd paragraph of section 49-2.02B(1)(a) with:**

07-19-13

0.47

**Replace the 1st paragraph of section 49-2.02B(1)(b) with:**

07-19-13

Welds must comply with AWS D1.1. Circumferential welds must be CJP welds.

**Delete the 5th paragraph of section 49-2.02B(1)(b).**

07-19-13

**Add to section 49-2.02B(1):**

07-19-13

**49-2.02B(1)(d) Reserved**

**Replace "4.8.4" in item 2.3 in the list in the 2nd paragraph of section 49-2.02B(2) with:**

07-19-13

4.9.4

**Delete the 3rd paragraph of section 49-2.02C(2).**

07-19-13

**Replace the paragraph of section 49-2.03A(1) with:**

07-19-13

Section 49-2.03 includes specifications for fabricating and installing structural shape steel piles.

**Replace the paragraph of section 49-2.03A(3) with:**

07-19-13

Submit a certified material test report and a certificate of compliance that includes a statement that all materials and workmanship incorporated in the work and all required tests and inspections of this work have been performed as described.

**Replace the 1st paragraph of section 49-2.03B with:**

07-19-13

Structural shape steel piles must comply with ASTM A 36/A 36M, ASTM A 572/A 572M, ASTM A 709/A 709M, or ASTM A 992/A 992M.

**Replace "sets" in the 1st paragraph of section 49-2.04A(3) with:**

04-19-13

copies

**Delete the 1st paragraph of section 49-2.04A(4).**

07-19-13

**Replace the 3rd and 4th paragraphs of section 49-2.04B(2) with:**

10-19-12

Piles in a corrosive environment must be steam or water cured under section 90-4.03.

If piles in a corrosive environment are steam cured, either:

1. Keep the piles continuously wet for at least 3 days. The 3 days includes the holding and steam curing periods.
2. Apply curing compound under section 90-1.03B(3) after steam curing.

**Replace the 1st paragraph of section 49-3.01A with:**

07-19-13

Section 49-3.01 includes general specifications for constructing CIP concrete piles.

**Add to section 49-3.01A:**

01-20-12

Concrete must comply with section 51.

**Replace the 1st paragraph of section 49-3.01C with:**

01-20-12

Except for CIDH concrete piles constructed under slurry, construct CIP concrete piles such that the excavation methods and the concrete placement procedures provide for placing the concrete against undisturbed material in a dry or dewatered hole.

**Replace "Reserved" in section 49-3.02A(2) with:**

01-20-12

**dry hole:**

1. Except for CIDH concrete piles specified as end bearing, a drilled hole that:
  - 1.1. Accumulates no more than 12 inches of water in the bottom of the drilled hole during a period of 1 hour without any pumping from the hole during the hour.
  - 1.2. Has no more than 3 inches of water in the bottom of the drilled hole immediately before placing concrete.
2. For CIDH concrete piles specified as end bearing, a drilled hole free of water without the use of pumps.

**Replace "Reserved" in section 49-3.02A(3)(a) with:**

01-20-12

If plastic spacers are proposed for use, submit the manufacturer's data and a sample of the plastic spacer. Allow 10 days for review.

**Replace item 5 in the list in the 1st paragraph of section 49-3.02A(3)(b) with:**

10-19-12

5. Methods and equipment for determining:
  - 5.1. Depth of concrete
  - 5.2. Theoretical volume of concrete to be placed, including the effects on volume if casings are withdrawn
  - 5.3. Actual volume of concrete placed

**Add to the list in the 1st paragraph of section 49-3.02A(3)(b):**

01-18-13

8. Drilling sequence and concrete placement plan.

**Replace item 2 in the list in the 1st paragraph of section 49-3.02A(3)(g) with:**

01-20-12

2. Be sealed and signed by an engineer who is registered as a civil engineer in the State. This requirement is waived for either of the following conditions:
  - 2.1. The proposed mitigation will be performed under the current Department-published version of *ADSC Standard Mitigation Plan 'A' - Basic Repair* without exception or modification.
  - 2.2. The Engineer determines that the rejected pile does not require mitigation due to structural, geotechnical, or corrosion concerns, and you elect to repair the pile using the current

Department-published version of *ADSC Standard Mitigation Plan 'B' - Grouting Repair* without exception or modification.

**Replace "49-2.03A(4)(d)" in the 1st paragraph of section 49-3.02A(4)(d)(i) with:**

07-19-13

49-3.02A(4)(d)

**Add to the beginning of section 49-3.02A(4)(d)(ii):**

07-19-13

If the drilled hole is dry or dewatered without the use of temporary casing to control ground water, installation of inspection pipes is not required.

**Replace item 1 in the list in the 1st paragraph of section 49-3.02A(4)(d)(ii) with:**

01-20-12

1. Inspection pipes must be schedule 40 PVC pipe complying with ASTM D 1785 with a nominal pipe size of 2 inches. Watertight PVC couplers complying with ASTM D 2466 are allowed to facilitate pipe lengths in excess of those commercially available. Log the location of the inspection pipe couplers with respect to the plane of pile cutoff.

**Add to section 49-3.02A(4)(d)(iv):**

01-20-12

If the Engineer determines it is not feasible to use one of ADSC's standard mitigation plans to mitigate the pile, schedule a meeting and meet with the Engineer before submitting a nonstandard mitigation plan.

The meeting attendees must include your representatives and the Engineer's representatives involved in the pile mitigation. The purpose of the meeting is to discuss the type of pile mitigation acceptable to the Department.

Provide the meeting facility. The Engineer conducts the meeting.

**Replace the 1st paragraph of section 49-3.02B(5) with:**

07-19-13

Grout must consist of cementitious material and water, and may contain an admixture if authorized. Do not exceed 5 gallons of water per 94 lb of cement.

Cementitious material must comply with section 90-1.02B, except SCMs are not required.

Water must comply with section 90-1.02D. If municipally supplied potable water is used, the testing specified in section 90-1.02D is waived.

Admixtures must comply with section 90, except admixtures must not contain chloride ions in excess of 0.25 percent by weight.

Use aggregate to extend the grout as follows:

1. Aggregate must consist of at least 70 percent fine aggregate and approximately 30 percent pea gravel, by weight.
2. Fine aggregate must comply with section 90-1.02C(3).
3. Size of pea gravel must be such that 100 percent passes the 1/2-inch sieve, at least 85 percent passes the 3/8-inch sieve, and not more than 5 percent passes the no. 8 sieve.
4. Minimum cementitious material content of the grout must not be less than 845 lb/cu yd of grout.

Mix the grout as follows:

1. Add water to the mixer followed by cementitious material, aggregates, and any admixtures.
2. Mix the grout with mechanical mixing equipment that produces a uniform and thoroughly mixed grout.
3. Agitate the grout continuously until the grout is pumped.
4. Do not add water after initial mixing.

**Replace section 49-3.02B(8) with:**

01-20-12

**49-3.02B(8) Spacers**

Spacers must comply with section 52-1.03D, except you may use plastic spacers.

Plastic spacers must:

1. Comply with sections 3.4 and 3.5 of the Concrete Reinforcing Steel Institute's *Manual of Standard Practice*
2. Have at least 25 percent of their gross plane area perforated to compensate for the difference in the coefficient of thermal expansion between the plastic and concrete
3. Be of commercial quality

**Add between the 1st and 2nd paragraphs of section 49-3.02C(2):**

07-19-13

For CIDH concrete piles with a pile cap, the horizontal tolerance at the center of each pile at pile cut-off is the larger of 1/24 of the pile diameter or 3 inches. The horizontal tolerance for the center-to-center spacing of 2 adjacent piles is the larger of 1/24 of the pile diameter or 3 inches.

**Add to section 49-3.02C(4):**

01-20-12

Unless otherwise shown, the bar reinforcing steel cage must have at least 3 inches of clear cover measured from the outside of the cage to the sides of the hole or casing.

Place spacers at least 5 inches clear from any inspection tubes.

Place plastic spacers around the circumference of the cage and at intervals along the length of the cage, as recommended by the manufacturer.

07-19-13

For a single CIDH concrete pile supporting a column:

1. If the pile and the column share the same reinforcing cage diameter, this cage must be accurately placed as shown
2. If the pile reinforcing cage is larger than the column cage and the concrete is placed under dry conditions, maintain a clear horizontal distance of at least 3.5 inches between the two cages
3. If the pile reinforcing cage is larger than the column cage and the concrete is placed under slurry, maintain a clear horizontal distance of at least 5 inches between the two cages

**Replace section 49-3.02C(6) with:**

07-19-13

**49-3.02C(6) Construction Joint**

Section 49-3.02C(6) applies to CIDH concrete piles where a construction joint is shown.

If a permanent steel casing is not shown, you must furnish and install a permanent casing. The permanent casing must:

1. Be watertight and of sufficient strength to prevent damage and to withstand the loads from installation procedures, drilling and tooling equipment, lateral concrete pressures, and earth pressures.
2. Extend at least 5 feet below the construction joint. If placing casing into rock, the casing must extend at least 2 feet below the construction joint.
3. Not extend above the top of the drilled hole or final grade whichever is lower.
4. Not increase the diameter of the CIDH concrete pile more than 2 feet.
5. Be installed by impact or vibratory hammers, oscillators, rotators, or by placing in a drilled hole. Casings placed in a drilled hole must comply with section 49-3.02C(5).

Section 49-2.01A(4)(b) does not apply to permanent casings specified in this section.

**Add to section 49-4.01:**

Steel soldier piles must comply with section 49-2.03.

07-19-13

**Replace the headings and paragraphs in section 49-4.02 with:**

Concrete anchors must comply with the specifications for studs in clause 7 of AWS D1.1.

07-19-13

^^

**50 PRESTRESSING CONCRETE**

07-19-13

**Replace "sets" at each occurrence in the 2nd and 3rd paragraphs of section 50-1.01C(3) with:**

copies

04-19-13

**Add to section 50-1.01C(3):**

Include a grouting plan with your shop drawing submittal. The grouting plan must include:

07-19-13

1. Detailed grouting procedures
2. Type, quantity, and brand of materials to be used
3. Type of equipment to be used including provisions for backup equipment
4. Types and locations of grout inlets, outlets, and vents
5. Methods to clean ducts before grouting
6. Methods to control the rate of flow within ducts
7. Theoretical grout volume calculations for each duct
8. Duct repair procedures due to an air pressure test failure
9. Mixing and pumping procedures
10. Direction of grouting
11. Sequence of use of inlets and outlets
12. Procedure for handling blockages
13. Proposed forms for recording grouting information
14. Procedure for secondary grouting
15. Names of people who will perform grouting activities including their relevant experience and certifications



**Add to section 50-1.01C:**

07-19-13

**50-1.01C(5) Grout**

Submit a daily grouting report for each day grouting is performed. Submit the report within 3 days after grouting. The report must be signed by the technician supervising the grouting activity. The report must include:

1. Identification of each tendon
2. Date grouting occurred
3. Time the grouting started and ended
4. Date of placing the prestressing steel in the ducts
5. Date of stressing
6. Type of grout used
7. Injection end and applied grouting pressure
8. Actual and theoretical quantity of grout used to fill duct
9. Ratio of actual to theoretical grout quantity
10. Records of air, grout, and structure surface temperatures during grouting.
11. Summary of tests performed and results, except submit compressive strength and chloride ion test results within 48 hours of test completion
12. Names of personnel performing the grouting activity
13. Summary of problems encountered and corrective actions taken
14. Summary of void investigations and repairs made

**Replace the introductory clause in the 1st paragraph of section 50-1.01C(4) with:**

07-19-13

Submit test samples for the materials shown in the following table to be used in the work:

**Add between "the" and "test samples" in the 1st paragraph of section 50-1.01D(2):**

07-19-13

prestressing steel

**Replace the 3rd paragraph of section 50-1.01D(2) with:**

10-19-12

The Department may verify the prestressing force using the Department's load cells.

**Replace the 3rd paragraph in section 50-1.01D(3) with:**

07-19-13

Each pressure gage must be fully functional and have an accurately reading, clearly visible dial or display. The dial must be at least 6 inches in diameter and graduated in 100 psi increments or less.

**Add between the 5th and 6th paragraphs of section 50-1.01D(3):**

07-19-13

Each jack and its gages must be calibrated as a unit.

**Replace the 6th paragraph in section 50-1.01D(3) with:**

07-19-13

Each jack used to tension prestressing steel permanently anchored at 25 percent or more of its specified minimum ultimate tensile strength must be calibrated by METS within 1 year of use and after each repair. You must:

1. Schedule the calibration of the jacking equipment with METS
2. Mechanically calibrate the gages with a dead weight tester or other authorized means before calibration of the jacking equipment by METS
3. Verify that the jack and supporting systems are complete, with proper components, and are in good operating condition
4. Provide labor, equipment, and material to (1) install and support the jacking and calibration equipment and (2) remove the equipment after the calibration is complete
5. Plot the calibration results

Each jack used to tension prestressing steel permanently anchored at less than 25 percent of its specified minimum ultimate tensile strength must be calibrated by an authorized laboratory within 6 months of use and after each repair.

#### **Add to section 50-1.01D:**

07-19-13

#### **50-1.01D(4) Pressure Testing Ducts**

For post-tensioned concrete bridges, pressure test each duct with compressed air after stressing. To pressure test the ducts:

1. Seal all inlets, outlets, and grout caps.
2. Open all inlets and outlets on adjacent ducts.
3. Attach an air compressor to an inlet at 1 end of the duct. The attachment must include a valve that separates the duct from the air source.
4. Attach a pressure gage to the inlet at the end of the duct.
5. Pressurize the duct to 50 psi.
6. Lock-off the air source.
7. Record the pressure loss after 1 minute.
8. If there is a pressure loss exceeding 25 psi, repair the leaks with authorized methods and retest.

Compressed air used to clear and test the ducts must be clean, dry, and free of oil or contaminants.

#### **50-1.01D(5) Duct Demonstration of Post-Tensioned Members**

Before placing forms for deck slabs of box girder bridges, demonstrate that any prestressing steel placed in the ducts is free and unbonded. If no prestressing steel is in the ducts, demonstrate that the ducts are unobstructed.

If prestressing steel is installed after the concrete is placed, demonstrate that the ducts are free of water and debris immediately before installing the steel.

Before post-tensioning any member, demonstrate that the prestressing steel is free and unbonded in the duct.

The Engineer must witness all demonstrations.

#### **50-1.01D(6) Void Investigation**

In the presence of the Engineer, investigate the ducts for voids between 24 hours and 72 hours after grouting completion. As a minimum, inspect the inlet and outlet ports at the anchorages and at high points in the tendons for voids after removal. Completely fill any voids found with secondary grout.

#### **50-1.01D(7) Personnel Qualifications**

Perform post-tensioning field activities, including grouting, under the direct supervision of a technician certified as a level 2 Bonded PT Field Specialist through the Post-Tensioning Institute. Grouting activities may be performed under the direct supervision of a technician certified as a Grouting Technician through the American Segmental Bridge Institute.

**Replace the 6th paragraph of section 50-1.02B with:**

07-19-13

Package the prestressing steel in containers or shipping forms that protect the steel against physical damage and corrosion during shipping and storage.

**Replace the 13th paragraph of section 50-1.02B with:**

07-19-13

Prestressing steel is rejected if surface rust either:

1. Cannot be removed by hand-cleaning with a fine steel wool pad
2. Leaves pits visible to the unaided eye after cleaning

**Replace the 4th paragraph of section 50-1.02C with:**

07-19-13

Admixtures must comply with section 90, except admixtures must not contain chloride ions in excess of 0.25 percent by weight.

**Delete the 5th paragraphs of section 50-1.02C.**

07-19-13

**Add to section 50-1.02C:**

07-19-13

Secondary grout must:

1. Comply with ASTM C 1107
2. Not have a deleterious effect on the steel, concrete, or bond strength of the steel to concrete

**Replace item 9 including items 9.1 and 9.2 in the list in the 1st paragraph of section 50-1.02D with:**

07-19-13

9. Have an inside cross-sectional area of at least 2.5 times the net area of the prestressing steel for multistrand tendons

**Replace "3/8" in item 10 in the list in the 1st paragraph of section 50-1.02D with:**

07-19-13

1/2

**Delete the 2nd sentences in the 1st paragraph of section 50-1.02E.**

07-19-13

**Replace section 50-1.02F with:**

07-19-13

**50-1.02F Permanent Grout Caps**

Permanent grout caps for anchorage systems of post-tensioned tendons must:

1. Be glass-fiber-reinforced plastic with antioxidant additives. The environmental stress-cracking failure time must be at least 192 hours under ASTM D 1693, Condition C.

2. Completely cover and seal the wedge plate or anchorage head and all exposed metal parts of the anchorage against the bearing plate using neoprene O-ring seals.
3. Have a grout vent at the top of the cap.
4. Be bolted to the anchorage with stainless steel complying with ASTM F 593, alloy 316. All fasteners, including nuts and washers, must be alloy 316.
5. Be pressure rated at or above 150 psi.

**Add to section 50-1.02:**

09-16-11

**50-1.02G Sheathing**

Sheathing for debonding prestressing strand must:

1. Be split or un-split flexible polymer plastic tubing
2. Have a minimum wall thickness of 0.025 inch
3. Have an inside diameter exceeding the maximum outside diameter of the strand by 0.025 to 0.14 inch

Split sheathing must overlap at least 3/8 inch.

Waterproofing tape used to seal the ends of the sheathing must be flexible adhesive tape.

The sheathing and waterproof tape must not react with the concrete, coating, or steel.

**Replace the 2nd paragraph of section 50-1.03A(3) with:**

07-19-13

After installation, cover the duct ends and vents to prevent water or debris from entering.

**Add to section 50-1.03A(3):**

07-19-13

Support ducts vertically and horizontally during concrete placement at a spacing of at most 4 feet.

**Delete "at least" in the 1st paragraph of section 50-1.03B(1).**

07-19-13

**Add to section 50-1.03B(1):**

01-20-12

After seating, the maximum tensile stress in the prestressing steel must not exceed 75 percent of the minimum ultimate tensile strength shown.

**Delete the 1st through 4th paragraphs of section 50-1.03B(2)(a).**

07-19-13

**Replace "temporary tensile strength" in the 7th paragraph of section 50-1.03B(2)(a) with:**

07-19-13

temporary tensile stress

**Add to section 50-1.03B(2)(a):**

07-19-13

If prestressing strand is installed using the push-through method, use guide caps at the front end of each strand to protect the duct from damage.

**Add to the list in the 2nd paragraph of section 50-1.03B(2)(c):**

07-19-13

3. Be equipped with permanent grout caps

**Replace section 50-1.03B(2)(d) with:**

07-19-13

**50-1.03B(2)(d) Bonding and Grouting**

**50-1.03B(2)(d)(i) General**

Bond the post-tensioned prestressing steel to the concrete by completely filling the entire void space between the duct and the prestressing steel with grout.

Ducts, vents, and grout caps must be clean and free from water and deleterious materials that would impair bonding of the grout or interfere with grouting procedures. Compressed air used for cleaning must be clean, dry, and free of oil or contaminants.

Prevent the leakage of grout through the anchorage assembly by positive mechanical means.

Before starting daily grouting activities, drain the pump system to remove any water from the piping system.

Break down and thoroughly clean the pump and piping system after each grouting session.

After completing duct grouting activities:

1. Abrasive blast clean and expose the aggregate of concrete surfaces where concrete is to be placed to cover and encase the anchorage assemblies
2. Remove the ends of vents 1 inch below the roadway surface

**50-1.03B(2)(d)(ii) Mixing and Proportioning**

Proportion solids by weight to an accuracy of 2 percent.

Proportion liquids by weight or volume to an accuracy of 1 percent.

Mix the grout as follows:

1. Add water to the mixer followed by the other ingredients.
2. Mix the grout with mechanical mixing equipment that produces a uniform and thoroughly mixed grout without an excessive temperature increase or loss of properties of the mixture.
3. Do not exceed 5 gal of water per 94 lb of cement or the quantity of water in the manufacturer's instructions, whichever is less.
4. Agitate the grout continuously until the grout is pumped. Do not add water after the initial mixing.

**50-1.03B(2)(d)(iii) Placing**

Pump grout into the duct within 30 minutes of the 1st addition of the mix components.

Inject grout from the lowest point of the duct in an uphill direction in 1 continuous operation maintaining a one-way flow of the grout. You may inject from the lowest anchorage if complete filling is ensured.

Before injecting grout, open all vents.

Continuously discharge grout from the vent to be closed. Do not close any vent until free water, visible slugs of grout, and entrapped air have been ejected and the consistency of the grout flowing from the vent is equivalent to the injected grout.

Pump the grout at a rate of 16 to 50 feet of duct per minute.

Conduct grouting at a pressure range of 10 to 50 psi measured at the grout inlet. Do not exceed maximum pumping pressure of 150 psi at the grout inlet.

As grout is injected, close the vents in sequence in the direction of flow starting with the closest vent.

Before closing the final vent at the grout cap, discharge at least 2 gal of grout into a clean receptacle.

Bleed all high point vents.

Lock a pressure of 5 psi into the duct by closing the grout inlet valve.

#### **50-1.03B(2)(d)(iv) Weather Conditions**

If hot weather conditions will contribute to quick stiffening of the grout, cool the grout by authorized methods as necessary to prevent blockages during pumping activities.

If freezing weather conditions are anticipated during and following the placement of grout, provide adequate means to protect the grout in the ducts from damage by freezing.

#### **50-1.03B(2)(d)(v) Curing**

During grouting and for a period of 24 hours after grouting, eliminate vibration from contractor controlled sources within 100 feet of the span in which grouting is taking place, including from moving vehicles, jackhammers, large compressors or generators, pile driving activities, soil compaction, and falsework removal. Do not vary loads on the span.

For PC concrete members, do not move or disturb the members after grouting for 24 hours. If ambient temperature drops below 50 degrees F, do not move or disturb the members for 48 hours.

Do not remove or open valves until grout has cured for at least 24 hours.

#### **50-1.03B(2)(d)(vi) Grouting Equipment**

Grouting equipment must be:

1. Capable of grouting at a pressure of at least 100 psi
2. Equipped with a pressure gage having a full-scale reading of not more than 300 psi
3. Able to continuously grout the longest tendon on the project in less than 20 minutes

Grout must pass through a screen with clear openings of 1/16 inch or less before entering the pump.

Fit grout injection pipes, ejection pipes, and vents with positive mechanical shutoff valves capable of withstanding the pumping pressures. Do not remove or open valves until the grout has set. If authorized, you may substitute mechanical valves with suitable alternatives after demonstrating their effectiveness.

Provide a standby grout mixer and pump.

#### **50-1.03B(2)(d)(vii) Grout Storage**

Store grout in a dry environment.

#### **50-1.03B(2)(d)(viii) Blockages**

If the grouting pressure reaches 150 psi, close the inlet and pump the grout at the next vent that has just been or is ready to be closed as long as a one-way flow is maintained. Do not pump grout into a succeeding outlet from which grout has not yet flowed.

When complete grouting of the tendon cannot be achieved by the steps specified, stop the grouting operation.

#### **50-1.03B(2)(d)(ix) Secondary Grouting**

Perform secondary grouting by vacuum grouting under the direct supervision of a person who has been trained and has experience in the use of vacuum grouting equipment and procedures.

The vacuum grouting process must be able to determine the size of the void and measure the volume of grout filling the void.

Vacuum grouting equipment must consist of:

1. Volumeter for the measurement of void volume
2. Vacuum pump with capacity of at least 10 cfm and equipped with a flow meter capable of measuring the amount of grout being injected

**50-1.03B(2)(d)(x) Vertical Tendon Grouting**

Provide a standpipe at the upper end of the tendon to collect bleed water and allow it to be removed from the grout. The standpipe must be large enough to prevent the grout elevation from dropping below the highest point of the upper anchorage device. If the grout level drops to the highest point of the upper anchorage device, immediately add grout to the standpipe.

Remove the standpipe after the grout has hardened.

For vertical tendons in excess of 100 feet high or if grouting pressure exceeds 145 psi, inject grout at a higher vent from which grout has already flowed to maintain one-way flow.

**50-1.03B(2)(d)(xi) Vents**

Place vents at the following locations:

1. Anchorage areas at both ends of the tendon
2. Each high point
3. 4 feet upstream and downstream of each crest of a high point
4. Each change in the cross section of duct

**Add to section 50-1.03B(2):**

09-16-11

**50-1.03B(2)(e) Debonding Prestressing Strands**

Where shown, debond prestressing strands by encasing the strands in plastic sheathing along the entire length shown and sealing the ends of the sheathing with waterproof tape.

Distribute the debonded strands symmetrically about the vertical centerline of the girder. The debonded lengths of pairs of strands must be equal.

Do not terminate debonding at any one cross section of the member for more than 40 percent of the debonded strands or 4 strands, whichever is greater.

Thoroughly seal the ends with waterproof tape to prevent the intrusion of water or cement paste before placing the concrete.

^^

**51 CONCRETE STRUCTURES**

07-19-13

**Replace the paragraphs of section 51-1.01A with:**

10-19-12

Section 51-1 includes general specifications for constructing concrete structures.

Earthwork for the following concrete structures must comply with section 19-3:

1. Sound wall footings
2. Sound wall pile caps
3. Culverts
4. Barrier slabs
5. Junction structures
6. Minor structures

7. Pipe culvert headwalls, endwalls, and wingwalls for a pipe with a diameter of 5 feet or greater

Falsework must comply with section 48-2.

Joints must comply with section 51-2.

Elastomeric bearing pads must comply with section 51-3.

Reinforcement for the following concrete structures must comply with section 52:

1. Sound wall footings
2. Sound wall pile caps
3. Barrier slabs
4. Junction structures
5. Minor structures
6. PC concrete members

You may use RSC for a concrete structure only where the specifications allow the use of RSC.

**Replace "sets" in the 1st paragraph of section 51-1.01C(2) with:**

copies

07-19-13

**Replace the heading of section 51-1.01D(4) with:**

**Testing Concrete Surfaces**

04-19-13

**Add to section 51-1.01D(4)(a):**

The Engineer tests POC deck surfaces for smoothness and crack intensity.

04-19-13

**Add to the list in the 1st paragraph of section 51-1.01D(4)(b):**

3. Completed deck surfaces, including ramps and landings of POCs

04-19-13

**Replace the 4th paragraph in section 51-1.01D(4)(b) with:**

Except for POCs, surface smoothness is tested using a bridge profilograph under California Test 547. Two profiles are obtained in each lane approximately 3 feet from the lane lines and 1 profile is obtained in each shoulder approximately 3 feet from the curb or rail face. Profiles are taken parallel to the direction of traffic.

04-19-13

**Add between the 5th and 6th paragraphs of section 51-1.01D(4)(b):**

POC deck surfaces must comply with the following smoothness requirements:

04-19-13

1. Surfaces between grade changes must not vary more than 0.02 foot from the lower edge of a 12-foot-long straightedge placed parallel to the centerline of the POC
2. Surface must not vary more than 0.01 foot from the lower edge of a 6-foot-long straightedge placed perpendicular to the centerline of the POC



**Add to section 51-1.01D(4)(d):**

04-19-13

The Engineer measures crack intensity of POC deck surfaces after curing, before prestressing, and before falsework release. Clean the surface for the Engineer to measure surface crack intensity.

In any 100 sq ft portion of a new POC deck surface, if there are more than 10 feet of cracks having a width at any point of over 0.02 inch, treat the deck with methacrylate resin under section 15-5.05. Treat the entire deck width between the curbs to 5 feet beyond where the furthest continuous crack emanating from the 100 sq ft section is 0.02 inch wide. Treat the deck surface before grinding.

**Replace the 2nd paragraph of section 51-1.02B with:**

07-19-13

Except for minor structures, the minimum required 28-day compressive strength for concrete in structures or portions of structures is the compressive strength described or 3,600 psi, whichever is greater.

**Add to section 51-1.03C(2)(c)(i):**

04-20-12

Permanent steel deck forms are only allowed where shown or if specified as an option in the special provisions.

**Replace the 3rd paragraph of section 51-1.03C(2)(c)(ii) with:**

04-20-12

Compute the physical design properties under AISI's *North American Specification for the Design of Cold-Formed Steel Structural Members*.

**Replace the 8th paragraph of section 51-1.03D(1) with:**

10-19-12

Except for concrete placed as pipe culvert headwalls and endwalls, slope paving and aprons, and concrete placed under water, consolidate concrete using high-frequency internal vibrators within 15 minutes of placing concrete in the forms. Do not attach vibrators to or hold them against forms or reinforcing steel. Do not displace reinforcement, ducts, or prestressing steel during vibrating.

**Add to section 51-1.03E(5):**

08-05-11

Drill the holes without damaging the adjacent concrete. If reinforcement is encountered during drilling before the specified depth is attained, notify the Engineer. Unless coring through the reinforcement is authorized, drill a new hole adjacent to the rejected hole to the depth shown.

**Add to section 51-1.03F(5)(a):**

04-19-13

For approach slabs, sleeper slabs, and other roadway surfaces of concrete structures, texture the roadway surface as specified for bridge deck surfaces in section 51-1.03F(5)(b).

**Replace "Reserved" in section 51-1.03F(5)(b) with:**

04-20-12

**51-1.03F(5)(b)(i) General**

Except for bridge widenings, texture the bridge deck surfaces longitudinally by grinding and grooving or by longitudinal tining.

10-19-12

For bridge widenings, texture the deck surface longitudinally by longitudinal tining.

04-20-12

In freeze-thaw areas, do not texture PCC surfaces of bridge decks.

**51-1.03F(5)(b)(ii) Grinding and Grooving**

When texturing the deck surface by grinding and grooving, place a 1/4 inch of sacrificial concrete cover on the bridge deck above the finished grade shown. Place items to be embedded in the concrete based on the final profile grade elevations shown. Construct joint seals after completing the grinding and grooving.

Before grinding and grooving, deck surfaces must comply with the smoothness and deck crack treatment requirements.

Grind and groove the deck surface as follows:

1. Grind the surface to within 18 inches of the toe of the barrier under section 42-3. Grinding must not reduce the concrete cover on reinforcing steel to less than 1-3/4 inches.
2. Groove the ground surfaces longitudinally under section 42-2. The grooves must be parallel to the centerline.

**51-1.03F(5)(b)(iii) Longitudinal Tining**

When texturing the deck surface by longitudinal tining, perform initial texturing with a burlap drag or broom device that produces striations parallel to the centerline. Perform final texturing with spring steel tines that produce grooves parallel with the centerline.

The tines must:

1. Be rectangular in cross section
2. Be from 3/32 to 1/8 inch wide on 3/4-inch centers
3. Have enough length, thickness, and resilience to form grooves approximately 3/16 inch deep

Construct grooves to within 6 inches of the layout line of the concrete barrier toe. Grooves must be from 1/8 to 3/16 inch deep and 3/16 inch wide after concrete has hardened.

For irregular areas and areas inaccessible to the grooving machine, you may hand construct grooves. Hand-constructed grooves must comply with the specifications for machine-constructed grooves.

Tining must not cause tearing of the deck surface or visible separation of coarse aggregate at the surface.

**Add to section 51-1.03F:**

04-19-13

**51-1.03F(6) Finishing Pedestrian Overcrossing Surfaces**

Construct deck surfaces, including ramps and landings of POCs to the grade and cross section shown. Surfaces must comply with the specified smoothness, surface texture, and surface crack requirements.

The Engineer sets deck elevation control points for your use in establishing the grade and cross section of the deck surface. The grade established by the deck elevation control points includes all camber allowances. Except for landings, elevation control points include the beginning and end of the ramp and will not be closer together than approximately 8 feet longitudinally and 4 feet transversely to the POC centerline. Landing elevation control points are at the beginning and the end of the landing.

Broom finish the deck surfaces of POCs. Apply the broom finish perpendicular to the path of travel. You may apply water mist to the surface immediately before brooming.

Clean any discolored concrete by abrasive blast cleaning or other authorized methods.

**Replace the paragraphs of section 51-1.04 with:**

10-19-12

If concrete involved in bridge work is not designated by type and is not otherwise paid for under a separate bid item, the concrete is paid for as structural concrete, bridge.

The payment quantity for structural concrete includes the volume in the concrete occupied by bar reinforcing steel, structural steel, prestressing steel materials, and piling.

The payment quantity for seal course concrete is the actual volume of seal course concrete placed except the payment quantity must not exceed the volume of concrete contained between vertical planes 1 foot outside the neat lines of the seal course shown. The Department does not adjust the unit price for an increase or decrease in the seal course concrete quantity.

Structural concrete for pier columns is measured as follows:

1. Horizontal limits are vertical planes at the neat lines of the pier column shown.
2. Bottom limit is the bottom of the foundation excavation in the completed work.
3. Upper limit is the top of the pier column concrete shown.

The payment quantity for drill and bond dowel is determined from the number and depths of the holes shown.

**Replace section 51-2.01B(2) with:**

04-19-13

**51-2.01B(2) Reserved**

04-19-13

**Delete the 4th paragraph of section 51-2.01C.**

**Replace "SSPC-QP 3" in the 1st paragraph of section 51-2.02A(2) with:**

10-19-12

AISC-420-10/SSPC-QP 3

**Replace the 2nd and 3rd paragraphs of section 51-2.02B(3)(b) with:**

04-20-12

Concrete saws for cutting grooves in the concrete must have diamond blades with a minimum thickness of 3/16 inch. Cut both sides of the groove simultaneously for a minimum 1st pass depth of 2 inches. The completed groove must have:

1. Top width within 1/8 inch of the width shown or ordered
2. Bottom width not varying from the top width by more than 1/16 inch for each 2 inches of depth
3. Uniform width and depth

Cutting grooves in existing decks includes cutting any conflicting reinforcing steel.

**Replace "sets" in the 1st and 2nd paragraphs of section 51-2.02D(1)(c)(ii) with:**

copies

04-19-13

**Replace "set" in the 7th paragraph of section 51-2.02D(1)(c)(ii) with:**

copy

04-19-13

**Add to the 1st paragraph of section 51-2.02D(3):**

POC deck surfaces must comply with section 51-1.03F(6) before placing and anchoring joint seal assemblies.

04-19-13

**Replace "sets" in the 2nd paragraph of section 51-2.02E(1)(c) with:**

copies

04-19-13

**Replace "set" in the 6th paragraph of section 51-2.02E(1)(c) with:**

copy

04-19-13

**Replace the 2nd paragraph of section 51-2.02E(1)(e) with:**

Except for components in contact with the tires, the design loading must be the AASHTO LRFD Bridge Design Specifications Design Truck with 100 percent dynamic load allowance. Each component in contact with the tires must support a minimum of 80 percent of the AASHTO LRFD Bridge Design Specifications Design Truck with 100 percent dynamic load allowance. The tire contact area must be 10 inches measured normal to the longitudinal assembly axis by 20 inches wide. The assembly must provide a smooth-riding joint without slapping of components or tire rumble.

08-05-11

**Replace "sets" in the 1st and 2nd paragraphs of section 51-2.02F(1)(c) with:**

copies

04-19-13

**Add between the 1st and 2nd paragraphs of section 51-4.01A:**

Prestressing concrete members must comply with section 50.

10-19-12

**Delete the 2nd paragraph of section 51-4.01A.**

04-20-12

**Replace the 3rd paragraph of section 51-4.01C(2) with:**

For segmental or spliced-girder construction, shop drawings must include the following additional information:

04-20-12

1. Details showing construction joints or closure joints
2. Arrangement of bar reinforcing steel, prestressing tendons, and pressure-grouting pipe
3. Materials and methods for making closures
4. Construction joint keys and surface treatment
5. Other requested information

For segmental girder construction, shop drawings must include concrete form and casting details.

**Replace "sets" in the 1st paragraph of section 51-4.01C(3) with:**

copies

04-19-13

**Delete the 1st and 2nd paragraphs of section 51-4.02A.**

10-19-12

**Replace the 3rd paragraph of section 51-4.02B(2) with:**

04-20-12

For segmental or spliced-girder construction, materials for construction joints or closure joints at exterior girders must match the color and texture of the adjoining concrete.

**Add to section 51-4.02B(2):**

04-20-12

At spliced-girder closure joints:

1. If shear keys are not shown, the vertical surfaces of the girder segment ends must be given a coarse texture as specified for the top surface of PC members.
2. Post-tensioning ducts must extend out of the vertical surface of the girder segment closure end sufficiently to facilitate splicing of the duct.

For spliced girders, pretension strand extending from the closure end of the girder segment to be embedded in the closure joint must be free of mortar, oil, dirt, excessive mill scale and scabby rust, and other coatings that would destroy or reduce the bond.

**Add to section 51-4.03B:**

04-20-12

The specifications for prestressing force distribution and sequencing of stressing in the post-tensioning activity in 50-1.03B(2)(a) do not apply if post-tensioning of spliced girders before starting deck construction is described. The composite deck-girder structure must be post-tensioned in a subsequent stage.

Temporary spliced-girder supports must comply with the specifications for falsework in section 48-2.

Before post-tensioning of spliced girders, remove the forms at CIP concrete closures and intermediate diaphragms to allow inspection for concrete consolidation.

**Add to section 51-5.01A:**

07-19-13

Structure excavation and backfill must comply with section 19-3.

Treated permeable base must comply with section 29.









12. Material specification and grade listed on the bill of materials.
13. Identification of tension members and fracture critical members.
14. Proposed deviations from plans, specifications, or previously submitted shop drawings.
15. Contract plan sheet references for details.

**Replace items 2 and 3 in the list in the 1st paragraph of section 55-1.01C(3) with:**

2. Tension flanges and webs of horizontally curved girders
3. Hanger plates

07-19-13

**Replace the 2nd paragraph of section 55-1.01C(3) with:**

Furnish plates, shapes, or bars with extra length to provide for removal of check samples.

07-19-13

**Delete the 1st and 2nd sentences in the 3rd paragraph of section 55-1.01C(3).**

07-19-13

**Replace the 4th paragraph of section 55-1.01C(3) with:**

Remove material for test samples in the Engineer's presence. Test samples for plates over 24 inches wide must be 10 by 12 inches with the long dimension transverse to the direction of rolling. Test samples for other products must be 12 inches long taken in the direction of rolling with a width equal to the product width.

07-19-13

**Replace the 1st sentence of the 6th paragraph in section 55-1.01C(3) with:**

Results of check testing are delivered to you within 20 days of receipt of samples at METS.

07-19-13

**Delete the 2nd paragraph of section 55-1.01D(1).**

07-19-13

**Replace the 2nd sentence of the 4th paragraph in section 55-1.01D(1) with:**

The calibration must be performed by an authorized repair and calibration center approved by the tool manufacturer.

07-19-13

**Add to section 55-1.01D(1):**

For bolts installed as snug tight, rotational capacity testing and installation tension testing are not required.

07-19-13

In addition to NDT requirements in AWS D1.5, ultrasonically test 25 percent of all main member tension butt welds in material over 1/2 inch thick.

Perform NDT on 100 percent of each pin as follows:

1. MT under ASTM A 788, S 18, with no linear indication allowed exceeding 3 mm
2. UT under ASTM A 788, S 20, level S and level DA in two perpendicular directions

The Engineer determines the location of all NDT testing for welding.

07-19-13

**Delete the 2nd paragraph of section 55-1.01D(3)(a).**

**Replace section 55-1.01D(4)(b) with:**

07-19-13

Perform rotational capacity testing on each rotational capacity lot under section 55-1.01D(3)(b) at the job site before installation.

**Replace the 1st sentence of the 2nd paragraph in section 55-1.01D(4)(c) with:**

07-19-13

Test 3 representative HS fastener assemblies under section 8 of *Specification for Structural Joints Using High-Strength Bolts* of the RCSC.

**Replace the 1st paragraph in section 55-1.01D(4)(d) with:**

07-19-13

Perform fastener tension testing to verify minimum tension in HS bolted connections no later than 48 hours after all fasteners in a connection have been tensioned.

**Replace the 3rd paragraph in section 55-1.01D(4)(d) with:**

07-19-13

Test 10 percent of each type of fastener assembly in each HS bolted connection for minimum tension using the procedure described in section 10 of *Specification for Structural Joints Using High-Strength Bolts* of the RCSC. Check at least 2 assemblies per connection. For short bolts, determine the inspection torque using steps 1 through 7 of "Arbitration of Disputes, Torque Method-Short Bolts" in *Structural Bolting Handbook* of the Steel Structures Technology Center.

**Replace the 1st table in the 1st paragraph of section 55-1.02A(1) with:**

07-19-13

<b>Structural Steel</b>	
<b>Material</b>	<b>Specification</b>
Carbon steel	ASTM A 709/A 709M, Grade 36 or {ASTM A36/A36M} <sup>a</sup>
HS low alloy columbium vanadium steel	ASTM A 709/A 709M, Grade 50 or {ASTM A 992/A 992M or ASTM A 572/A 572M, Grade 50} <sup>a</sup>
HS low alloy structural steel	ASTM A 709/A 709M, Grade 50W or Grade HPS 50W, or {ASTM A 588/A 588M} <sup>a</sup>
HS low alloy structural steel plate	ASTM A 709/A 709M, Grade HPS 70W
High-yield strength quenched and tempered alloy steel plate suitable for welding	ASTM A 709/A 709M, Grade 100, Grade 100W, or Grade HPS 100W, or {ASTM A 514/A 514M} <sup>a</sup>

<sup>a</sup>Grades you may substitute for the equivalent ASTM A 709 steel subject to the modifications and additions specified and to the requirements of ASTM A 709.

Replace the 2nd table in the 1st paragraph of section 55-1.02A(1) with:

07-19-13

<b>Fasteners</b>	
Material	Specification
Steel fastener components for general applications:	
Bolts and studs	ASTM A 307
Anchor bolts	ASTM F 1554 <sup>a</sup>
HS bolts and studs	ASTM A 449, Type 1 <sup>a</sup>
HS threaded rods	ASTM A 449, Type 1 <sup>a</sup>
HS nonheaded anchor bolts	ASTM F 1554, Grade 105, Class 2A <sup>a</sup>
Nuts	ASTM A 563, including appendix X1 <sup>b</sup>
Washers	ASTM F 844
Hardened Washers	ASTM F 436, Type 1, including S1 supplementary requirements
Components of HS steel fastener assemblies for use in structural steel joints:	
Bolts	ASTM A 325, Type 1
Tension control bolts	ASTM F 1852, Type 1
Nuts	ASTM A 563, including appendix X1 <sup>b</sup>
Hardened washers	ASTM F 436, Type 1, Circular, including S1 supplementary requirements
Direct tension indicators	ASTM F 959, Type 325, zinc-coated

<sup>a</sup>Use hardened washers.

<sup>b</sup>Zinc-coated nuts tightened beyond snug or wrench tight must be furnished with a dry lubricant complying with supplementary requirement S2 in ASTM A 563.

Replace the 3rd table in the 1st paragraph of section 55-1.02A(1) with:

07-19-13

<b>Other Materials</b>	
Material	Specification
Carbon steel for forgings, pins, and rollers	ASTM A 668/A 668M, Class D
Alloy steel for forgings	ASTM A 668/A 668M, Class G
Pin nuts	ASTM A 709/A 709M or ASTM A 563, including appendix X1 <sup>a</sup>
Carbon-steel castings	ASTM A 27/A 27M, Grade 65-35, Class 1
Malleable iron castings	ASTM A 47/A 47M, Grade 32510
Gray iron castings	ASTM A 48, Class 30B
Carbon steel structural tubing	ASTM A 500/A 500M, Grade B, ASTM A 501, ASTM A 847/A 847M, or ASTM A 1085
Steel pipe <sup>b</sup>	ASTM A 53, Type E or S, Grade B; ASTM A 106, Grade B; or ASTM A 139, Grade B
Stud connectors	ASTM A 108

<sup>a</sup>Zinc-coated nuts tightened beyond snug or wrench tight must be furnished with a dry lubricant complying with supplementary requirement S2 in ASTM A 563.

<sup>b</sup>Hydrostatic testing will not apply.

**Replace the table in the 1st paragraph in section 55-1.02A(2) with:**

07-19-13

Material complying with ASTM A 709/A 709M	CVN impact value (ft-lb at temperature)
Grade 36	15 at 40 °F
Grade 50 <sup>a</sup> (Thickness up to 2 inches)	15 at 40 °F
Grade 50W <sup>a</sup> (Thickness up to 2 inches)	15 at 40 °F
Grade 50 <sup>a</sup> (Thickness over 2 inches up to 4 inches )	20 at 40 °F
Grade 50W <sup>a</sup> (Thickness over 2 inches up to 4 inches)	20 at 40 °F
Grade HPS 50W <sup>a</sup> (Thickness up to 4 inches)	20 at 10 °F
Grade HPS 70W (Thickness up to 4 inches)	25 at -10 °F
Grade 100 (Thickness of 2-1/2 inches or less)	25 at 0 °F
Grade 100W (Thickness over 2-1/2 inches up to 4 inches)	35 at 0 °F
Grade HPS 100W (Thickness of 2-1/2 inches or less)	25 at -30 °F
Grade HPS 100W (Thickness over 2-1/2 inches up to 4 inches)	35 at -30 °F

<sup>a</sup>If the material yield strength is more than 65,000 psi, reduce the temperature for the CVN impact value 15 degrees F for each increment of 10,000 psi above 65,000 psi.

**Replace the 1st sentence of the 1st paragraph in section 55-1.02A(5) with:**

07-19-13

Steel, gray iron, and malleable iron castings must have continuous fillets cast in place in reentrant angles.

**Delete the 3rd and 4th sentences in the 2nd paragraph in section 55-1.02A(5).**

07-19-13

**Replace the 1st paragraph of section 55-1.02B(1) with:**

07-19-13

Section 55-1.02B(1) applies to work performed at the source and at the job site.

**Replace the 4th paragraph in section 55-1.02B(1) with:**

07-19-13

Ends of girder stiffeners shown as tight-fit must bear on the girder flange with at least point bearing. Local clearances between the end of the stiffener and the girder flange must be at most 1/16 inch.

**Replace the 1st sentence of the 5th paragraph in section 55-1.02B(1) with:**

07-19-13

Fabricate floor beams, stringers, and girders having end connection angles to exact length back to back of connection angles.

**Add to the 7th paragraph in section 55-1.02B(1):**

07-19-13

Use low-stress stamps for fracture critical members and tension members.

**Replace the 2nd sentence of the 9th paragraph in section 55-1.02B(1) with:**

07-19-13

Slightly round edges and sharp corners, including edges marred, cut, or roughened during handling or erection.

**Replace the 3rd paragraph in section 55-1.02B(2) with:**

07-19-13

Instead of machining, you may heat straighten steel not in contact with other metal bearing surfaces if the above tolerances are met.

**Replace item 2 in the list in the 1st paragraph of section 55-1.02B(3) with:**

07-19-13

2. Radius of bend measured to the concave face must comply with *Manual of Steel Construction* of the AISC

**Replace the 1st sentence of the 2nd paragraph in section 55-1.02B(3) with:**

07-19-13

Plates to be bent to a smaller radius than specified in *Manual of Steel Construction* of the AISC must be bent hot.

**Replace the introductory clause of the 2nd paragraph of section 55-1.02B(4) with:**

07-19-13

Threads for pin ends and pin nuts 1-1/2 inches or more in diameter must comply with the following:

**Replace the 3rd paragraph in section 55-1.02B(5) with:**

07-19-13

Holes for pins must be:

1. True to the diameter specified.
2. At right angles to the member axis.
3. Parallel with each other except for pins where nonparallel holes are required.
4. Smooth and straight with the final surface produced by a finishing cut.

**Replace the 1st paragraph in section 55-1.02B(6)(c) with:**

07-19-13

Bolted connections using HS fastener assemblies must comply with *Specification for Structural Joints Using High-Strength Bolts* of the RCSC.

**Replace the 7th paragraph in section 55-1.02B(6)(c) with:**

07-19-13

For all bolts, thread stickout after tensioning must be at least flush with the outer nut face. At least 3 full threads must be located within the grip of the connection.

**Delete the 3rd paragraph in section 55-1.02B(7)(a).**

**Add to section 55-1.02B(7)(a):**

07-19-13

For welds indicated to be subject to tensile forces that are to receive RT, grind smooth and flush on both sides of welds before testing.

For groove weld surface profiles that interfere with NDT procedures, grind welds smooth and blend with the adjacent material.

For fillet weld surface profiles that interfere with NDT procedures, grind welds and blend the toes smoothly with the adjacent base metal.

**Add to section 55-1.02B(7):**

07-19-13

**55-1.02B(7)(c) Steel Pedestrian Bridges**

Reserved

**Replace the 1st paragraph in section 55-1.02B(9) with:**

07-19-13

Prepare and paint contact surfaces of HS bolted connections before assembly. Thoroughly clean all other surfaces of metal in contact to bare metal before assembly. Remove all rust, mill scale, and foreign material.

**Replace the 1st sentence of the 4th paragraph in section 55-1.02B(9) with:**

07-19-13

Preassemble truss work in lengths of at least 3 abutting panels and adjust members for line and camber.

**Replace the 1st sentence of the 5th paragraph in section 55-1.02B(9) with:**

07-19-13

Preassemble bolted splice joints for plate girders in lengths of at least 3 abutting sections and adjust abutting sections for line and camber.

**Replace the 6th paragraph in section 55-1.02B(9) with:**

07-19-13

Preassemble prepared splice joints for welded girders with abutting members and adjust for line and camber.

**Replace the paragraphs in section 55-1.03C(1) with:**

07-19-13

Reserved

**Replace the 3rd sentence of the 1st paragraph in section 55-1.03C(2) with:**

07-19-13

Attain full bearing on the concrete under bearing assemblies.







## 59 PAINTING

11-15-13

**Replace "SSPC-SP 10" at each occurrence in section 59 with:**

SSPC-SP 10/NACE no. 2

10-19-12

**Replace "SSPC-SP 6" at each occurrence in section 59 with:**

SSPC-SP 6/NACE no. 3

10-19-12

**Replace "SSPC-CS 23.00" at each occurrence in section 59 with:**

SSPC-CS 23.00/AWS C 2.23M/NACE no. 12

10-19-12

**Replace "*Specification for Structural Joints Using ASTM A325 or A 490 Bolts*" in the 1st paragraph of section 59-2.01C(1) with:**

*Specification for Structural Joints Using High-Strength Bolts*

07-19-13

**Replace "SSPC-QP 3 or AISC SPE, Certification P-1 Enclosed" in item 3 in the list in the 1st paragraph of section 59-2.01D(1) with:**

AISC-420-10/SSPC-QP 3 (Enclosed Shop)

10-19-12

**Replace "*Specification for Structural Joints Using ASTM A325 or A 490 Bolts*" in the 1st paragraph of section 59-2.02 with:**

*Specification for Structural Joints Using High-Strength Bolts*

07-19-13

**Replace the paragraphs in section 59-2.03A with:**

Clean and paint all exposed structural steel and other metal surfaces.

10-19-12

You must provide enclosures for cleaning and painting structural steel. Cleaning and painting of new structural steel must be performed in an Enclosed Shop as defined in AISC-420-10/SSPC-QP 3. Maintain atmospheric conditions inside enclosures within specified limits.

Except for blast cleaning within closed buildings, perform blast cleaning and painting during daylight hours.

**Add to section 59-2.03B:**

07-19-13

### **59-2.03B(3) Containment Systems**

#### **59-2.03B(3)(a) General**

Construct containment systems when disturbing existing paint systems during bridge rehabilitation.

The containment system must be one of the following:

1. Ventilated containment system
2. Vacuum-shrouded surface preparation equipment and drapes and ground covers
3. Equivalent containment system if authorized

The containment system must contain all water, resulting debris, and visible dust produced when the existing paint system is disturbed.

Properly maintain the containment system while work is in progress and do not change the containment system unless authorized.

Containment systems over railroad property must provide the minimum clearances as specified in section 5-1.20C for the passage of railroad traffic.

### **59-2.03B(3)(b) Ventilated Containment Systems**

#### **59-2.03B(3)(b)(i) General**

If flexible framing is used, support and fasten it to (1) prevent the escape of abrasive and blast materials due to whipping from traffic or wind and (2) maintain clearances.

If the wind speed reaches 50 mph or greater, relieve the wind pressure on the containment system using an authorized method.

#### **59-2.03B(3)(b)(ii) Design Criteria**

Scaffolding or supports for the ventilated containment system must not extend below the vertical clearance level nor to the ground line at locations within the roadbed.

For truss-type bridges, all connections of the ventilated containment system to the existing structure must be made through the deck, girder, stringer, or floor beam system. No connections are allowed that will cause bending stresses in a truss member.

The ventilated containment system must comply with section 7-1.02K(6)(e).

The minimum total design load for the ventilated containment system must consist of the sum of the dead and live vertical loads.

Dead and live loads are as follows:

1. Dead load must consist of the actual load of the ventilated containment system
2. Live loads for bridges with only spot blast cleaning work must consist of:
  - 2.1. Uniform load of at least 25 psf applied over the supported area
  - 2.2. Moving concentrated load of 1000 lb to produce maximum stress in the main supporting elements of the ventilated containment system
3. Live loads for bridges with 100 percent blast cleaning to bare metal must consist of:
  - 3.1. Uniform load of at least 45 psf, which includes 20 psf of sand load, applied over the supported area
  - 3.2. Moving concentrated load of 1000 lb to produce maximum stress in the main supporting elements of the ventilated containment system

Assumed horizontal loads do not need to be included in the design of the ventilated containment system.

Maximum allowable stresses must comply with section 48-2.01D(3)(c).

#### **59-2.03B(3)(b)(iii) Ventilation**

The ventilation system in the ventilated containment system must be of the forced input airflow type with fans or blowers.

Negative air pressure must be employed within the ventilated containment system and will be verified by visual methods by observing the concave nature of the ventilated containment system while taking into account wind effects or by using smoke or other visible means to observe airflow. The input airflow must be properly balanced with the exhaust capacity throughout the range of operations.

The exhaust airflow of the ventilation system in the ventilated containment system must be forced into wet or dry dust collectors or bag houses.

Replace item 1 in the list in the 2nd paragraph of section 59-2.03C(1) with:

10-19-12

1. Apply a stripe coat of undercoat paint on all edges, corners, seams, crevices, interior angles, junctions of joining members, weld lines, and similar surface irregularities. The stripe coat must completely hide the surface being covered. If spot blast cleaning portions of the bridge, apply the stripe coat of undercoat paint before each undercoat and follow with the undercoat as soon as practical. If removing all existing paint from the bridge, apply the undercoat first as soon as practical and follow with the stripe coat of undercoat paint for each undercoat.

Replace the heading of section 59-2.03C(2) with:

04-19-13

### Zinc Coating System

Add to section 59-2.03C(2)(a):

04-19-13

Coatings for new structural steel and connections between new and existing structural steel must comply with the requirements shown in the following table:

**Zinc Coating System**

Description	Coating	Dry film thickness (mils)
<b>All new surfaces:</b>		
Undercoat	Inorganic zinc primer, AASHTO M 300 Type I or II	4–8
Finish coat <sup>a</sup>	Exterior grade latex <sup>b</sup> , 2 coats	2 minimum each coat, 4–8 total
Total thickness, all coats		8–14
<b>Connections to existing structural steel:<sup>c</sup></b>		
Undercoat	Inorganic zinc primer, AASHTO M 300 Type I or II	4–8
Finish coat <sup>a</sup>	Exterior grade latex <sup>b</sup> , 2 coats	2 minimum each coat, 4–8 total
Total thickness, all coats		8–14

<sup>a</sup>If no finish coats are described, a final coat of inorganic zinc primer is required.

<sup>b</sup>Exterior grade latex must comply with section 91-2.02 unless otherwise specified.

<sup>c</sup>Includes the following locations:

1. New and existing contact surfaces
2. Existing member surfaces under new HS bolt heads, nuts, or washers
3. Bare surfaces of existing steel after trimming, cutting, drilling, or reaming
4. Areas within a 4-inch radius from the point of application of heat for welding or flame cutting

Replace "*Specification for Structural Joints Using ASTM A325 or A 490 Bolts*" in the 7th paragraph of section 59-2.03C(2)(b)(i) with:

07-19-13

*Specification for Structural Joints Using High-Strength Bolts*

**Add to section 59-2.03C:**

04-19-13

**59-2.03C(3) Moisture-Cured Polyurethane Coating System**

Reserved

**59-2.03C(4) State Specification Paint Waterborne Coating System**

**59-2.03C(4)(a) General**

The State Specification PWB coating system for existing structural steel must comply with the requirements shown in the following table:

<b>State Specification PWB Coating System</b>			
Surface	Description	State Specification PWB Coating	Dry film thickness (mils)
Surfaces cleaned to bare metal <sup>a</sup> :	1st undercoat	145	2-3
	2nd undercoat	146	2-3
	1st finish coat	171	1.5-3
	2nd finish coat	172	1.5-3
	Total thickness, all coats	--	7-12
Existing painted surfaces to be topcoated:	Undercoat	146	2-3
	1st finish coat	171	1.5-3
	2nd finish coat	172	1.5-3
	Total thickness, new coats	--	5-9

<sup>a</sup>Includes locations of spot blast cleaning

**59-2.03C(4)(b) Finish Coats**

11-15-13

Reserved

**Add to section 59-5.01:**

04-19-13

Where specified, prepare and paint sign structures under sections 59-2 and 59-3.

Instead of submitting proof of the certification complying with SSPC-QP 1, you may submit documentation with the painting quality work plan showing compliance with the requirements in section 3 of SSPC-QP 1.

Instead of submitting proof of the certification complying with SSPC-QP 2, you may submit documentation with the painting quality work plan showing compliance with the requirements in sections 4.2 through 4.4 of SSPC-QP 2, Category A.

Instead of submitting proof of the certification complying with AISC-420-10/SSPC-QP 3 (Enclosed Shop), you may submit documentation with the painting quality work plan showing compliance with the requirements in sections 5 through 18 of AISC-420-10/SSPC-QP3.

**Replace the paragraphs of section 59-5.03 with:**

04-19-13

**59-5.03A General**

You may prepare and paint sign structures before or after erection. After erection, repair damaged paint to the satisfaction of the Engineer.

The total dry film thickness of finish coats on contact surfaces of galvanized HS bolted connections (1) must be from 1 to 4 mils and (2) may be applied in 1 application.

**59-5.03B Undercoating of Ungalvanized Surfaces**

Blast-cleaned surfaces must receive a single undercoat consisting of an inorganic zinc coating as specified in AASHTO M 300, Type I or Type II, except:

1. The first 2 sentences of section 5.6 do not apply
2. Section 5.6.1 does not apply

If you propose to use a coating that is not on the Authorized Material List, submit the required documentation specified in section 5.6 of AASHTO M 300. Allow 30 days for the Engineer's review.

#### **59-5.03C Testing of Inorganic Zinc Coating**

Perform adhesion and hardness testing no sooner than 72 hours after application of the single undercoat of inorganic zinc coating.

#### **59-5.03D Finish Coating**

The exposed area of inorganic zinc coating must receive a minimum of 2 finish coats of exterior grade latex paint.

The 1st finish coat color must match no. 24558 of FED-STD-595. The 2nd finish coat color must match no. 24491 of FED-STD-595. The total dry film thickness of the applications of the 2nd finish coat must be not less than 2 mils.

**Replace section 59-7 with:**

07-19-13

### **59-7 STAINING CONCRETE AND SHOTCRETE**

#### **59-7.01 GENERAL**

##### **59-7.01A General**

##### **59-7.01A(1) Summary**

Section 59-7.01 includes specifications for preparing and staining concrete and shotcrete surfaces using an acid stain.

##### **59-7.01A(2) Definitions**

Reserved

##### **59-7.01A(3) Submittals**

Submit stain manufacturer's product data and application instructions at least 7 days before starting staining activities.

##### **59-7.01A(4) Quality Control and Assurance**

Reserved

##### **59-7.01B Materials**

##### **59-7.01B(1) General**

Reserved

##### **59-7.01B(2) Stain**

Stain must:

1. Be a water-based solution of inorganic metallic salts
2. Contain dilute acid that penetrates and etches the concrete or shotcrete surface
3. Be a commercial quality product designed specifically for exterior applications
4. Produce abrasion-resistant color deposits

##### **59-7.01B(3) Sealer**

Reserved

##### **59-7.01B(4) Joint Sealing Compound**

Reserved

### **59-7.01C Construction**

#### **59-7.01C(1) General**

Seal joints between concrete and shotcrete surfaces to be stained and adjacent metal with joint sealing compound before applying the stain.

Test surfaces for acceptance of the stain before applying the stain. Clean surfaces that resist accepting the stain and retest until passing.

Apply the stain under the manufacturer's instructions.

Before staining, the concrete or shotcrete surfaces must be:

1. At least 28 days old
2. Prepared under SSPC-SP 13/NACE no. 6
3. Thoroughly dry

Apply the stain uniformly to avoid excessive rundown. Work the stain into the concrete using a nylon bristle brush in a circular motion.

After the last coat of stain has dried, rinse stained surfaces with water and wet scrub with a stiff bristle nylon brush until the rinse water runs clear. Collect all rinse water.

Protect adjacent surfaces during staining.

Thoroughly cure each application of the stain and correct skips, holidays, thin areas, or other deficiencies before the next application.

Drips, puddles, or other irregularities must be worked into the concrete or shotcrete surface.

#### **59-7.01C(2) Test Panel**

For staining concrete or shotcrete, stain a test panel complying with section 51-1.01D(3).

For staining sculpted shotcrete, stain a test panel complying with section 53-3.01D(3).

The test panel must be:

1. Stained using the same personnel, materials, equipment and methods to be used in the work
2. Accessible for viewing
3. Displayed in an upright position near the work
4. Authorized for staining before starting the staining work

If ordered, construct additional test panels until a satisfactory color is attained.

The Engineer uses the authorized stained test panel to determine the acceptability of the stained surface.

Dispose of the test panels after the staining work is complete and authorized. Notify the Engineer before disposing of the test panels.

#### **59-7.01D Payment**

Not Used

### **59-7.02 SCULPTED SHOTCRETE AND TEXTURED CONCRETE**

#### **59-7.02A General**

##### **59-7.02A(1) Summary**

Section 59-7.02 includes specifications for preparing and staining sculpted shotcrete and textured concrete surfaces using an acid stain.

##### **59-7.02A(2) Definitions**

Reserved

### **59-7.02A(3) Submittals**

#### **59-7.02A(3)(a) General**

Reserved

#### **59-7.02A(3)(b) Experience Qualifications**

Submit the following documentation of the staining subcontractor's experience at least 10 days before the preconstruction meeting:

1. Summary of the staining subcontractor's experience that demonstrates compliance with section 59-7.02A(4)(b).
2. List of at least 3 projects completed in the last 5 years that demonstrate the staining subcontractor's ability to stain textured concrete or sculpted shotcrete surfaces similar to the textured concrete or sculpted shotcrete for this project. For each project include:
  - 2.1. Project description
  - 2.2. Name and phone number of the owner
  - 2.3. Staining completion date
  - 2.4. Color photos of the completed stained surface

#### **59-7.02A(3)(c) Installation Plan**

Submit an installation plan at least 10 days before the preconstruction meeting. The installation plan must include details for preparing and staining the textured concrete or sculpted shotcrete to achieve the required color, including:

1. Number of applications that will be used to apply the stain
2. For each application of the stain, a description of:
  - 2.1. Manufacturer, color, finish, and percentage strength mixture of the stain that will be applied
  - 2.2. Methods and tools that will be used to apply the stain
3. Methods for protecting adjacent surfaces during staining
4. Rinse water collection plan for containing all liquid, effluent, and residue resulting from preparing and staining textured concrete or sculpted shotcrete

### **59-7.02A(4) Quality Control and Assurance**

#### **59-7.02A(4)(a) General**

Reserved

#### **59-7.02A(4)(b) Contractor Qualifications**

The staining subcontractor must:

1. Have experience in staining textured concrete or sculpted shotcrete surfaces to simulate the appearance of natural rock formations or stone masonry
2. Have successfully completed at least 3 projects in the past 5 years involving staining of concrete or sculpted shotcrete surfaces similar to the textured concrete or sculpted shotcrete for this project

#### **59-7.02A(4)(c) Preconstruction Meeting**

Before starting staining activities, conduct a meeting to discuss the installation plan. Meeting attendees must include the Engineer and all staining subcontractors.

### **59-7.02B Materials**

Not Used

### **59-7.02C Construction**

Not Used

### **59-7.02D Payment**

Prepare and stain concrete and prepare and stain shotcrete are measured by the area of the vertical or sloped wall face stained.

Replace "solider" in the 5th paragraph of section 59-9.03 with:

04-19-13

soldier

Replace section 59-11 with:

07-19-13

**59-11 STAINING GALVANIZED SURFACES**

Reserved

Replace section 59-12 with:

07-19-13

**59-12 ROCK STAINING**

**59-12.01 GENERAL**

**59-12.01A Summary**

Section 59-12 includes specifications for applying stain to the exterior surface of landscape boulders, native rock that has been damaged or scarred, rock energy dissipaters, rock slope protection and gabion surfaces.

**59-12.01B Submittals**

Submit the following:

1. Work plan showing methods to control overspray and spillage, and to protect adjacent surfaces
2. Product data including the manufacturer's product sheet and the instructions for the application of the stain

**59-12.01C Quality Control and Assurance**

**59-12.01C(1) General**

Reserved

**59-12.01C(2) Test Plot**

Apply the stain to a test plot rock area of at least 3 by 3 feet at a location designated by the Engineer. Notify the Engineer at least 7 days before staining the test plot. Prepare and stain the test plot with the same materials, tools, equipment, and methods to be used in staining the final surfaces. Separate test plots are required for staining rock slope protection and native rock.

If ordered, prepare additional test plots. Additional test plots are change order work.

Obtain authorization of the test plot before starting the staining work. Use the authorized test plot as the standard for comparison in determining acceptability of staining. If the test plot is not incorporated into the work and the Engineer determines it is no longer needed, dispose of it.

**59-12.02 MATERIALS**

**59-12.02A General**

Reserved

**59-12.02B Stain**

Reserved

**59-12.03 CONSTRUCTION**

**59-12.03A General**

Reserved

**59-12.03B Preparation**

Before applying the stain:





AA

**65 CONCRETE PIPE**

07-19-13

**Replace the 2nd paragraph of section 65-1.01 with:**

10-19-12

Concrete pipe includes all necessary elbows, wyees, tees, other branches, concrete collars or tees, and reinforcement.

**Replace section 65-2.02D with:**

07-19-13

**65-2.02D Reserved**

AA

**70 MISCELLANEOUS DRAINAGE FACILITIES**

07-19-13

**Replace section 70-5.02A(2) with:**

01-20-12

**70-5.02A(2) Plastic Flared End Sections**

Plastic flared end sections must comply with ASTM D 3350.

**Replace "40-1.03N" in item 2.4 of the 1st paragraph of section 70-5.06C with:**

07-19-13

40-1.03K

**Replace the 2nd, 3rd, and 4th paragraphs of section 70-7.02B with:**

01-18-13

Before shipping, the exterior surfaces of the casing must be cleaned, primed, and coated to comply with ANSI/AWWA C213 or ANSI/AWWA C214.

Wrapping tape for repairing damaged coating and wrapping field joints and fittings must be a pressure-sensitive PVC or polyethylene tape with a minimum thickness of 50 mils, 2 inches wide.

**Add to section 70-7.03:**

01-18-13

Repair damaged coating on the casing and wrap field joints and fittings with wrapping tape as follows:

1. Before wrapping, thoroughly clean and prime the pipe casing, joints, and fittings under the tape manufacturer's instructions.
2. Wrap the tape tightly with 1/2 uniform lap, free from wrinkles and voids to provide not less than a 100-mil thickness.
3. Wrapping at joints must extend at least 6 inches over adjacent pipe casing coverings. Apply tension such that the tape will conform closely to contours of the joint.











**Replace "Metal rail posts, box spacers, and" in item 1 in the list in the 25th paragraph of section 83-1.02B with:**

Metal box spacers and

07-19-13

**Delete items 6 and 7 in the list in the 25th paragraph of section 83-1.02B.**

07-19-13

**Replace "Type WB" at each occurrence in section 83-1.02B(2) with:**

Type WB-31

07-19-13

**Replace the heading of section 83-1.02B(3) with:**

**Temporary Midwest Guardrail System**

07-19-13

**Replace "80-2.02" in the 2nd paragraph of section 83-1.02E with:**

80-3.02B

10-19-12

**Replace "sets" in the 10th paragraph of section 83-1.02G(2) with:**

copies

07-19-13

**Replace the 1st sentence of the 1st paragraph of section 83-1.03 with:**

Except for guardrail within the pay limits of a terminal system, a transition railing (Type WB-31), an end anchor assembly, or a rail tensioning assembly, midwest guardrail system is measured along the face of the rail element from end post to end post of the completed railing.

11-15-13

**Add to section 83-2.02D(1):**

For a concrete barrier transition:

1. Remove portions of the existing concrete barrier where shown under section 15-3
2. Roughen the contact surface of the existing concrete barrier
3. Drill and bond dowels into the existing concrete barrier under section 51-1

10-21-11

**Add to section 83-2.02:**

**83-2.02H–83-2.02M Reserved**

10-19-12

AA





**detector:** Detector as defined in the *California MUTCD*.

**electrolier:** Assembly of a lighting standard and luminaire.

**flasher:** Device for opening and closing signal circuits at a repetitive rate.

**flashing beacon control assembly:** Assembly of switches, circuit breakers, terminal blocks, flasher, wiring, and other necessary electrical components housed in a single enclosure for operating a beacon.

**inductive loop detector:** Detector capable of being actuated by an inductance change caused by a vehicle passing or standing over the loop.

**lighting standard:** Pole and mast arm supporting the luminaire.

**luminaire:** Assembly that houses the light source and controls the light emitted from the light source.

**magnetic detector:** Detector capable of being actuated by an induced voltage caused by a vehicle passing through the earth's magnetic field.

**powder coating:** Coating applied electrostatically using exterior-grade UV-stable polymer powder.

**pretimed controller assembly:** Assembly operating traffic signals under a predetermined cycle length.

**pull box:** A box with a cover that is installed in an accessible place in a run of conduit to facilitate the pulling in of wires or cables.

**signal face:** Signal face as defined in the *California MUTCD*.

**signal head:** Signal head as defined in the *California MUTCD*.

**signal indication:** Signal indication as defined in the *California MUTCD*.

**signal section:** Signal section as defined in the *California MUTCD*.

**signal standard:** Pole and mast arm supporting 1 or more signal faces with or without a luminaire mast arm.

**traffic-actuated controller assembly:** Assembly for operating traffic signals under the varying demands of traffic as registered by detector actuation.

**traffic phase:** Signal phase as defined in the *California MUTCD*.

**vehicle:** Vehicle as defined in the *California Vehicle Code*.

**Replace the paragraphs in section 86-1.02 with:**

07-19-13

Comply with 8 CA Code of Regs § 2299 et seq.

Electrical equipment must comply with one or more of the following standards:

1. ANSI
2. ASTM
3. EIA
4. NEMA
5. NETA
6. UL
7. Public Utilities Commission, General Order No. 95, "Rules for Overhead Electrical Sign Construction"
8. Public Utilities Commission, General Order No. 128, "Rules for Construction of Underground Electric Supply and Communication Systems"

Materials and workmanship must comply with:

1. FCC rules

2. ITE standards
3. NEC
4. California Electrical Code

Electrical equipment and materials must be NRTL certified wherever applicable.

**Replace the paragraphs in section 86-1.03 with:**

07-19-13

Submit a schedule of values within 15 days after Contract approval.

Determine the quantities required to complete the work. Submit the quantities as part of the schedule of values.

Provide a schedule of values for each lump sum bid item.

Do not include costs for the traffic control system in the schedule of values.

The schedule of values must include the type, size, and installation method for:

1. Foundations
2. Standards and poles
3. Conduit
4. Pull boxes
5. Conductors and cables
6. Service equipment enclosures
7. Telephone demarcation cabinets
8. Vehicle signal heads and hardware
9. Pedestrian signal heads and hardware
10. Push buttons
11. Loop detectors
12. Luminaires and lighting fixtures
13. Materials shown in the quantity tables on plan sheets labeled *E*

**Replace the paragraphs in section 86-1.04 with:**

07-19-13

Within 15 days of Contract approval, submit a list of equipment and materials that you propose to install. Submit the list before shipping equipment or materials to the job site. The list must include the following information:

1. Manufacturer's name
2. Make and model number
3. Month and year of manufacture
4. Lot and serial numbers
5. Dimensions
6. List of components
7. Manufacturer's installation instructions
8. Contract number
9. Your contact information

Supplement the list with 2 copies of the following data:

1. Schematic wiring diagrams
2. Scale drawings of cabinets showing location and spacing of shelves, terminal blocks, and equipment, including dimensions
3. Operation manual

Electrical equipment constructed as shown does not require detailed drawings and diagrams.

Submit 3 sets of computer-generated schematic wiring diagrams for the cabinet.

Place the schematic wiring diagram in a heavy-duty plastic envelope and attach it to the inside of the cabinet door.

Prepare diagrams, plans, and drawings using graphic symbols in IEEE 315, "Graphic Symbols for Electrical and Electronic Diagrams."

**Replace the 5th paragraph of section 86-2.04B(2) with:**

07-19-13

HS bolts, nuts, and flat washers used to connect slip base plates must comply with the requirements for HS fastener assemblies for use in structural steel joints in section 55-1.02A(1) except rotational capacity testing and tension testing are not required.

07-19-13

**Delete the row for standard Type 36-20A in the table in the 6th paragraph of section 86-2.04B(2).**

**Replace the 10th paragraph of section 86-2.04B(2) with:**

07-19-13

Bolted connections attaching signal or luminaire arm to the pole must be considered slip critical. Galvanized faying surfaces of plates on luminaire arm, signal arm, and pole must be roughened by hand using a wire brush before assembly and must comply with requirements for Class C surface conditions for slip-critical connections in *Specification for Structural Joints Using High-Strength Bolts* of the RCSC. Coatings for faying surfaces must comply with the RCSC specification for Class B coatings.

**Replace the 1st sentence of item 8 in the list in the 1st paragraph of section 86-2.04B(3) with:**

07-19-13

During manufacturing, longitudinal seams on vertical tubular members of cantilevered support structures must be within 90 degrees circumferentially of the center of the longest mast arm connection.

07-19-13

**Delete item 15.3 in the list in the 1st paragraph of section 86-2.04B(3).**

**Add between "Exposed" and "conduit" in the 2nd paragraph of section 86-2.05B:**

07-19-13

Type 1

**Replace the 1st sentence of the 10th paragraph of section 86-2.05C with:**

07-19-13

After installing conduit, install the pull tape.

**Replace the 1st sentence of the 15th paragraph of section 86-2.05C with:**

11-15-13

Conduit runs shown to be located behind curbs may be installed in the street within 3 feet of and parallel to the face of the curb by the trenching in pavement method.

**Replace the 1st and 2nd sentences of the 2nd paragraph of section 86-2.05D with:**

07-19-13

Install an expansion-deflection fitting for expansion joints with a 1-1/2-inch movement rating. The fitting must be watertight and include a molded neoprene sleeve, a bonding jumper, and 2 silicon bronze or zinc-plated iron hubs.

**Replace section 86-2.06 with:**

07-19-13

**86-2.06 PULL BOXES**

**86-2.06A General**

**86-2.06A(1) Cover Marking**

The cover marking must be clearly defined, uniform in depth, and parallel to either the long or short sides of the cover.

Marking letters must be 1 to 3 inches high.

Before galvanizing steel or cast iron cover, apply marking by one of the following methods:

1. Use cast iron strip at least 1/4 inch thick with letters raised a minimum of 1/16 inch. Fasten strip to cover with 1/4-inch flathead stainless steel machine bolts and nuts. Peen bolts after tightening.
2. Use sheet steel strip at least 0.027 inch thick with letters raised a minimum of 1/16 inch. Fasten strip to cover by spot welding, tack welding, or brazing, with 1/4-inch stainless steel rivets or 1/4-inch roundhead stainless steel machine bolts and nuts. Peen bolts after tightening.
3. Bead weld the letters on cover such that the letters are raised a minimum of 3/32 inch.

**86-2.06A(2) Installation and Use**

Space pull boxes no more than 200 feet apart. You may install additional pull boxes to facilitate the work.

You may use a larger standard size pull box than that shown on the plans or specified.

A pull box in ground or sidewalk area must be installed as follows:

1. Embed bottom of the pull box in crushed rock.
2. Place a layer of roofing paper on the crushed rock.
3. Place grout over the layer of roofing paper. Grout must be 0.50 to 1 inch thick and sloped toward the drain hole.
4. Make a 1-inch drain hole in the center of the pull box through the grout and roofing paper.
5. Place grout between the pull box and the pull box extension, and around conduits.

The top of the pull box must be flush with the surrounding grade or the top of an adjacent curb, except in unpaved areas where the pull box is not immediately adjacent to and protected by a concrete foundation, pole, or other protective construction. Place the pull box 1-1/4 inches above the surrounding grade. Where practical, place a pull box shown in the vicinity of curbs or adjacent to a standard on the side of the foundation facing away from traffic. If a pull box is installed in a sidewalk area, adjust the depth of the pull box so that the top of the pull box is flush with the sidewalk.

Reconstruct the sump of an existing pull box if disturbed by your activities. Remove old grout and replace with new if the sump was grouted.

**86-2.06B Non-Traffic Pull Boxes**

Reserved

**86-2.06C Traffic Pull Boxes**

The traffic pull box and cover must comply with ASTM C857, "Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures," for HS20 loading. You must be able to place the load anywhere on the box and cover for 1 minute without causing cracks or permanent deformations.

Frame must be anchored to the box with 1/4 by 2-1/4 inch concrete anchors. Four concrete anchors must be included for No. 3-1/2(T) pull box; one placed in each corner. Six concrete anchors must be included for No. 5(T) and No. 6(T) pull boxes; one placed in each corner and one near the middle of each of the longer sides.

Nuts must be zinc-plated carbon steel, vibration resistant, and have a wedge ramp at the root of the thread.

After installation of traffic pull box, install the steel cover and keep it bolted down when your activities are not in progress at the pull box. When the steel cover is placed for the final time, the cover and Z bar frame must be cleaned of debris and tightened securely.

Steel cover must be countersunk approximately 1/4 inch to accommodate the bolt head. When tightened, the bolt head must not exceed more than 1/8 inch above the top of the cover.

Concrete placed around and under traffic pull boxes must be minor concrete.

**Replace the 11th row in the table in the 1st paragraph of section 86-2.08B with:**

07-19-13

Grounded circuit conductor	Pedestrian push buttons	Wht	Blk	NBR	14
	Signals and multiple lighting	Wht	None	NBR	10
	Flashing beacons and sign lighting	Wht	None	NBR	12
	Lighting control	Wht	None	C-3	14
	Service	Wht	None	NBR	14

**Replace the 1st sentence of the 1st paragraph of section 86-2.08C with:**

07-19-13

Circuit conductors, connectors, and terminals must be UL or NRTL listed and rated for 600 V(ac) operation.

**Add to the beginning of section 86-2.09A:**

07-19-13

Provide enough traffic signal light conductors for functional operation of the signal. Provide 3 spare conductors in all conduits containing traffic signal light conductors.

**Replace the paragraphs in section 86-2.09C with:**

07-19-13

Connectors must be crimp type. Use a manufacturer-recommended tool for connectors and terminals to join conductors. Comply with SAE-AS7928.

Terminate stranded conductors smaller than no. 14 in crimp style terminal lugs.

Terminate field conductors no. 12 and smaller with spade type terminals. Terminate field conductors no. 10 and larger with spade type or ring type terminals.

**Replace the value for resistivity in the table in the 6th paragraph of section 86-2.09E with:**

07-19-13

25 x 10<sup>13</sup> Ω per inch, minimum

**Add between "the" and "head" in the 3rd sentence of the 2nd paragraph of 86-2.09F:**

connector

07-19-13

**Replace "project" in the 3rd paragraph of section 86-2.11A with:**

work

10-19-12

**Replace "Contract" in item 2 in the list in the 11th paragraph of section 86-2.11A with:**

work

10-19-12

**Delete the 12th paragraph of section 86-2.11A.**

07-19-13

**Replace section 86-2.11C with:**

**86-2.11C Electrical Service for Booster Pumps**

Provide electrical service from the service point to the booster pump.

Furnish conductors, conduit, and pull boxes from the service point to the booster pump.

Do not use Type 3 conduit unless shown otherwise.

07-19-13

**Replace section 86-2.14A with:**

**86-2.14A General**

Deliver material and equipment for acceptance testing to either METS or a testing location as ordered.

Allow 30 days for testing. The Department notifies you when testing is complete. You must pick up the material or equipment from the test site and deliver it to the job site.

If material or equipment is rejected, allow 30 days for retesting. The retesting period starts when replacement material or equipment is delivered to the test site.

If material or equipment submitted for testing does not comply with the specifications, remove it within 5 business days after you are notified that the equipment is rejected. If equipment is not removed within that period, the Department may ship it to you and deduct the shipping cost.

Testing and quality control procedures for traffic signal controller assemblies must comply with NEMA TS standards for traffic control systems.

07-19-13

**Replace the 2nd paragraph of section 86-3.02A(1) with:**

The Department furnishes the BBS components under section 6-2.03.

07-19-13

**Replace the 9th paragraph of section 86-3.02B with:**

07-19-13

The couplings between the external cabinet and Model 332L cabinet must include a conduit for power connections between the 2 cabinets. Couplings must include:

1. 2-inch nylon-insulated steel chase nipple
2. 2-inch sealing steel locknut
3. 2-inch nylon-insulated steel bushing

**Delete item 1.3 in the list in the 7th paragraph of section 86-3.04A.**

07-19-13

**Replace the 2nd paragraph of section 86-4.01A with:**

07-19-13

The housing must not fail structurally as described in the following table:

**Housing Structural Failure**

Housing type	Test method	Description of structural failure
Metal	California Test 666	Fracture within the housing assembly or deflection of more than half the lens diameter of the signal section during the wind load test
Plastic	California Test 605	Fracture within the housing assembly or deflection of more than 10 degrees in either the vertical or horizontal plane after the wind load has been removed from the front of the signal face or deflection of more than 6 degrees in either the vertical or horizontal plane after the wind load has been removed from the back of the signal face

**Replace the 1st sentence of section 86-4.01A(1) with:**

07-19-13

Each metal housing must have a metal visor.

**Replace the 1st sentence of section 86-4.01A(2) with:**

07-19-13

Each plastic housing must be molded in 1 piece or fabricated from 2 or more pieces and joined into a single piece.

**Delete item 1 in the list in section 86-4.01D(1)(b).**

07-19-13

**Replace the paragraphs in section 86-4.01D(1)(c)(i) with:**

07-19-13

LED signal modules must be on the Authorized Material List for LED traffic signals.

The Department tests modules under section 86-2.14A, ANSI/ASQ Z1.4, and:

1. California Test 604 for LED and circular LED signal modules
2. California Test 3001 for arrow, U-turn, and bicycle LED signal modules



The LED signal modules submitted for testing must be typical production units. LEDs must be spread evenly across the module.

The Department may test the modules on all parameters specified in section 86-4.01D.

**Replace the 1st and 2nd sentences of the 3rd paragraph of 86-4.01D(2)(b) with:**

The electrical connection for each flashing LED signal module must be 4 secured, color-coded, jacketed copper wires. The wire must comply with the NEC. 07-19-13

**Replace the heading of section 86-4.02 with:**

**PROGRAMMED VISIBILITY VEHICLE SIGNAL SECTION**

07-19-13

**Replace "face" in the 1st paragraph of section 86-4.02 with:**

section

07-19-13

**Add before the 1st sentence in section 86-4.03A:**

The pedestrian signal face must be Type A.

07-19-13

**Replace the 1st sentence of the 2nd paragraph of section 86-4.03B with:**

The Department tests the pedestrian signal's front screen in a horizontal position with its edges supported.

07-19-13

**Delete items 1 and 4 in the list in section 86-4.03I(1)(b).**

07-19-13

**Replace the paragraphs of section 86-4.03I(1)(c)(i) with:**

The LED PSF module must be on the Authorized Material List for LED traffic signals.

The Department tests LED PSF modules under section 86-2.14A, ANSI/ASQ Z1.4, and California Test 606.

The LED PSF modules submitted for testing must be representative of typical production units.

The Department may test the modules on all parameters specified in section 86-4.03I.

07-19-13

**Replace item 1 in the list in the 1st paragraph of section 86-4.03I(2) with:**

1. Not include reflectors.

07-19-13

Replace item 6 in the list in the 1st paragraph of section 86-4.03I(2) with:

07-19-13

6. Be able to replace signal lamp optical units and pedestrian signal faces with LEDs.

Replace the table titled "Chromaticity Standards (CIE Chart)" in the 16th paragraph of section 86-4.03I(2) with:

07-19-13

**Chromaticity Standards (CIE Chart)**

Upraised hand	X: not greater than 0.659 or less than 0.600 Y: not greater than 0.390 or less than 0.331 Y= 0.990-X
Walking person	X: not greater than 0.440 or less than 0.280 Y: not greater than 0.0483 + 0.7917(X) or less than 0.0983 + 0.7917(X)

Add between "beacon" and "must" in the 1st sentence of section 86-4.05:

07-19-13

signal face

Delete "face" in item 1 in the list in the 1st paragraph of section 86-4.05.

07-19-13

Replace the row for viscosity in the table in the 2nd paragraph of section 86-5.01A(3)(c) with:

07-19-13

Viscosity, Brookfield Thermosel, no. 27 Spindle, 20 rpm, 190 °C	D 4402	2.5–3.5 Pa·s
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Replace the paragraph in section 86-5.01A(3)(d) with:

07-19-13

Use epoxy sealant for repair work in and around sawcuts housing inductive loops.

Replace "all loop conductors" in the 3rd paragraph of section 86-5.01A(4) with:

07-19-13

the detector lead-in cable

Replace "Encase the loop wires" in the 1st sentence of the 3rd paragraph of section 86-5.01A(5) with:

07-19-13

The loop wires must be encased



Replace the row for hydraulic bursting strength in the table in the 2nd paragraph of section 88-1.02B with:

10-19-12

Puncture strength, lb min	ASTM D 6241	310
Trapezoid tearing strength, lb min	ASTM D 4533	56

Replace the 3rd paragraph in section 88-1.02C with:

10-19-12

Geocomposite wall drain must be from 0.25 to 2 inches thick.

Replace the value for permittivity of woven fabric in the table in the 1st paragraph of section 88-1.02E with:

01-20-12

0.05

Replace the value for apparent size opening of nonwoven fabric in the table in the 1st paragraph of section 88-1.02E with:

01-20-12

0.012

Replace the table in the 1st paragraph of section 88-1.02G with:

01-20-12

**Sediment Filter Bag**

Property	Test	Values	
		Woven	Nonwoven
Grab breaking load, lb, 1-inch grip min, in each direction	ASTM D 4632	200	250
Apparent elongation, percent min, in each direction	ASTM D 4632	10	50
Water flow rate, gal per minute/sq ft min and max average roll value	ASTM D 4491	100-200	75-200
Permittivity, sec <sup>-1</sup> min	ASTM D 4491	1.0	1.0
Apparent opening size, inches max average roll value	ASTM D 4751	0.023	0.012
Ultraviolet resistance, % min retained grab breaking load, 500 hr.	ASTM D 4355	70	70

Replace the table in the 1st paragraph of section 88-1.02H with:

01-20-12

**Temporary Cover**

Property	Test	Values	
		Woven	Nonwoven
Grab breaking load, lb, 1-inch grip min, in each direction	ASTM D 4632	200	200
Apparent elongation, percent min, in each direction	ASTM D 4632	15	50
Water flow rate, gal per minute/sq ft min and max average roll value	ASTM D 4491	4-10	80-120
Permittivity, sec <sup>-1</sup> min	ASTM D 4491	0.05	1.0
Apparent opening size, inches max average roll value	ASTM D 4751	0.023	0.012
Ultraviolet resistance, % min retained grab breaking load, 500 hr.	ASTM D 4355	70	70

Replace section 88-1.02P with:

01-18-13

**88-1.02P Biaxial Geogrid**

Geosynthetics used for biaxial geogrid must be a punched and drawn polypropylene material formed into an integrally formed biaxial grid. When tested under the referenced test methods, properties of biaxial geogrid must have the values shown in the following table:

**Biaxial Geogrid**

Property	Test	Value
Aperture size, inch <sup>a</sup> min and max	Calipered	0.8-1.3 x 1.0-1.6
Rib thickness, inch min	Calipered	0.04
Junction thickness, inch min	Calipered	0.150
Tensile strength, 2% strain, lb/ft <sup>a</sup> min	ASTM D 6637	410 x 620
Tensile strength at ultimate, lb/ft <sup>a</sup> min	ASTM D 6637	1,310 x 1,970
Ultraviolet resistance, percent min retained tensile strength, 500 hours	ASTM D 4355	100
Junction strength, lb/ft <sup>a</sup> min	ASTM D 7737	1,220 x 1,830
Overall flexural rigidity, mg-cm min	ASTM D 7748	750,000
Torsional rigidity at 20 cm-kg, mm-kg/deg <sup>b</sup> min	GRI:GG9	0.65

<sup>a</sup>Machine direction x cross direction

<sup>b</sup>Geosynthetic Research Institute, Test Method GG9, *Torsional Behavior of Bidirectional Geogrids When Subjected to In-Plane Rotation*



**Replace the paragraphs in section 90-4.01C with:**

07-19-13

**90-4.01C(1) General**

For reports and logs, type or clearly print the name next to the signature of the person signing the report or log.

Submit expansion test data under section 90-4.02, if required.

**90-4.01C(2) Certificates of Compliance**

Submit a certificate of compliance for the cementitious material used in PC concrete members. The certificate must be signed by the PC concrete product manufacturer.

Submit a certificate of compliance for each PC concrete member. The certificate of compliance for tier 1 and tier 2 members must be signed by the QC manager. The certificate of compliance for tier 3 members must be signed by the QC Inspector.

**90-4.01C(3) Precast Concrete Quality Control Plan**

Before performing any precasting activities for tier 1 and tier 2 PC concrete members, submit 3 copies of the project-specific QC plan for the PC plant. The QC plan must supplement the information from the authorized facility audit. Submit a separate QC plan for each plant. Allow 25 days for review.

Each project-specific QC plan must include:

1. Name of the precasting plant, concrete plants, and any testing laboratory to be used.
2. Manual prepared by the precasting plant that includes:
  - 2.1. Equipment description
  - 2.2. Testing procedures
  - 2.3. Safety plan
  - 2.4. Personnel names, qualifications, and copies of certifications
3. QC manager and QC inspector names, qualifications, and copies of certifications.
4. Organizational chart showing QC personnel and their assigned QC responsibilities.
5. Methods and frequencies for performing QC procedures including inspections, material testing, and any survey performed for all components of PC concrete members. Components include prestressing, concrete, grout, reinforcement, steel, miscellaneous metal, and formwork.
6. System for reporting noncompliant PC concrete members to the Engineer.
7. System for identification and tracking repairs and repair methods.
8. Procedure for the reinspection of repaired PC concrete members.
9. Forms for certificates of compliance, daily production logs, and daily reports.

Submit a revised QC plan for any changes to:

1. Concrete plants
2. Material sources
3. Material testing procedures
4. Testing laboratory
5. Procedures and equipment
6. Updated systems for tracking and identifying PC concrete members
7. QC personnel

After authorization, submit 7 copies of each authorized QC plan and make 1 copy available at each location where work is performed.

Allow 7 days for review of a revised QC plan.

**90-4.01C(4) Daily Production Log**

The QC inspector must provide reports to the QC manager for each day that precasting activities are performed.

The QC manager must maintain a daily production log of PC activities for each day's precasting. PC activities include setting forms, placing reinforcement, setting prestressing steel, casting, curing, post

tensioning, and form release. This daily log must be available at the precasting plant. The daily log must include:

1. Plant location
2. Specific description of casting or related activities
3. Any problems or deficiencies discovered
4. Any testing or repair work performed
5. Names of QC inspectors and the specific QC inspections they performed that day
6. Reports for that day's precasting activities from each QC inspector including before, during, and after precast inspections

Immediately notify the Engineer when any precasting problems or deficiencies are discovered, and submit the proposed repair or process changes necessary to correct them.

#### **90-4.01C(5) Precast Concrete Report**

Before shipping PC concrete members, submit a PC concrete report. The report must include:

1. Reports of all material tests and any survey checks
2. Documentation that:
  - 2.1. You have evaluated all tests
  - 2.2. You corrected all rejected deficiencies
  - 2.3. Repairs have been reexamined with the required tests and found acceptable
3. Daily production logs
4. Certificates of compliance
5. Documentation of inspections

Each person who performs a material test or survey check must sign the corresponding report and submit the report directly to the QC manager.

#### **Replace the paragraphs in section 90-4.01D with:**

07-19-13

#### **90-4.01D(1) General**

Quality control and assurance for PC concrete includes:

1. Your QC program
2. Department's acceptance of PC concrete members

PC concrete members are categorized into the following 4 tiers:

1. Tier 1 consists of:
  - 1.1. Components of bridge structures, including girders, deck panels, bent caps, abutments, slabs, closure wall panels, and piling
  - 1.2. Prestressed pavement
2. Tier 2 consists of:
  - 2.1. Components of earth retaining systems
  - 2.2. Wingwalls
  - 2.3. Types A, B, and C pipe culvert headwalls, endwalls, and wingwalls
  - 2.4. Pavement
  - 2.5. Box culverts
  - 2.6. Sound wall panels and supports
3. Tier 3 consists of:
  - 3.1. Pipes
  - 3.2. Pipe drainage facilities
  - 3.3. Straight and "L" pipe culvert headwalls except those listed under tier 2
  - 3.4. Drainage Inlets
  - 3.5. Flared end sections
4. Tier 4 consists of any member not described as tier 1, tier 2, or tier 3



## **90-4.01D(2) Quality Control**

### **90-4.01D(2)(a) General**

For tier 1 and tier 2 PC concrete members:

1. Fabricate PC concrete members at a plant on the Authorized Facility Audit List
2. Assign a PC concrete QC manager to the plant
3. Assign a QC inspector who is either registered as a civil engineer in the State or:
  - 3.1. For tier 1, has a Plant Quality Personnel Level II certification from the Precast/Prestressed Concrete Institute
  - 3.2. For tier 2, has a Plant Quality Personnel Level I certification from the Precast/Prestressed Concrete Institute
4. Prepare a PC concrete QC plan
5. Perform PC concrete materials testing
6. Maintain a daily production log
7. Prepare a PC concrete report
8. Prepare a certificate of compliance

For tier 3 PC concrete members:

1. Assign a QC inspector who has one of the following qualifications:
  - 1.1. Registration as a civil engineer in the State.
  - 1.2. Plant Quality Personnel, Level I certification from the Precast/Prestressed Concrete Institute.
  - 1.3. Competency to perform inspection of PC operations. An inspector is competent if the individual has completed training or has experience in PC operations and inspection.
2. Prepare a certificate of compliance

For tier 4 PC concrete members, prepare a certificate of compliance.

For each ASTM test method specified in this section, the material's test result must comply with the requirement specified for the comparable test in section 90 unless otherwise specified.

If curing compound is used, provide certificate of compliance as specified in section 90-1.01C(5).

If PC concrete is manufactured at an established PC concrete plant, a trial batch and prequalification of the materials, mix proportions, mixing equipment, and procedures under section 90-1.01D(5)(b) are not required.

### **90-4.01D(2)(b) Quality Control Meeting**

After submitting the PC concrete QC plan, hold a meeting to discuss the requirements for PC concrete QC. The meeting attendees must include the Engineer, the PC concrete QC manager, and a representative from each plant performing PC concrete activities for the Contract.

### **90-4.01D(2)(c) Sampling, Testing, and Inspecting**

The QC laboratory testing personnel or the QC inspector must witness sampling. The QC laboratory testing personnel must perform testing.

QC laboratory testing personnel must have the following certifications, as applicable:

1. ACI Strength Testing Technician
2. ACI Concrete Laboratory Testing Technician Level 1
3. ACI Aggregate Testing Technician Level 2

The QC Inspector must perform inspections before, during, and after casting is complete.

QC field testing and inspection personnel must have an ACI Concrete Field Testing Technician, Grade I certification.

For each mix design used for tier 1 and tier 2 PC concrete members, perform sampling and testing at the minimum frequencies shown in the following tables:

### Aggregate QC Tests

Property	Test method	Minimum testing frequency
Aggregate gradation	ASTM C136	Once per 400 cu yd of concrete cast or once a week, whichever is more frequent
Sand equivalent	ASTM D2419	
Percent fines under 75 microns <sup>a</sup>	ASTM C117	
Moisture content of fine aggregate	ASTM C566, or electronically actuated moisture meter <sup>b</sup>	1–2 times per each day of pour, depending on conditions

<sup>a</sup>Percent fines under 75 microns test replaces the cleanness test in section 90-1.02C with the requirements of 1.5 percent maximum for "Operating Range" and 2.0 percent maximum for "Contract Compliance." The 5th paragraph of section 90-1.02C(2) does not apply.

<sup>b</sup>Electronically actuated moisture meter must be calibrated once per week per ASTM C566.

### Concrete QC Tests

Property	Test method	Minimum testing frequency
Compressive strength <sup>b</sup>	ASTM C172/C172M, ASTM C31/C31M, and ASTM C39/C39M	Once per 100 cu yd of concrete cast, or every day of casting, whichever is more frequent
Slump	ASTM C143/C143M	
Temperature	ASTM C1064/C1064M	
Density	ASTM C138	Once per 600 cu yd of concrete cast or each week of batching, whichever is more frequent
Air content	ASTM C231/C231M or ASTM C173/C173M <sup>a</sup>	If concrete is air entrained, once for each set of cylinders, and when conditions warrant

<sup>a</sup>ASTM C173/C173M must be used for lightweight concrete.

<sup>b</sup>Cylinders must be 6 by 12 inches.

If concrete is batched at more than 1 plant, perform the tests at each plant.

Cure test cylinders for determining time of prestressing loading in the same manner as the concrete in the member.

Cure test cylinders for determining compliance with 28-day strength requirements in the same manner as the member until completion of the steam curing process followed by a water bath or moist room at 60 to 80 degrees F until tested.



## 92 ASPHALTS

07-19-13

Replace "Reserved" in section 92-1.01B with:

07-19-13

**modified asphalt binder:** Asphalt binder modified with polymers, crumb rubber, or both.

Replace the row for dynamic shear for original binder in the table in the 1st paragraph of section 92-1.02B with:

01-20-12

Dynamic shear, Test temperature at 10 rad/s, °C	T 315	58	64	64	64	70
min $G^*/\sin(\delta)$ , kPa		1.00	1.00	1.00	1.00	1.00
max $G^*/\sin(\delta)$ , kPa		2.00	2.00	2.00	2.00	2.00

**Replace 2nd paragraph of section 92-1.02B with:**

07-19-13

PG modified asphalt binder must comply with the requirements shown in the following table:

**PG Modified Asphalt Binder**

Property	AASHTO Test Method	Grade		
		PG 58-34 M	PG 64-28 M	PG 76-22 M
<b>Original Binder</b>				
Flash point, min °C	T 48	230	230	230
Solubility, min %	T 44 <sup>a</sup>	97.5	97.5	97.5 <sup>b</sup>
Viscosity at 135 °C <sup>c</sup> , max, Pa·s	T 316	3.0	3.0	3.0
Dynamic shear, Test temperature at 10 rad/s, °C min G*/sin(delta), kPa	T 315	58 1.00	64 1.00	76 1.00
RTFO test <sup>d</sup> , Mass loss, max, %	T 240	1.00	1.00	1.00
<b>RTFO Test Aged Binder</b>				
Dynamic shear, Test temperature at 10 rad/s, °C min G*/sin(delta), kPa	T 315	58 2.20	64 2.20	76 2.20
Dynamic shear, Test temperature at 10 rad/s, °C max (delta), degree	T 315	80 <sup>e</sup>	80 <sup>e</sup>	80 <sup>e</sup>
Elastic recovery <sup>f</sup> , Test temperature °C min recovery, %	T 301	25 75	25 75	25 65
PAV <sup>g</sup> , temperature, °C	R 28	100	100	110
<b>RTFO Test and PAV Aged Binder</b>				
Dynamic shear, Test temperature at 10 rad/s, °C max G*sin(delta), kPa	T 315	16 5000	22 5000	31 5000
Creep stiffness, Test temperature, °C max S-value, MPa min M-value	T 313	-24 300 0.300	-18 300 0.300	-12 300 0.300



**APPENDIX B**  
**FEDERAL WAGE RATES**

# **FEDERAL WAGE RATES**

General Decision Number: CA150009 05/01/2015 CA9

Superseded General Decision Number: CA20140009

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

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at [www.dol.gov/whd/govcontracts](http://www.dol.gov/whd/govcontracts).

Modification Number	Publication Date
0	01/02/2015
1	01/16/2015
2	01/23/2015
3	01/30/2015
4	02/13/2015
5	02/20/2015
6	03/27/2015
7	04/17/2015
8	05/01/2015

ASBE0016-001 01/01/2014

AREA 1: MARIN, NAPA, SAN BENITO, SAN FRANCISCO, SOLANO, & SONOMA COUNTIES

AREA 2: ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHEMA, TRINITY, YOLO, & YUBA COUNTIES

Rates Fringes

Lake Tahoe Blvd Erosion Control/  
Stream Environment Zone Project  
Contract No. PW 14-31076, CIP Nos. 95163/95175  
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Asbestos Workers/Insulator  
(Includes the application of  
all insulating materials,  
Protective Coverings,  
Coatings, and Finishes to all  
types of mechanical systems)

Area 1.....	\$ 57.15	18.72
Area 2.....	\$ 44.05	18.62

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ASBE0016-007 01/01/2015

AREA 1 : ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN,  
LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA,  
SIERRA, SISKIYOU, SOLANO, SONOMA, SUTTER, TEHAMA, TRINITY, YOLO  
& YUBA COUNTIES

AREA 2: MARIN & NAPA COUNTIES

	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)		
Area 1.....	\$ 28.30	7.75
Area 2.....	\$ 32.38	7.75

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BOIL0549-002 01/01/2013

	Rates	Fringes
BOILERMAKER		
(1) Marin & Solano Counties.	\$ 42.06	33.43
(2) Remaining Counties.....	\$ 38.37	31.32

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BRCA0003-001 08/01/2013

	Rates	Fringes
MARBLE FINISHER.....	\$ 28.05	14.01

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BRCA0003-004 05/01/2013

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
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BRICKLAYER

AREA 1.....	\$ 36.48	19.59
AREA 2.....	\$ 39.96	23.79

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) Guniting nozzle person shall receive \$1.25 per hour above the regular rate.

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BRCA0003-008 07/01/2013

	Rates	Fringes
TERRAZZO FINISHER.....	\$ 33.15	13.93
TERRAZZO WORKER/SETTER.....	\$ 39.95	24.39

-----  
BRCA0003-010 04/01/2014

	Rates	Fringes
TILE FINISHER		
Area 1.....	\$ 22.58	10.04
Area 2.....	\$ 22.58	12.50
Area 3.....	\$ 22.76	12.37
Area 4.....	\$ 22.26	11.85
Tile Layer		
Area 1.....	\$ 38.13	11.98
Area 2.....	\$ 36.43	13.74
Area 3.....	\$ 40.59	13.79
Area 4.....	\$ 37.46	13.74

- AREA 1: Butte, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, Shasta, Sierra, Sutter, Tehama, Yolo, Yuba
- AREA 2: Alpine, Amador
- AREA 3: Marin, Napa, Solano, Siskiyou
- AREA 4: Sonoma

-----  
BRCA0003-014 08/01/2013

	Rates	Fringes
MARBLE MASON.....	\$ 39.30	22.48

-----  
CARP0034-001 07/01/2014

	Rates	Fringes
Diver		
Assistant Tender, ROV		
Tender/Technician.....	\$ 39.60	30.73
Diver standby.....	\$ 44.56	30.73

Diver Tender.....	\$ 43.56	30.73
Diver wet.....	\$ 89.12	30.73
Manifold Operator (mixed gas).....	\$ 48.56	30.73
Manifold Operator (Standby).....	\$ 43.56	30.73

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.

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CARP0034-003 07/01/2014

	Rates	Fringes
Piledriver.....	\$ 40.60	30.73

-----  
CARP0035-001 08/01/2014

AREA 1: MARIN, NAPA, SOLANO & SONOMA

AREA 3: SACRAMENTO, WESTERN EL DORADO (Territory west of an including highway 49 and the territory inside the city limits of Placerville), WESTERN PLACER (Territory west of and including highway 49), & YOLO

AREA 4: ALPINE, BUTTE, COLUSA, EASTERN EL DORADO, GLENN, LASSEN, MODOC, NEVADA, EASTERN PLACER, PLUMAS, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY, & YUBA

	Rates	Fringes
Drywall Installers/Lathers:		
Area 1.....	\$ 40.35	27.97
Area 3.....	\$ 34.97	27.97
Area 4.....	\$ 33.62	27.97

Drywall Stocker/Scraper		
Area 1.....	\$ 20.18	16.30
Area 3.....	\$ 17.49	16.30
Area 4.....	\$ 16.81	16.30

-----  
 CARP0035-009 07/01/2014

Marin County

	Rates	Fringes
CARPENTER		
Bridge Builder/Highway Carpenter.....	\$ 40.35	27.53
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 40.50	27.53
Journeyman Carpenter.....	\$ 40.35	27.53
Millwright.....	\$ 40.45	29.12

-----  
 CARP0035-010 07/01/2014

AREA 1: Marin, Napa, Solano & Sonoma Counties

AREA 2: Monterey, 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.....	\$ 23.36	18.31
Installer II.....	\$ 19.93	18.31
Lead Installer.....	\$ 26.81	18.81
Master Installer.....	\$ 31.03	18.81
Area 2		
Installer I.....	\$ 20.71	18.31
Installer II.....	\$ 17.76	18.31
Lead Installer.....	\$ 23.68	18.81
Master Installer.....	\$ 27.31	18.81
Area 3		
Installer I.....	\$ 19.76	18.31
Installer II.....	\$ 16.99	18.31
Lead Installer.....	\$ 22.56	18.81
Master Installer.....	\$ 29.58	18.81

-----  
 CARP0046-001 07/01/2014

El Dorado (West), Placer (West), Sacramento and Yolo Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway		

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Carpenter.....	\$ 40.35	27.53
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 34.62	27.53
Journeyman Carpenter.....	\$ 34.47	27.53
Millwright.....	\$ 36.97	29.12

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.

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CARP0046-002 07/01/2014

Alpine, Colusa, El Dorado (East), Nevada, Placer (East),  
Sierra, Sutter and Yuba Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 40.35	27.53
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 33.27	27.53
Journeyman Carpenter.....	\$ 33.12	27.53
Millwright.....	\$ 35.62	29.12

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CARP0152-003 07/01/2014

Amador County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 40.35	27.53
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 33.27	27.53
Journeyman Carpenter.....	\$ 33.12	27.53
Millwright.....	\$ 35.62	29.12

-----  
CARP0180-001 07/01/2014

Solano County

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 40.35	27.53

Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 40.50	27.53
Journeyman Carpenter.....	\$ 40.35	27.53
Millwright.....	\$ 40.45	29.12

-----  
 CARP0751-001 07/01/2014

Napa and Sonoma Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 40.35	27.53
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 40.50	27.53
Journeyman Carpenter.....	\$ 40.35	27.53
Millwright.....	\$ 40.45	29.12

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 CARP1599-001 07/01/2014

Butte, Glenn, Lassen, Modoc, Plumas, Shasta, Siskiyou, Tehama  
and Trinity Counties

	Rates	Fringes
Carpenters		
Bridge Builder/Highway Carpenter.....	\$ 40.35	27.53
Hardwood Floorlayer, Shingler, Power Saw Operator, Steel Scaffold & Steel Shoring Erector, Saw Filer.....	\$ 33.27	27.53
Journeyman Carpenter.....	\$ 33.12	27.53
Millwright.....	\$ 35.62	29.12

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 ELEC0180-001 06/01/2014

NAPA AND SOLANO COUNTIES

	Rates	Fringes
CABLE SPLICER.....	\$ 50.97	3%+20.13
ELECTRICIAN.....	\$ 45.31	3%+20.13

-----  
 ELEC0180-003 12/01/2014

NAPA AND SOLANO COUNTIES

	Rates	Fringes
Sound & Communications		

Lake Tahoe Blvd Erosion Control/  
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Installer.....	\$ 32.32	16.27
Technician.....	\$ 35.66	3%+15.30

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.

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 ELEC0340-002 12/08/2014

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, NEVADA, PLACER, PLUMAS, SACRAMENTO, TRINITY, YOLO, YUBA COUNTIES

	Rates	Fringes
Communications System		
Sound & Communications		
Installer.....	\$ 27.85	13.80
Sound & Communications		
Technician.....	\$ 33.42	13.80

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.

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 ELEC0340-003 12/01/2013

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.....	\$ 39.06	18.54
Sierra Army Depot, Herlong..	\$ 48.83	18.54
Tunnel work.....	\$ 41.01	18.54

CABLE SPLICER:    Receives 110% of the Electrician basic hourly rate.

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 ELEC0401-005 11/01/2014

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:

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	Rates	Fringes
ELECTRICIAN.....	\$ 37.50	15.14
-----		
ELEC0551-004 06/01/2014		

MARIN AND SONOMA COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 47.20	16.76
-----		
ELEC0551-005 12/01/2014		

MARIN & SONOMA COUNTIES

	Rates	Fringes
Sound & Communications		
Installer.....	\$ 32.32	16.27
Technician.....	\$ 36.80	16.41

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.

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ELEC0659-006 01/01/2015		

DEL NORTE, MODOC and SISKIYOU COUNTIES

	Rates	Fringes
ELECTRICIAN.....	\$ 30.44	15.71
-----		
ELEC0659-008 02/01/2013		

DEL NORTE, MODOC & SISKIYOU COUNTIES

	Rates	Fringes
Line Construction		
(1) Cable Splicer.....	\$ 51.09	4%+13.30

Lake Tahoe Blvd Erosion Control/  
Stream Environment Zone Project  
Contract No. PW 14-31076, CIP Nos. 95163/95175  
May 2015

County of El Dorado  
Appendix B – Federal Wage Rates  
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(2) Lineman, Pole Sprayer, Heavy Line Equipment Man.....	\$ 45.62	4%+13.30
(3) Tree Trimmer.....	\$ 32.07	4%+9.80
(4) Line Equipment Man.....	\$ 45.62	4%+9.80
(5) Powdermen, Jackhammermen.....	\$ 34.22	4%+9.80
(6) Groundman.....	\$ 31.31	4%+9.80

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ELEC1245-004 06/01/2013

ALL COUNTIES EXCEPT DEL NORTE, MODOC & SISKIYOU

	Rates	Fringes
LINE CONSTRUCTION		
(1) Lineman; Cable splicer..	\$ 50.30	15
(2) Equipment specialist (operates crawler tractors, commercial motor vehicles, backhoes, trenchers, cranes (50 tons and below), overhead & underground distribution line equipment).....	\$ 40.17	14.56
(3) Groundman.....	\$ 30.73	13.48
(4) Powderman.....	\$ 44.91	13.48

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

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ELEV0008-001 01/01/2015

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 60.39	28.38

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.

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ENGI0003-008 07/01/2013

	Rates	Fringes
Dredging: (DREDGING: CLAMSHELL & DIPPER DREDGING; HYDRAULIC SUCTION DREDGING:)		
AREA 1:		
(1) Leverman.....	\$ 40.53	27.81
(2) Dredge Dozer; Heavy duty repairman.....	\$ 35.57	27.81
(3) Booster Pump Operator; Deck		

Engineer; Deck mate; Dredge Tender; Winch Operator.....	\$ 34.45	27.81
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler..	\$ 31.15	27.81
AREA 2: (1) Leverman.....	\$ 42.53	27.81
(2) Dredge Dozer; Heavy duty repairman.....	\$ 37.57	27.81
(3) Booster Pump Operator; Deck Engineer; Deck mate; Dredge Tender; Winch Operator.....	\$ 36.45	27.81
(4) Bargeman; Deckhand; Fireman; Leveehand; Oiler..	\$ 33.15	27.81

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: 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:

Area 1: Western part along the Southern portion of border  
with Shasta County  
Area 2: Remainder

MADERA COUNTY:

Area 1: Except Eastern part

Lake Tahoe Blvd Erosion Control/  
Stream Environment Zone Project  
Contract No. PW 14-31076, CIP Nos. 95163/95175  
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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

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ENGI0003-018 06/30/2014

"AREA 1" WAGE RATES ARE LISTED BELOW

"AREA 2" RECEIVES AN ADDITIONAL \$2.00 PER HOUR ABOVE AREA 1  
RATES.

Lake Tahoe Blvd Erosion Control/  
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County of El Dorado  
Appendix B – Federal Wage Rates  
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SEE AREA DEFINITIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment		
(AREA 1:)		
GROUP 1.....	\$ 39.85	27.44
GROUP 2.....	\$ 38.32	27.44
GROUP 3.....	\$ 36.84	27.44
GROUP 4.....	\$ 35.46	27.44
GROUP 5.....	\$ 34.19	27.44
GROUP 6.....	\$ 32.87	27.44
GROUP 7.....	\$ 31.73	27.44
GROUP 8.....	\$ 30.59	27.44
GROUP 8-A.....	\$ 28.38	27.44
OPERATOR: Power Equipment		
(Cranes and Attachments -		
AREA 1:)		
GROUP 1		
Cranes.....	\$ 40.73	27.44
Oiler.....	\$ 33.76	27.44
Truck crane oiler.....	\$ 37.33	27.44
GROUP 2		
Cranes.....	\$ 38.97	27.44
Oiler.....	\$ 33.50	27.44
Truck crane oiler.....	\$ 37.04	27.44
GROUP 3		
Cranes.....	\$ 37.23	27.44
Hydraulic.....	\$ 32.87	27.44
Oiler.....	\$ 33.26	27.44
Truck Crane Oiler.....	\$ 36.77	27.44
GROUP 4		
Cranes.....	\$ 34.19	27.44
OPERATOR: Power Equipment		
(Piledriving - AREA 1:)		
GROUP 1		
Lifting devices.....	\$ 41.07	27.44
Oiler.....	\$ 31.81	27.44
Truck crane oiler.....	\$ 34.09	27.44
GROUP 2		
Lifting devices.....	\$ 39.25	27.44
Oiler.....	\$ 31.54	27.44
Truck Crane Oiler.....	\$ 33.84	27.44
GROUP 3		
Lifting devices.....	\$ 37.57	27.44
Oiler.....	\$ 31.32	27.44
Truck Crane Oiler.....	\$ 33.55	27.44
GROUP 4		
Lifting devices.....	\$ 35.80	27.44
GROUP 5		
Lifting devices.....	\$ 34.50	27.44
GROUP 6		
Lifting devices.....	\$ 33.16	27.44
OPERATOR: Power Equipment		
(Steel Erection - AREA 1:)		
GROUP 1		
Cranes.....	\$ 41.70	27.44
Oiler.....	\$ 32.15	27.44

Truck Crane Oiler.....	\$ 34.38	27.44
GROUP 2		
Cranes.....	\$ 39.93	27.44
Oiler.....	\$ 31.88	27.44
Truck Crane Oiler.....	\$ 34.16	27.44
GROUP 3		
Cranes.....	\$ 38.45	27.44
Hydraulic.....	\$ 32.67	27.44
Oiler.....	\$ 31.66	27.44
Truck Crane Oiler.....	\$ 33.89	27.44
GROUP 4		
Cranes.....	\$ 36.43	27.44
GROUP 5		
Cranes.....	\$ 35.13	27.44
OPERATOR: Power Equipment		
(Tunnel and Underground Work		
- AREA 1:)		
SHAFTS, STOPES, RAISES:		
GROUP 1.....	\$ 35.95	27.44
GROUP 1-A.....	\$ 38.32	27.44
GROUP 2.....	\$ 34.59	27.44
GROUP 3.....	\$ 33.36	27.44
GROUP 4.....	\$ 32.22	27.44
GROUP 5.....	\$ 31.08	27.44
UNDERGROUND:		
GROUP 1.....	\$ 35.85	27.44
GROUP 1-A.....	\$ 38.32	27.44
GROUP 2.....	\$ 34.59	27.44
GROUP 3.....	\$ 33.26	27.44
GROUP 4.....	\$ 32.12	27.44
GROUP 5.....	\$ 30.98	27.44

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 construction 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; 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; Caryl 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

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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;

GROUP 4: 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; Truck-mounted rotating telescopic boom type lifting device, Manitex or similar (boom truck) - under 15 tons;

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#### 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

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#### 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

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#### 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 (gunitite); Compressor operator; Oiler; Pump operator; Slusher operator

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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:

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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

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ENGI0003-019 07/01/2013

SEE AREA DESCRIPTIONS BELOW

	Rates	Fringes
OPERATOR: Power Equipment		
(LANDSCAPE WORK ONLY)		
GROUP 1		
AREA 1.....	\$ 29.64	25.71
AREA 2.....	\$ 31.64	25.71
GROUP 2		
AREA 1.....	\$ 26.04	25.71
AREA 2.....	\$ 28.04	25.71
GROUP 3		
AREA 1.....	\$ 21.43	25.71
AREA 2.....	\$ 23.43	25.71

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

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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

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IRON0377-002 01/01/2015

	Rates	Fringes
Ironworkers:		
Fence Erector.....	\$ 27.08	18.24
Ornamental, Reinforcing and Structural.....	\$ 33.50	28.20

PREMIUM PAY:

Lake Tahoe Blvd Erosion Control/  
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\$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

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LABO0067-002 12/01/2014

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.....	\$ 20.06	9.62
LABORER (Lead Removal)		
Area A.....	\$ 29.02	19.42
Area B.....	\$ 28.02	19.42

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.

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LABO0067-006 06/30/2014

AREA "A" - ALAMEDA, CONTRA COSTA, MARIN, SAN FRANCISCO, SAN MATEO AND SANTA CLARA COUNTIES

AREA "B" - ALPINE, AMADOR, BUTTE, CALAVERAS, COLUSA, EL

Lake Tahoe Blvd Erosion Control/  
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County of El Dorado  
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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.....	\$ 29.09	18.66
GROUP 1.....	\$ 28.39	18.66
GROUP 1-a.....	\$ 28.61	18.66
GROUP 1-c.....	\$ 28.44	18.66
GROUP 1-e.....	\$ 28.94	18.66
GROUP 1-f.....	\$ 28.97	18.66
GROUP 1-g (Contra Costa County).....	\$ 28.59	18.66
GROUP 2.....	\$ 28.24	18.66
GROUP 3.....	\$ 28.14	18.66
GROUP 4.....	\$ 21.83	18.66

See groups 1-b and 1-d under laborer classifications.

Laborers: (CONSTRUCTION CRAFT LABORERS - AREA B:)		
Construction Specialist		
Group.....	\$ 28.09	18.66
GROUP 1.....	\$ 27.39	18.66
GROUP 1-a.....	\$ 27.61	18.66
GROUP 1-c.....	\$ 27.44	18.66
GROUP 1-e.....	\$ 27.94	18.66
GROUP 1-f.....	\$ 27.97	18.66
GROUP 2.....	\$ 27.24	18.66
GROUP 3.....	\$ 27.14	18.66
GROUP 4.....	\$ 20.83	18.66

See groups 1-b and 1-d under laborer classifications.

Laborers: (GUNITÉ - AREA A:)		
GROUP 1.....	\$ 29.35	18.66
GROUP 2.....	\$ 28.85	18.66
GROUP 3.....	\$ 28.26	18.66
GROUP 4.....	\$ 28.14	18.66

Laborers: (GUNITÉ - AREA B:)		
GROUP 1.....	\$ 28.35	18.66
GROUP 2.....	\$ 27.85	18.66
GROUP 3.....	\$ 27.26	18.66
GROUP 4.....	\$ 27.14	18.66

Laborers: (WRECKING - AREA A:)		
GROUP 1.....	\$ 28.39	18.66
GROUP 2.....	\$ 28.24	18.66

Laborers: (WRECKING - AREA B:)		
GROUP 1.....	\$ 27.39	18.66
GROUP 2.....	\$ 27.24	18.66

Landscape Laborer (GARDENERS, HORTICULTURAL & LANDSCAPE LABORERS - AREA A:)		
(1) New Construction.....	\$ 28.14	18.66
(2) Establishment Warranty Period.....	\$ 21.83	18.66

Landscape Laborer (GARDENERS,

Lake Tahoe Blvd Erosion Control/  
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HORTICULURAL & LANDSCAPE

LABORERS - AREA B:)

(1) New Construction.....\$ 27.14	18.66
(2) Establishment Warranty Period.....\$ 20.83	18.66

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 buckler; 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".

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GUNITE LABORER CLASSIFICATIONS

GROUP 1: Structural Nozzleman

GROUP 2: Nozzleman, Gunman, Potman, Groundman

GROUP 3: Reboundman

GROUP 4: Gunitite laborer

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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)

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LABO0185-002 06/30/2014

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

Lake Tahoe Blvd Erosion Control/  
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LABO0185-005 06/30/2014

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
Tunnel and Shaft Laborers:		
GROUP 1.....	\$ 34.60	19.49
GROUP 2.....	\$ 34.37	19.49
GROUP 3.....	\$ 34.12	19.49
GROUP 4.....	\$ 33.67	19.49
GROUP 5.....	\$ 33.13	19.49
Shotcrete Specialist.....	\$ 35.12	19.49

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

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; Gunite & 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

LABO0261-002 06/30/2014

MARIN COUNTY

	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person..	\$ 28.14	19.03
Traffic Control Person I....	\$ 28.44	19.03
Traffic Control Person II...	\$ 25.94	19.03

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.

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LABO0261-004 06/30/2014

MARIN COUNTY

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1.....	\$ 34.60	19.49
GROUP 2.....	\$ 34.37	19.49
GROUP 3.....	\$ 34.12	19.49
GROUP 4.....	\$ 33.67	19.49
GROUP 5.....	\$ 33.13	19.49
Shotcrete Specialist.....	\$ 35.12	19.49

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

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; Gunite & 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

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LABO0261-007 06/30/2014

MARIN COUNTY

	Rates	Fringes
LABORER		
Mason Tender-Brick.....	\$ 32.36	17.34

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LABO0324-004 06/30/2014

NAPA, SOLANO, AND SONOMA, COUNTIES

Lake Tahoe Blvd Erosion Control/  
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	Rates	Fringes
LABORER (TRAFFIC CONTROL/LANE CLOSURE)		
Escort Driver, Flag Person..\$	27.14	19.03
Traffic Control Person I....\$	27.44	19.03
Traffic Control Person II...\$	24.94	19.03

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.

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LABO0324-008 06/30/2014

NAPA, SOLANO, AND SONOMA COUNTIES

	Rates	Fringes
Tunnel and Shaft Laborers:		
GROUP 1.....\$	34.60	19.49
GROUP 2.....\$	34.37	19.49
GROUP 3.....\$	34.12	19.49
GROUP 4.....\$	33.67	19.49
GROUP 5.....\$	33.13	19.49
Shotcrete Specialist.....\$	35.12	19.49

TUNNEL AND SHAFT CLASSIFICATIONS

GROUP 1: Diamond driller; Groundmen; Gunite and shotcrete nozzlemen

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; Gunite & 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

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LABO0324-010 06/30/2014

NAPA, SOLANO AND SONOMA COUNTIES

Lake Tahoe Blvd Erosion Control/  
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	Rates	Fringes
LABORER (Brick)		
Mason Tender-Brick.....	\$ 31.36	17.34

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LABO1414-005 08/07/2013

	Rates	Fringes
Plasterer tender.....	\$ 30.00	16.36
Work on a swing stage scaffold: \$1.00 per hour additional.		

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PAIN0016-004 01/01/2015

MARIN, NAPA, SOLANO & SONOMA COUNTIES

	Rates	Fringes
Painters:.....	\$ 36.45	21.48

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:

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

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PAIN0016-005 01/01/2015

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.....	\$ 36.24	19.88

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PAIN0016-007 01/01/2015

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:.....	\$ 30.85	16.85

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.

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PAIN0016-008 01/01/2015

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SOFT FLOOR LAYER.....	\$ 46.20	18.73

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PAIN0169-004 01/01/2015

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.....	\$ 43.48	24.19

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\* PAIN0567-001 07/01/2014

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.....	\$ 23.16	10.38
Spray Painter & Paperhanger.	\$ 24.01	10.38

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.



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PAIN0567-007 07/01/2014

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.....	\$ 25.81	11.68

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PAIN0567-010 07/01/2013

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.....	\$ 27.07	11.14
(2) Steeplejack - Taper, over 40 ft with open space below.....	\$ 28.57	11.14

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PAIN0767-004 01/01/2015

ALPINE, AMADOR, BUTTE, COLUSA, EL DORADO, GLENN, LASSEN, MODOC, NEVADA, PLACER, PLUMAS, SACRAMENTO, SHASTA, SIERRA, SISKIYOU, SOLANO (Remainder), SUTTER, TEHAMA, TRINITY, YOLO, YUBA

	Rates	Fringes
GLAZIER.....	\$ 33.79	22.49

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.

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PAIN1176-001 07/01/2014

HIGHWAY IMPROVEMENT

	Rates	Fringes
Parking Lot Striping/Highway Marking:		

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GROUP 1.....	\$ 34.26	11.65
GROUP 2.....	\$ 29.12	11.65
GROUP 3.....	\$ 29.46	11.65

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

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PAIN1237-001 01/01/2015

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.....	\$ 31.79	14.93

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PLAS0300-003 07/01/2014

	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.....	\$ 31.41	22.26
AREA 355: Marin.....	\$ 34.75	22.26
AREA 355: Napa & Sonoma Counties.....	\$ 31.41	22.26

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PLAS0300-005 06/30/2014

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...\$	30.00	22.07

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PLUM0038-002 07/01/2014

MARIN AND SONOMA COUNTIES

	Rates	Fringes
PLUMBER (Plumber,		

Lake Tahoe Blvd Erosion Control/  
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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.....	\$ 54.40	40.71
(2) All other work - NEW CONSTRUCTION RATE.....	\$ 64.00	43.29

PLUM0038-006 07/01/2014

MARIN & SONOMA COUNTIES

	Rates	Fringes
Landscape/Irrigation Fitter (Underground/Utility Fitter).....	\$ 54.40	32.15

PLUM0228-001 01/01/2015

BUTTE, COLUSA, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA, SISKIYOU, SUTTER, TEHAMA, TRINITY & YUBA COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 37.50	26.39

PLUM0343-001 07/01/2014

NAPA AND SOLANO COUNTIES

	Rates	Fringes
PLUMBER/PIPEFITTER		
Light Commercial.....	\$ 30.60	19.40
All Other Work.....	\$ 48.00	30.05

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.

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 \* PLUM0350-001 02/01/2015

EL DORADO COUNTY (Lake Tahoe area only); NEVADA COUNTY (Lake Tahoe area only); AND PLACER COUNTY (Lake Tahoe area only)

	Rates	Fringes
PLUMBER/PIPEFITTER.....	\$ 30.88	11.51

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 PLUM0355-001 07/01/2014

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.....	\$ 28.55	9.25

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 PLUM0442-003 01/01/2015

AMADOR (South of San Joaquin River) and ALPINE COUNTIES

	Rates	Fringes
PLUMBER.....	\$ 38.50	25.89

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 PLUM0447-001 07/01/2013

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.....	\$ 41.77	22.35
Light Commercial Work.....	\$ 32.23	17.22

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 ROOF0081-006 08/01/2014

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
Roofer.....	\$ 35.06	13.89

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 ROOF0081-007 08/01/2014

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 Page AB-37

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.....	\$ 33.23	13.79
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SFCA0483-003 01/01/2015		

MARIN, NAPA, SOLANO AND SONOMA COUNTIES

	Rates	Fringes
SPRINKLER FITTER (Fire Sprinklers).....	\$ 56.02	27.77
-----		
SFCA0669-003 07/01/2013		

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.....	\$ 34.19	19.37
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SHEE0104-006 01/01/2015		

MARIN, NAPA, SOLANO SONOMA & TRINITY COUNTIES

	Rates	Fringes
Sheet Metal Worker Mechanical Contracts \$200,000 or less.....	\$ 45.26	38.82
All other work.....	\$ 50.71	40.05
-----		
SHEE0104-009 01/01/2015		

AMADOR, COLUSA, EL DORADO, NEVADA, PLACER, SACRAMENTO, SUTTER,  
 YOLO AND YUBA COUNTIES

	Rates	Fringes
SHEET METAL WORKER.....	\$ 39.05	31.24
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SHEE0104-010 01/01/2015		

ALPINE COUNTY

	Rates	Fringes
SHEET METAL WORKER.....	\$ 36.59	28.66
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SHEE0104-011 01/01/2015		

Lake Tahoe Blvd Erosion Control/  
 Stream Environment Zone Project  
 Contract No. PW 14-31076, CIP Nos. 95163/95175  
 May 2015

County of El Dorado  
 Appendix B – Federal Wage Rates  
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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).....	\$ 33.86	31.83
-----		
SHEE0104-014 01/01/2015		

MARIN, NAPA, SOLANO, SONOMA AND TRINITY COUNTIES

	Rates	Fringes
SHEET METAL WORKER (Metal Decking and Siding only).....	\$ 33.86	31.83
-----		
SHEE0104-019 01/01/2015		

BUTTE, GLENN, LASSEN, MODOC, PLUMAS, SHASTA, SIERRA, SISKIYOU  
 AND TEHAMA COUNTIES

	Rates	Fringes
SHEET METAL WORKER		
Mechanical Jobs \$200,000 & under.....	\$ 29.88	28.75
Mechanical Jobs over \$200,000.....	\$ 39.05	31.24
-----		
TEAM0094-001 07/01/2014		

	Rates	Fringes
Truck drivers:		
GROUP 1.....	\$ 27.96	24.28
GROUP 2.....	\$ 28.26	24.28
GROUP 3.....	\$ 28.56	24.28
GROUP 4.....	\$ 28.91	24.28
GROUP 5.....	\$ 29.26	24.28

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

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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)).

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The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010



08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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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 C**

### **PERMITS**

**APPENDIX C1**

**TRPA PERMIT**

**(TRPA PERMIT PENDING)**

**APPENDIX C2**

**U.S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE**

**SPECIAL USE PERMIT**

Authorization ID: ELD100325  
Contact ID: ELDORADO COUNTY  
Expiration Date: 12/31/2022  
Use Code: 753, 921

FS-2700-4b (10/09)  
OMB No. 0596-0082

**U.S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
SPECIAL USE PERMIT  
AUTHORITY: FEDERAL LAND POLICY AND MGMT ACT,  
AS AMENDED October 21, 1976**

El Dorado County Department of Transportation, 924 B Emerald Bay Road, South Lake Tahoe, CA 96150 (hereafter called the holder) is hereby authorized to use or occupy National Forest System lands within the Lake Tahoe Basin Management Unit, subject to the terms and conditions of this special use permit (the permit).

This permit covers 3.48 acres (151,700 square feet) in El Dorado County and is located in Mt. Diablo Meridian, T. 12 N., R. 18 E., secs. 7, 8, and 17, as shown on the map attached as Exhibit A (Project Location Map). The project is known as the Lake Tahoe Boulevard Enhancement Project. This permit is issued for the purpose of a class 1 paved bike path and erosion control structures:

Class 1 paved bike path:

Construction and maintenance of a class 1 paved bike path on four Forest Service parcels (APN's: 033-010-03, 033-010-18, 032-080-01, and 032-070-01), located from the intersection of Sawmill Road and Lake Tahoe Boulevard along the existing Forest Service road (12N31) / trail (17E79) on the west side of Lake Tahoe Boulevard to D Street / Viking Way.

The area to be permitted is as follows (Exhibits B-1 through B-6):

**Bike path:** paved surface is 70,704 square feet (8,838 feet long and 8 feet wide, 1.62 acres)

**Total bike path permitted area:** 123,732 square feet, 2.84 acres (8,838 feet long by 14 feet wide)

In addition to authorizing project work on the four Forest Service parcels described above, the permit will incorporate road use and maintenance guidelines (Exhibit C) to assure that construction and maintenance activities associated with this permit are carried out in accordance with current standards and practices and that proposed work activities and work standards are reviewed and agreed upon prior to commencement of work. The purpose of the agreement is to set forth the general terms and conditions, acceptable to the parties hereto, for the cooperative planning, design, construction, improvement and maintenance of the Lake Tahoe Boulevard Bike Path.

Erosion control structures:

Installation, operation and maintenance of erosion control structures to reduce erosion and improve water quality associated with storm water runoff from the impervious surfaces within the Lake Tahoe Boulevard road rights-of-way and the paved bike path. Construction will occur on four Forest Service parcels (APN's: 033-010-03, 033-010-18, 033-010-19, and 032-080-01), located in a portion of the Upper Truckee River Watershed.

Anticipated erosion control activities on the four Forest Service parcels include installation of culverts, armored channels, an armored infiltration channel, a sediment trap, rock bowls, and construction site temporary Best Management Practices (BMP).

The area to be permitted is as follows (Exhibits B-1 through B-6):

- Temporary erosion control disturbance:** 27,960 square feet (0.64 acre)
- Permanent erosion control improvements:** 8,680 square feet (0.20 acre)
- Total erosion control disturbance:** 36,640 square feet (0.84 acre)

The El Dorado County Department of Transportation has identified 27 trees to be removed; 11 trees with diameters of 8" to 10"; 5 trees with diameters of 12" to 14"; 2 trees with diameters of 16" to 18"; 1 tree with a diameter of 20" to 22"; and 8 trees with diameters of 22" to 26". Trees may be removed only after written approval by the Forest Service.

These improvements include the following permanent structures and other improvements requiring long-term maintenance by the county:

1. Class 1 paved bike path
2. Culverts
3. Armored channels
4. Armored infiltration channel
5. Sediment trap
6. Rock bowls

A staging and storage area will be set up on APN 033-010-33. This staging and storage area will consist of 0.23 acre (10,200 square feet) and will only be used for construction efforts associated with the work on APN's 033-010-03, 033-010-18, 033-010-19, 032-080-01, and 032-070-01 (Exhibit B-1).

Previously recorded Heritage sites 05-01149, 05-01150 and 05-01151 must be flagged and avoided prior to project construction or other ground disturbing activities. Notify a Forest Service Heritage employee at 530-543-2600 one month prior to implementation of the project.

Project surveys for threatened, endangered, and sensitive plants and fungi will be completed in June 2012. If any sensitive plant species are found within the project area, they will be flagged and avoided; or the project design plans will be altered to completely avoid any negative direct or indirect effects from the project. Notify a Forest Service Botanist at 530-543-2600 prior to implementation of the project.

Botanical surveys will be completed in June 2012, prior to any project implementation, and an updated map of known infestations will be attached to the Noxious Weed Risk Assessment (NWRA). All known and newly-discovered weed infestations in the project area will be treated by EDOT prior to project implementation in accordance with the design features of the Terrestrial Invasive Plant Species Treatment Project Environmental Assessment (TIPS EA). If an infestation is not treatable, it will be "flagged and avoided" according to the species present, project constraints, and feasibility. Reference the Noxious Weed Risk Assessment (Exhibit D), for mitigation measures associated with the Lake Tahoe Boulevard enhancement project.



Construction and revegetation of this project will occur in 2013-2016 with temporary disturbances totaling 0.87 acre (37,897 square feet); permanent improvements totaling 3.04 acres (132,412 square feet); total project disturbance is 3.91 acres (170,320 square feet). During construction of this project, temporary disturbance within the permitted area will be allowed for up to a period of two years, after which all temporary disturbances will be rehabilitated.

For details about temporary and permanent improvements (attached to and made part of this permit), refer to Exhibits B-1 through B-6.

This permit authorizes use of approximately 1.67 miles of road.

**This permit is made subject to the following terms, provisions, and conditions:**

1. This permit is subject to all existing easements and valid rights existing on this date.
2. Holder shall comply with applicable Federal or State law and shall comply with State standards for public health and safety, environmental protection, and siting construction, operation, and maintenance if those standards are more stringent than applicable Federal standards.
3. The holder shall cut no timber except as authorized by construction stipulations or maintenance agreements.
4. Holder shall pay the United States for all injury, loss, or damage, including fire suppression costs, in accordance with Federal and State laws and regulations.
5. Holder shall indemnify the United States for any and all injury, loss, or damage, including fire suppression costs the United States may suffer as a result of claims, demands, losses, or judgments caused by the holder's use or occupancy under this permit.
6. Holder shall pay annually in advance a sum determined by the Forest Service to be the fair market value of the use authorized by this permit. The initial payment is set at N/A for the remainder of the calendar year. Payments for each subsequent calendar year shall be the amount of N/A adjusted using the Implicit Price Deflator-Gross National Product index (IPD-GNP), or other factor selected by the Forest Service, to reflect more nearly the current fair market value of the use. At intervals to be determined by certain changes in the indexes used to establish the linear rights-of-way fee schedule, the fee shall be reviewed and adjusted as necessary to assure that it is commensurate with the value of the rights and privileges authorized. In addition to the annual payment, the holder shall pay its proportionate share of road costs prior to using the road for commercial use. Failure of the holder to pay the annual payment, late charges, or other fees or charges shall cause the permit to terminate.
7. Late Payment Interest, Administrative Costs and Penalties. Pursuant to 31 U.S.C. 3717, et seq., interest shall be charged on any fee amount not paid within 30 days from the date the fee or fee calculation financial statement specified in this authorization becomes due. The rate of interest assessed shall be the higher of the rate of the current value of funds to the U.S. Treasury (i.e., Treasury tax and loan account rate), as prescribed and published by the Secretary of the Treasury in the Federal Register and the Treasury Fiscal Requirements Manual Bulletins annually or quarterly or at the Prompt Payment Act rate. Interest on the principal shall accrue from the date the fee or fee calculation financial statement is due.

In the event the account becomes delinquent, administrative costs to cover processing and handling of the delinquency will be assessed.

A penalty of 6 percent per annum shall be assessed on the total amount delinquent in excess of 90 days and shall accrue from the same date on which interest charges begin to accrue.

Payments will be credited on the date received by the designated collection officer or deposit location. If the due date for the fee or fee calculation statement falls on a non-workday, the charges shall not apply until the close of business on the next workday.

Disputed fees are due and payable by the due date. No appeal of fees will be considered by the Forest Service without full payment of the disputed amount. Adjustments, if necessary, will be made in accordance with settlement terms or the appeal decision.

If the fees become delinquent, the Forest Service will:

Liquidate any security or collateral provided by the authorization.

If no security or collateral is provided, the authorization will terminate and the holder will be responsible for delinquent fees as well as any other costs of restoring the site to its original condition including hazardous waste cleanup.

Upon termination or revocation of the authorization, delinquent fees and other charges associated with the authorization will be subject to all rights and remedies afforded the United States pursuant to 31 U.S.C. 3711 et seq. Delinquencies may be subject to any or all of the following conditions:

Administrative offset of payments due the holder from the Forest Service.

Delinquencies in excess of 60 days shall be referred to United States Department of Treasury for appropriate collection action as provided by 31 U.S.C. 3711 (g), (1).

The Secretary of the Treasury may offset an amount due the debtor for any delinquency as provided by 31 U.S.C. 3720, et seq.)

8. Holder shall pay the Forest Service for its share of maintenance cost or perform maintenance, as determined by the Forest Service for all commercial use of the road. The maintenance obligation of the holder shall be proportionate to total use and commensurate with its use. Any maintenance to be performed by the holder shall be authorized by and shall be performed in accordance with an approved maintenance plan. In the event the road requires maintenance, restoration, or reconstruction work to accommodate the holder's needs, the Forest Service shall authorize the work required in the same manner as provided herein for maintenance or in clause 10 for reconstruction. The holder shall perform such work at its own expense.

9. The exercise of the use permitted shall be subordinate to any easement on said road subsequently granted by the United States to a public road agency for operation as a public highway.

10. Any construction or reconstruction of the road shall be in accordance with plans, specifications, and written stipulations approved by the Forest Service prior to beginning such construction or reconstruction.

11. The United States shall have unrestricted use of the road and right-of-way for all purposes deemed necessary or desirable in connection with the protection, administration, management, and utilization of Federal lands or resources, and it shall have the right alone to extend rights and privileges for use of the right-of-way and road thereon to States and local subdivisions thereof and to other users including members of the public, except users of land or resources owned or controlled by the holder. The Forest Service shall control such use to avoid unreasonable interference with use of the road by the holder.

12. The Forest Service may relocate the road to the extent necessary to accommodate the management needs of the National Forests.

13. This permit may be terminated or suspended upon breach of any of the conditions herein, or revoked at the discretion of the Regional Forester.

14. Unless sooner terminated, or revoked by the Regional Forester, this permit shall expire and terminate on **12/31/2022**. At that time, if the holder still needs the road for the purposes for which this permit is granted, the permit will be reissued for a period of 10 years (or the estimated remaining life of the project, whichever is less). At the time of re-issuance, the terms and conditions may be modified and new conditions or stipulations added at the discretion of the Forest Service.

15. Nonexclusive Use and Public Access. Unless expressly provided for in additional terms, use of the permit area is not exclusive. The Forest Service reserves the right to use or allow others to use any part of the permit area, including roads, for any purpose, provided, such use does not materially interfere with the holder's authorized use. A final determination of conflicting uses is reserved to the Forest Service.

16. Forest Service Right of Entry and Inspection. The Forest Service has the right of unrestricted access of the permitted area or facility to ensure compliance with laws, regulations, and ordinances and the terms and condition of this permit.

17. Liability. For purposes of this section, "holder" includes the holder's heirs, assigns, agents, employees, and contractors.

A. The holder assumes all risk of loss to the authorized improvements.

B. The holder shall indemnify, defend, and hold the United States harmless for any violations incurred under any such laws and regulations or for judgments, claims, or demands assessed against the United States in connection with the holder's use or occupancy of the property. The holder's indemnification of the United States shall include any loss by personal injury, loss of life or damage to property in connection with the occupancy or use of the property during the term of this permit. Indemnification shall include, but is not limited to, the value of resources damaged or destroyed; the costs of restoration, cleanup, or other mitigation; fire suppression or other types of abatement costs; third party claims and judgments; and all administrative, interest, and other legal costs. This paragraph shall survive the termination or revocation of this authorization, regardless of cause.

C. The holder has an affirmative duty to protect from damage the land, property, and interests of the United States.

D. In the event of any breach of the conditions of this authorization by the holder, the authorized officer may, on reasonable notice, cure the breach for the account at the expense of the holder. If the Forest Service at any time pays any sum of money or does any act which will require payment of money, or incurs any expense, including reasonable attorney's fees, in instituting, prosecuting, and/or defending any action or proceeding to enforce the United States rights hereunder, the sum or sums so paid by the United States, with all interests, costs and damages shall, at the election of the Forest Service, be deemed to be additional fees hereunder and shall be due from the holder to the Forest Service on the first day of the month following such election.

E. With respect to roads, the holder shall be proportionally liable for damages to all roads and trails of the United States open to public use caused by the holder's use to the same extent as provided above, except that liability shall not include reasonable and ordinary wear and tear.

F. The Forest Service has no duty to inspect the permit area or to warn of hazards and, if the Forest Service does inspect the permit area, it shall incur no additional duty nor liability for identified or non-identified hazards. This covenant may be enforced by the United States in a court of competent jurisdiction.

18. Members of Congress. No Member of or Delegate to Congress or Resident Commissioner shall benefit from this permit either directly or indirectly, except when the authorized use provides a general benefit to a corporation.

19. Appeals and Remedies. Any discretionary decisions or determinations by the authorized officer are subject to the appeal regulations at 36 CFR 251, Subpart C, or revisions thereto.

20. Assignability. This authorization is not assignable or transferable. If Holder, through death, voluntary transfer, enforcement of contract, foreclosure, or other valid legal proceeding shall cease to be owner of the above described real property accessed by the authorized road, this authorization shall terminate.

21. Superior Clauses. In the event of any conflict between any of the preceding printed clauses or any provision thereof and any of the following clauses or any provision thereof, the preceding printed clauses shall control.

22. Noxious Weeds. The permit holder shall prepare, in cooperation with the Forest Service, a noxious weed plan for surveying, preventing, reporting, controlling and monitoring noxious weed populations on the authorized areas and within the holder's area of responsibility. These measures may include, where appropriate, equipment inspection for soil, seeds, and vegetative matter, equipment cleaning, and use of weed-free materials (soil, gravel, straw, mulch) and seed mixes. A current list of noxious weeds of concern is available at the Forest Supervisor's Office.

23. Operating Plan. The holder shall provide an Operating Plan and revise the plan every 5 years. The plan shall be prepared in consultation with the authorized officer or designated representative and cover operation and maintenance of facilities, dates or season of operations, and other information required by the authorized officer to manage and evaluate the occupation and/or use of National Forest System lands. The provisions of the Operating Plan and the annual revisions shall become a part of this authorization and shall be submitted by the holder and approved by the authorized officer or their designated representative(s). This Operating Plan is hereby made a part of the authorization.

24. Surveys, Land Corners. The holder shall protect, in place, all public land survey monuments, private property corners, and Forest boundary markers. In the event that any such land markers or monuments are destroyed in the exercise of the privileges permitted by this authorization, depending on the type of monument destroyed, the holder shall see that they are reestablished or referenced in accordance with (1) the procedures outlined in the "Manual of Instructions for the Survey of the Public Land of the United States," (2) the specifications of the county surveyor, or (3) the specifications of the Forest Service.

Further, the holder shall cause such official survey records as are affected to be amended as provided by law. Nothing in this clause shall relieve the holder's liability for the willful destruction or modification of any Government survey marker as provided at 18 U.S.C. 1858.

25. Removal and Planting of Vegetation and Other Resources. This permit does not authorize the cutting of timber or other vegetation. Trees or shrubbery may be removed or destroyed only after the authorized officer or the authorized officer's designated representative has approved in writing and marked or otherwise identified what may be removed or destroyed. Timber cut or destroyed shall be paid for at current stumpage rates within the Lake Tahoe Basin Management Unit. The Forest Service reserves the right to dispose of the merchantable timber to those other than the holder at no stumpage cost to the holder. Unmerchantable material shall be disposed of as directed by the authorized officer. Trees, shrubs, and other plants may be planted within the permit area with prior written approval of the authorized officer.

26. Ground Surface Protection and Restoration. The holder shall prevent and control soil erosion and gulying on National Forest System lands in and adjacent to the permit area resulting from construction, operation, maintenance, and termination of the authorized use. The holder shall construct authorized improvements so as to avoid accumulation of excessive amounts of water in the permit area and encroachment on streams. The holder shall revegetate or otherwise stabilize (for example, by constructing a retaining wall) all ground where the soil has been exposed as a result of the holder's construction, maintenance, operation, or termination of the authorized use.

27. Timber Payment. All National Forest timber cut or destroyed in the construction of the permitted improvements shall be paid for at current stumpage rates for similar timber in the National Forest. Young-growth timber below merchantable size will be paid for at current damage-appraisal value; and all slash and debris resulting from the cutting or destruction of such timber shall be disposed of as necessary or as the Forest Service may direct.

28. Protection of Habitat of Endangered, Threatened, and Sensitive Species. The location of sites within the permit area needing special measures for protection of plants or animals listed as threatened or endangered under the Endangered Species Act (ESA) of 1973, 16 U.S.C. 531 *et seq.*, as amended, or as sensitive by the regional forester under Forest Service Manual (FSM) 2670, pursuant to consultation conducted under section 7 of the ESA, may be identified on the ground or shown on a separate map. The map shall be attached to this permit as an appendix. The holder shall take any protective and mitigative measures specified by the authorized officer. If protective and mitigative measures prove inadequate, if other sites within the permit area containing threatened, endangered, or sensitive species are discovered, or if new species are listed as threatened or endangered under the ESA or as sensitive by the Regional Forester under the FSM, the authorized officer may specify additional protective and mitigative measures. Discovery of these areas by the holder or the Forest Service shall be promptly reported to the other party.

29. Archaeological-Paleontological Discoveries. The holder shall immediately notify the authorized officer of all antiquities or other objects of historic or scientific interest, including but not limited to historic or prehistoric ruins, fossils, or artifacts discovered in connection with the use and occupancy authorized by this permit. The holder shall leave these discoveries intact and in place until directed otherwise by the authorized officer. Protective and mitigative measures specified by the authorized officer shall be the responsibility of the holder.

This Amendment is accepted subject to the conditions set forth herein, and to conditions NA attached hereto and made a part of this Amendment.

**EL DORADO COUNTY DEPARTMENT  
OF TRANSPORTATION**

**U.S. DEPARTMENT OF AGRICULTURE  
Forest Service: Lake Tahoe Basin Mgmt. Unit**

By: Kimberly A Kerr  
Kimberly A. Kerr  
Interim Director of Transportation

By: Nancy J. Gibson  
NANCY J. GIBSON  
Forest Supervisor

Date: 6/28/12

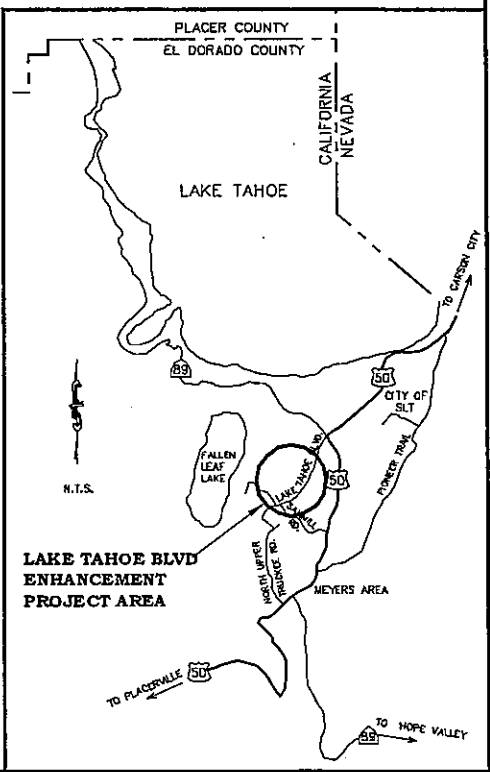
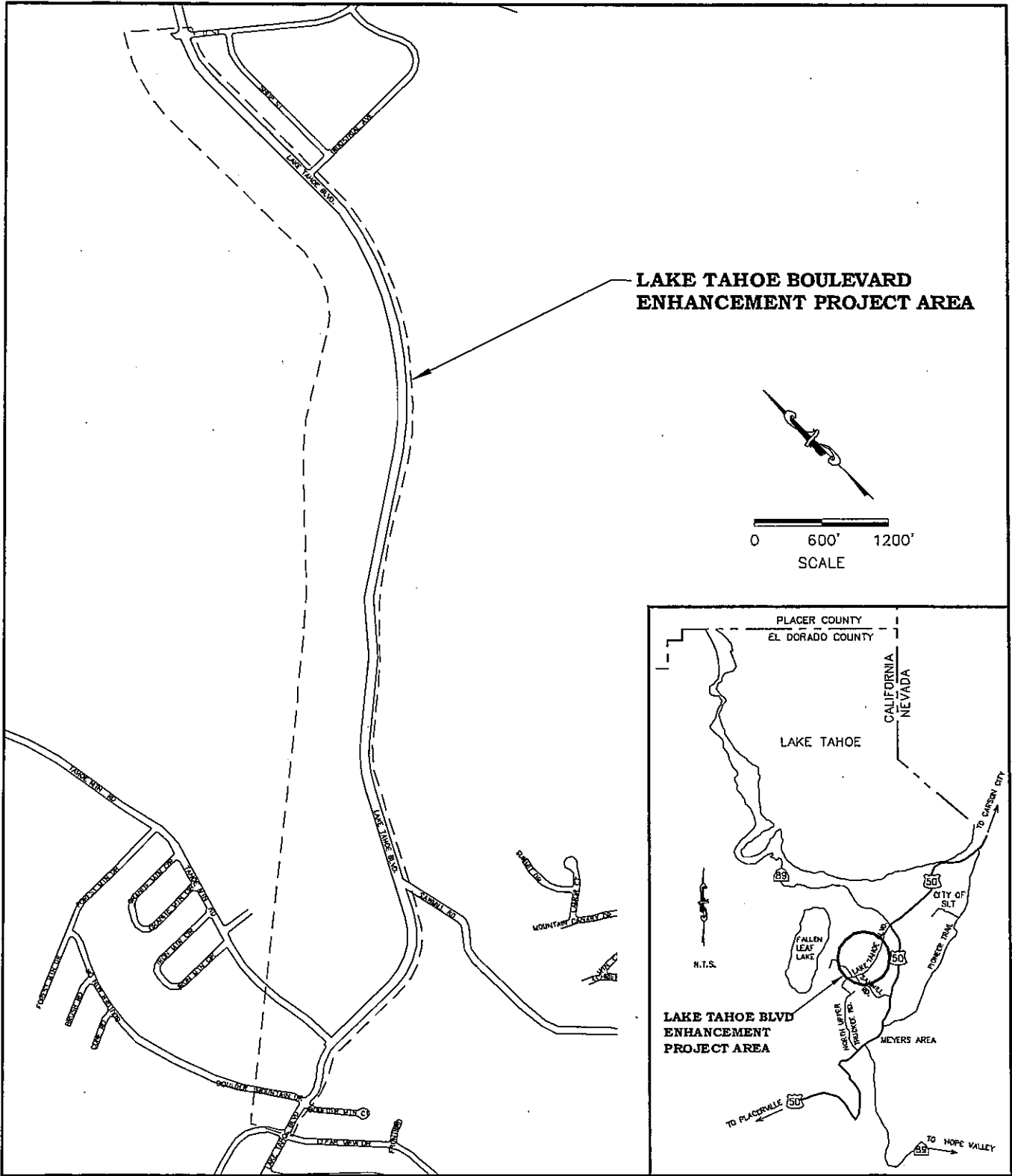
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EL DORADO COUNTY



**LAKE TAHOE BOULEVARD  
ENHANCEMENT PROJECT  
SPECIAL USE PERMIT  
PROJECT LOCATION MAP**

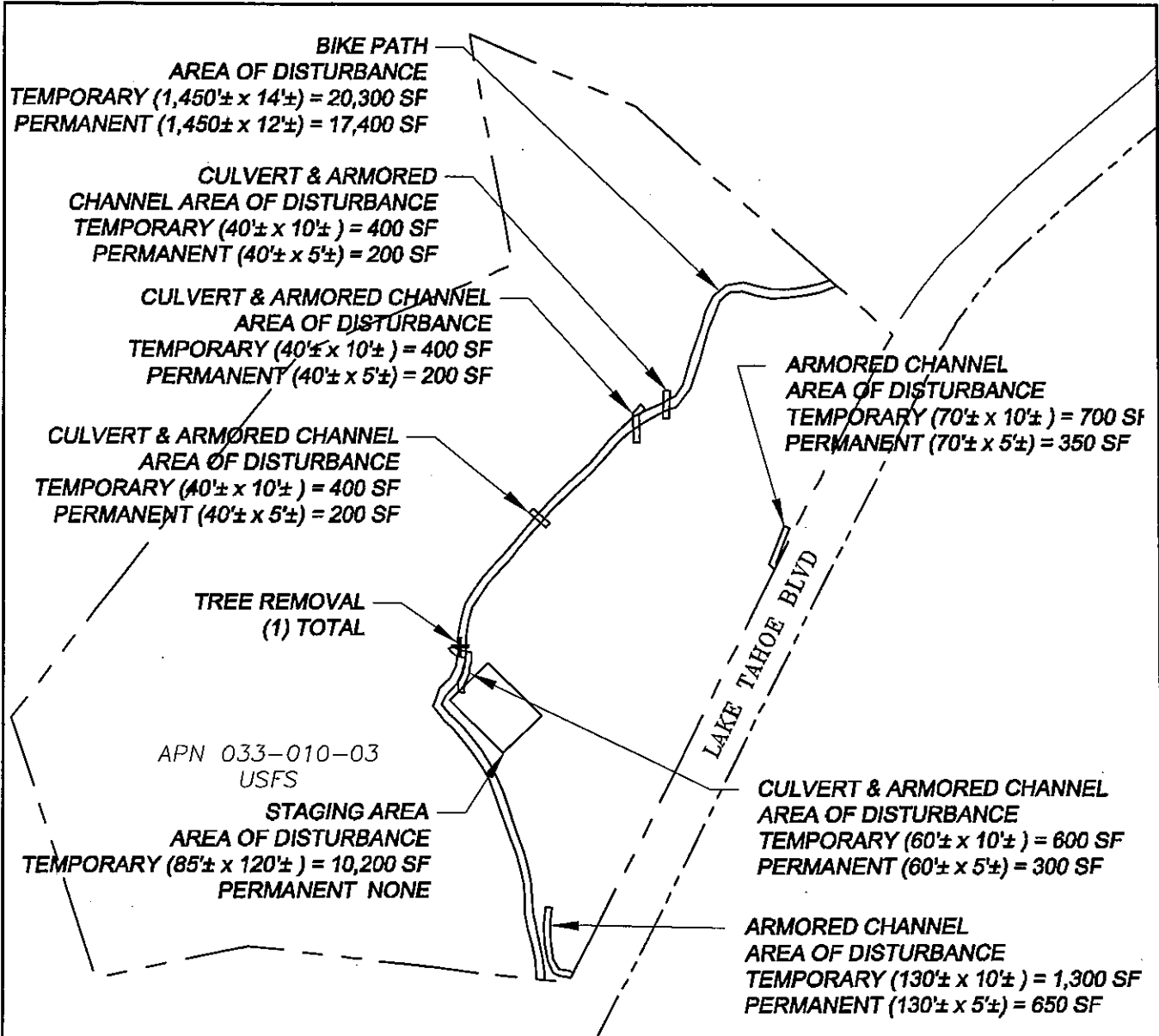
EXHIBIT  
**A**

DATE: 9/11

PROJECT NO.: 95186

BY: TA

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SCALE: 1"=250'

EL DORADO COUNTY  
 SOUTH LAKE TAHOE OFFICE



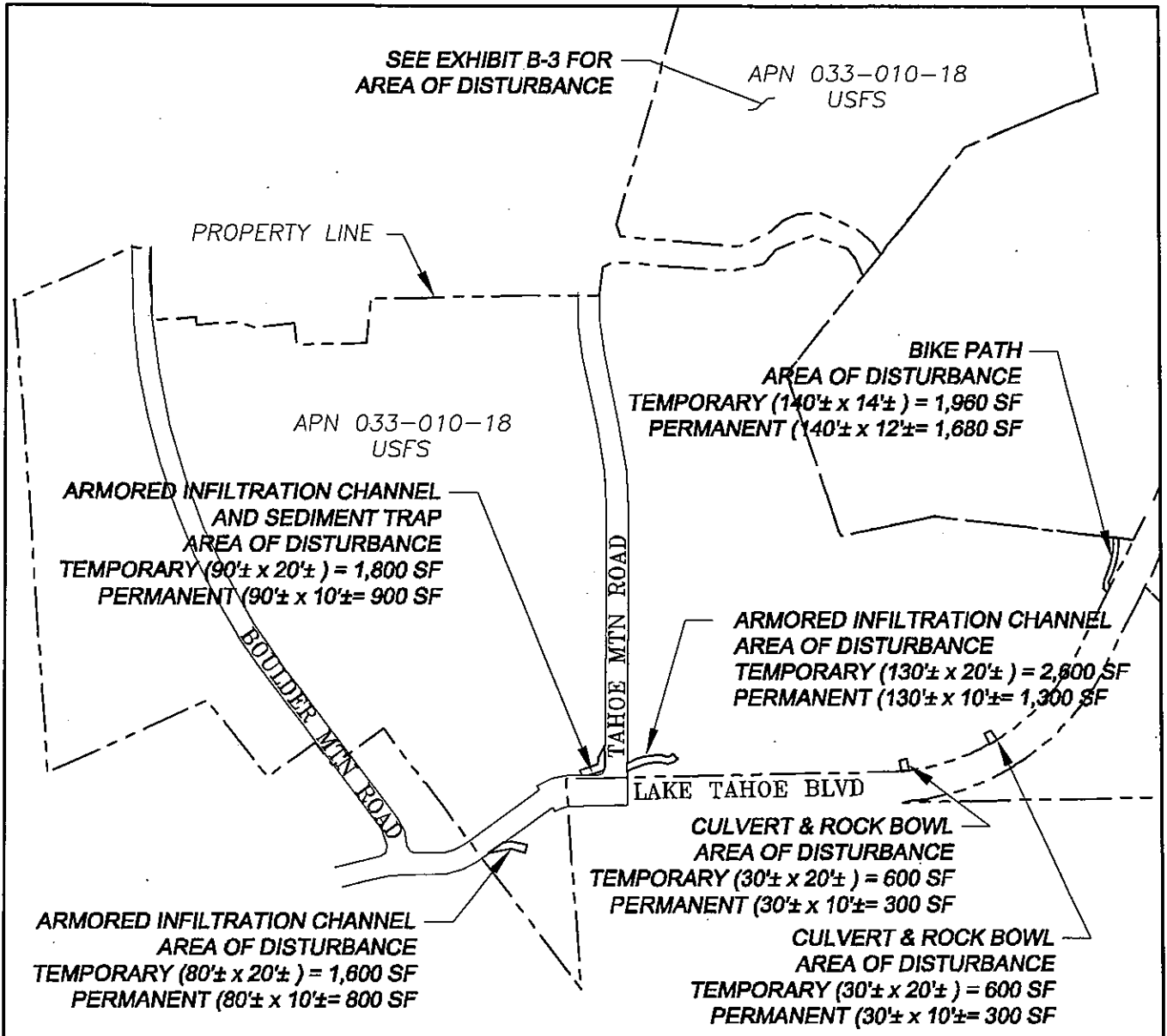
LAKE TAHOE BOULEVARD  
 ENHANCEMENT PROJECT  
 SPECIAL USE PERMIT  
 APN 033-010-03

EXHIBIT  
**B-1**

DATE: 0/11	PROJECT NO.: 05196	BY: TA
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SCALE: 1"=400'

EL DORADO COUNTY  
SOUTH LAKE TAHOE OFFICE



LAKE TAHOE BOULEVARD  
ENHANCEMENT PROJECT  
SPECIAL USE PERMIT  
APN 033-010-18

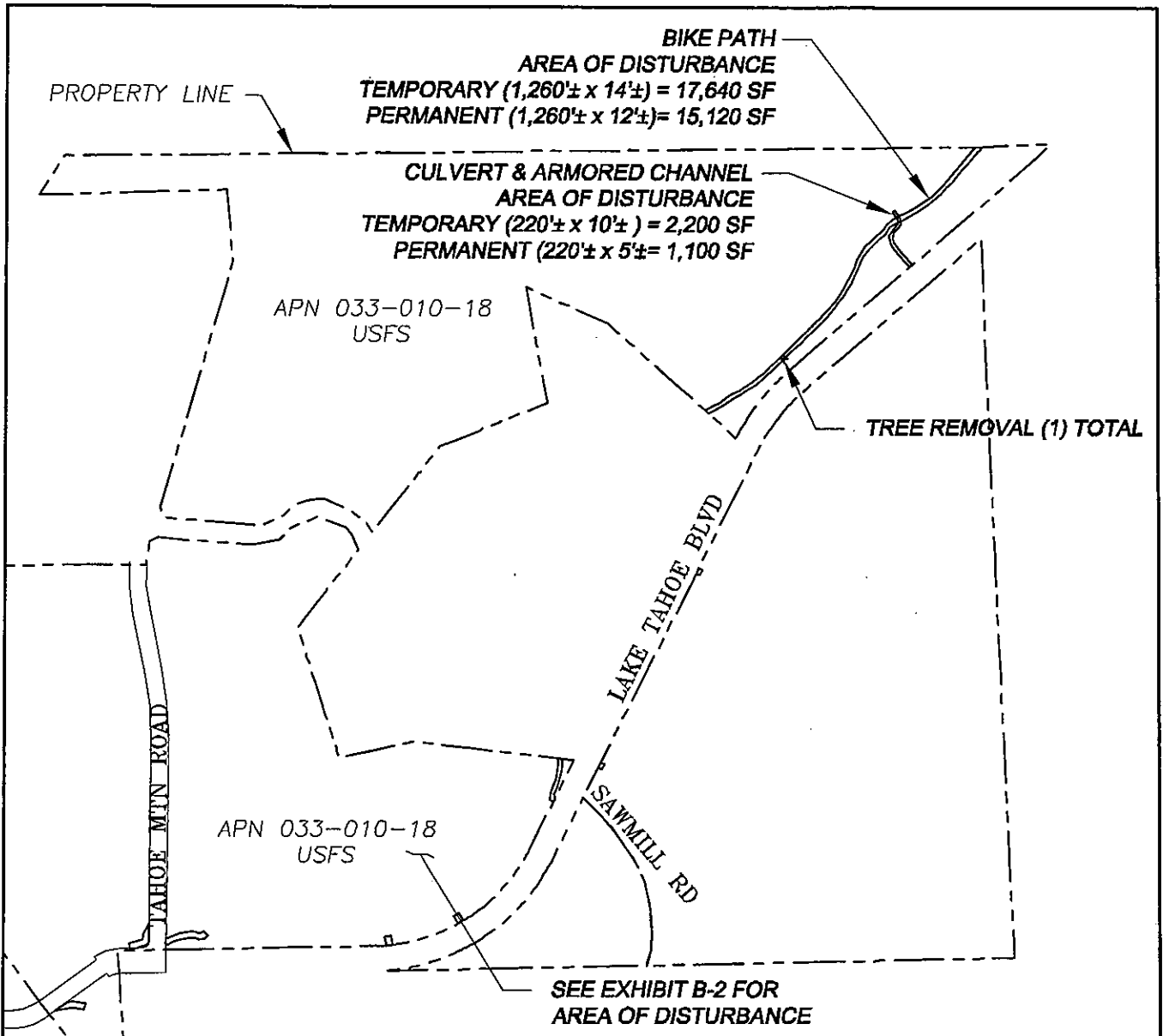
EXHIBIT

B-2

DATE: 0 / 11

PROJECT NO.: 05186

BY: TA



SCALE: 1"=500'

EL DORADO COUNTY  
SOUTH LAKE TAHOE OFFICE



LAKE TAHOE BOULEVARD  
ENHANCEMENT PROJECT  
SPECIAL USE PERMIT  
APN 033-010-18

EXHIBIT

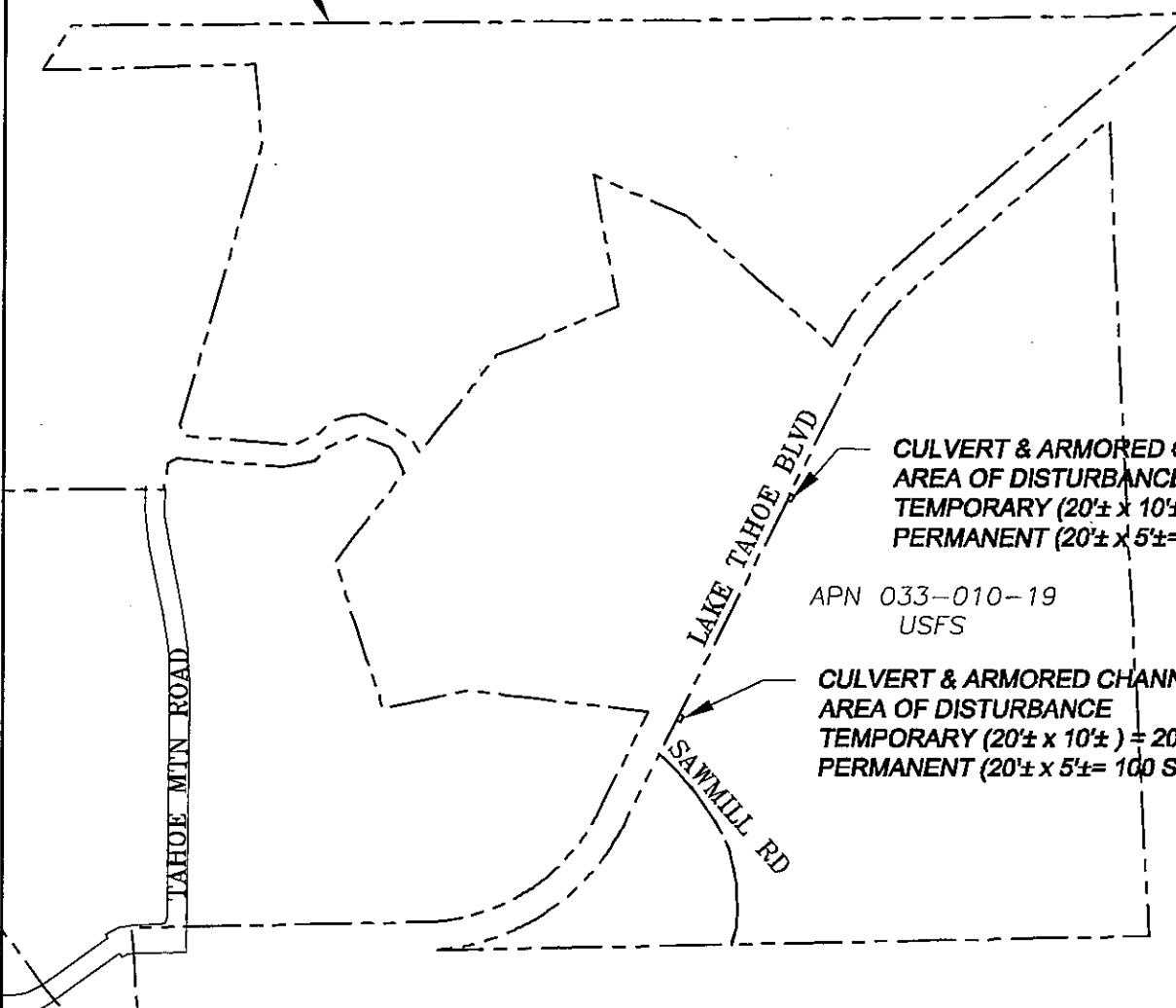
B-3

DATE: 0/11

PROJECT NO.: 05106

BY: TA

PROPERTY LINE



APN 033-010-19  
USFS

CULVERT & ARMORED CHANNEL  
AREA OF DISTURBANCE  
TEMPORARY (20'± x 10'±) = 200 SF  
PERMANENT (20'± x 5'±) = 100 SF



SCALE: 1"=500'

EL DORADO COUNTY  
SOUTH LAKE TAHOE OFFICE



LAKE TAHOE BOULEVARD  
ENHANCEMENT PROJECT  
SPECIAL USE PERMIT  
APN 033-010-19

EXHIBIT

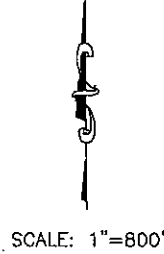
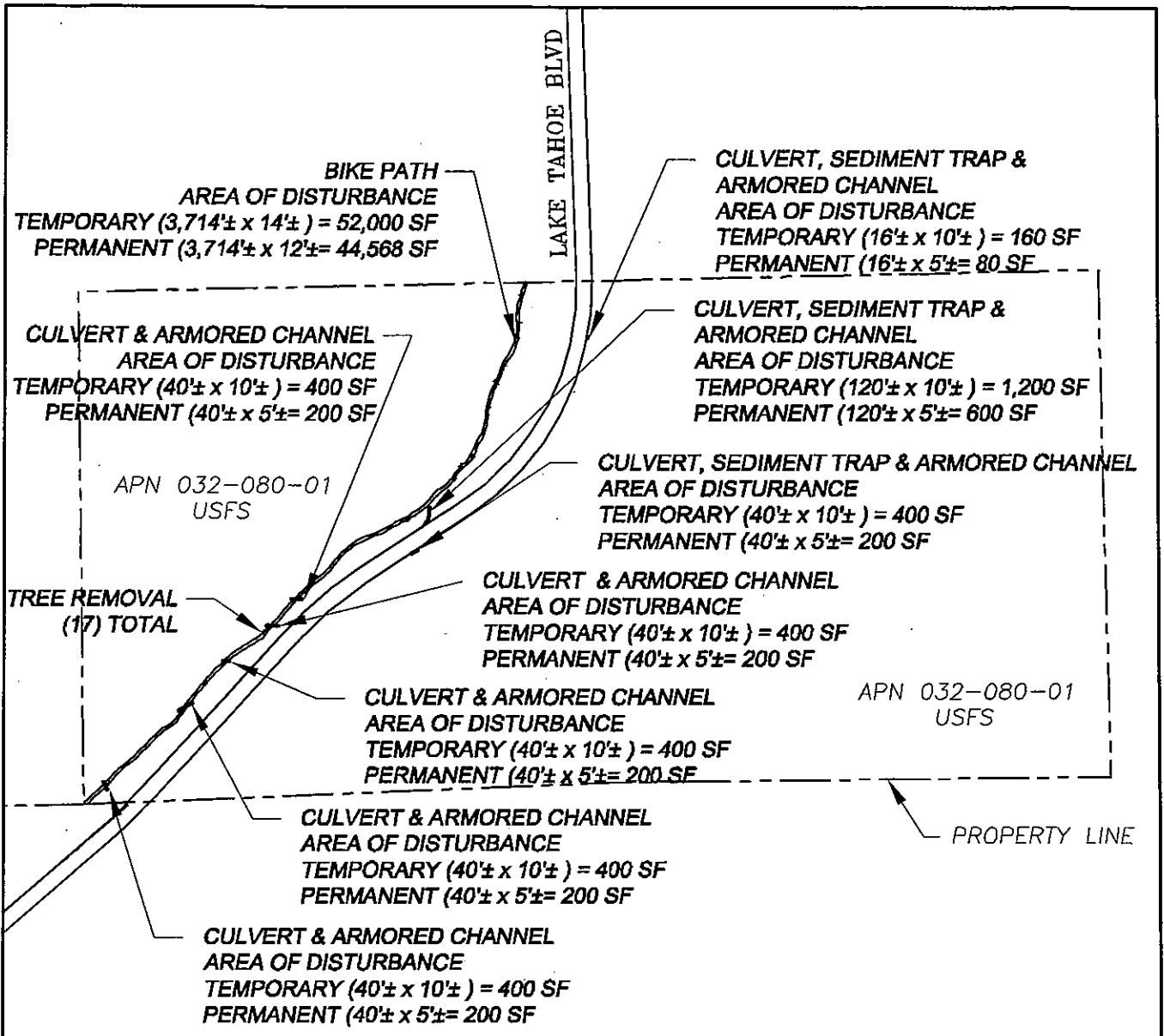
B-4

DATE: 0/11

PROJECT NO.: 05126

BY: TA

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**EL DORADO COUNTY**  
 SOUTH LAKE TAHOE OFFICE

EL DORADO COUNTY  
 DEPT. OF TRANSPORTATION

**LAKE TAHOE BOULEVARD  
 ENHANCEMENT PROJECT  
 SPECIAL USE PERMIT**  
 APN 032-080-01

DATE: 01/11      PROJECT NO.: 05106      BY: TΔ

EXHIBIT  
**B-5**

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PROPERTY LINE

TREE REMOVAL (8) TOTAL

D STREET

APN 032-070-01  
USFS

BIKE PATH  
AREA OF DISTURBANCE  
TEMPORARY (2,274'± x 14'±) = 31,840 SF  
PERMANENT (2,274'± x 12'±) = 27,288 SF

LAKE TAHOE BLVD



SCALE: 1"=500'

EL DORADO COUNTY  
SOUTH LAKE TAHOE OFFICE



LAKE TAHOE BOULEVARD  
ENHANCEMENT PROJECT  
SPECIAL USE PERMIT  
APN 032-070-01

EXHIBIT

B-6

DATE: 0 / 11

PROJECT NO: 05186

BY: TA

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# LAKE TAHOE BOULEVARD ENHANCEMENT PROJECT

## EXHIBIT C

### ROAD USE AND MAINTENANCE GUIDELINES

These guidelines are to assure El Dorado County and the Forest Service that construction and maintenance activities associated with this permit are carried out in accordance with current standards and practices and that proposed work activates and work standards are reviewed and agreed upon prior to commencement of work. The purpose of this agreement is to set forth the general terms and conditions, acceptable to the parties hereto, for the cooperative planning, design, construction, improvement and maintenance of the Lake Tahoe Boulevard (LTB) Bike Path.

Coordination: El Dorado County and the Forest Service shall each designate a coordinator to review use and proposed maintenance on the LTB Bike Path and agree on specific details of each project. The coordinators will also review completed work to assure management that the objectives of both parties are being met.

The following summarizes activities in which El Dorado County and the Forest Service will cooperate:

- A. Agree to the standard of maintenance adequate to mitigate environmental effects and accommodate safely and economically all traffic which uses the LTB Bike Path. Plans for maintaining the path will be established and updated in the 5-year Operating Plan, discussed in the special use permit, section #17.
- B. Provide for regular and adequate maintenance of the LTB Bike Path, including assignment of maintenance responsibilities.

Plans for maintaining the LTB Bike Path will be agreed upon and will be maintained and updated in the 5-year Operating Plan. Such plans shall include assignment of responsibility for maintenance or particular elements of maintenance to the cooperator or Forest Service for each segment of trail. Responsibility for maintenance will predominantly fall on El Dorado County, maintaining the LTB Bike Path to a Class 1 paved trail.

Maintenance shall include preserving the trail, including structures and related facilities, in their original condition, as constructed or reconstructed, to provide resource protection, and to maintain trail characteristics as agreed upon in the original design plans. Newly disturbed areas (i.e. reconstructed/constructed drainage outlets, sediment basins, drainage dips, etc.) shall be stabilized according to the most updated California Stormwater Quality Association (CASQA) Construction BMP Handbook.

Maintenance plans shall provide for prompt changes in maintenance assignments during the period of the plan upon agreement by the parties or their designated representatives. Public safety will be the responsibility of the entity performing the maintenance work.

- C. It is also the intent of the parties to arrange for continuing consultation between their representatives with the objective of reaching agreement by the parties on all matters of mutual concern that are covered by this agreement. The Forest Supervisor of the Lake Tahoe Basin Management Unit for the Forest Service or their designee and the General Manager for the cooperator or their designee shall be responsible for arranging for formal meetings and continuing consultation.
- D. The Forest Service will continue to need access on the LTB Bike Path for various uses, including vegetation thinning with large equipment (i.e. log trucks and/or chip vans). Below are the responsibilities of El Dorado County and the Forest Service under this agreement.

1. Forest Service agrees to:

- a. Perform maintenance activities to the LTB Bike Path to prevent damage or where damage occurs from Forest Service vehicle and equipment use of the LTB Bike Path. Costs of maintenance activities would be comparable and not exceed costs of similar work for a maintenance level 2 road. The Forest Service will coordinate with El Dorado County to notify the public, coordinate maintenance activities and timing, and conduct pre-project inspection of the path. The Forest Service may conduct minor activities to protect the path from equipment use such as maintaining shoulder backing and minimizing disturbance adjacent to the path. In addition, post project activities may include activities such as sweeping and crack sealing any areas that were damaged during hauling. The Forest Service may collect funds for road maintenance that could be shared with the county to supplement surface replacement or maintenance projects. In instances where the age or condition of the path results in impacts to the path from vegetation removal projects that cause project to become economically infeasible, the Forest Service would not be held responsible. The Forest Service is not responsible for damage that occurs due to lack of maintenance.
- b. Provide support on the proper implementation of Best Management Practices (BMPs) to ensure temporary and permanent resource protection.
- c. Inform El Dorado County when any major ground-disturbing activities will occur.

2. El Dorado County agrees to:

- a. Maintain the LTB Bike Path to Class 1 paved trail standards. It is the responsibility of El Dorado County to build and maintain the path to Class 1 paved trail standards before and after these operations.
- b. Submit proposed construction drawings and specifications, including any future modifications, to the Forest Service for consultation and approval. Notify the Forest Service 30 days prior to any construction activities and submit possible detours, closures and schedules for approval.

- c. Notify the Forest Service LTBMU Hazardous Materials Coordinator as soon as possible when spills or other hazardous events occur.
  - d. Notify the Forest Service LTBMU Lands Department as soon as possible when emergency responses occur.
  - e. Implement temporary construction Best Management Practices (BMPs) and runoff control measures on construction, maintenance, or emergency repair sites with the objective of preventing the discharge of degraded runoff water from all ground disturbing activities.
- E. Provide for entering into project agreements when improving the LTB Bike Path beyond initial construction and typical maintenance, and when improvements of the path under the jurisdiction of one party is to be financed in whole or in part from funds or resources provided by the other party. A project agreement is not required for improvement of any segment of the LTB Bike Path over which the party is performing and financing such improvement. Project agreements shall be supplemental to this general agreement and subject to the agreements, provisions, and conditions herein contained.
- a. A project agreement shall be entered into prior to beginning of improvement or construction work for which a project agreement is required.
  - b. The project agreement shall include the following elements:
    - i. Identification of the segment to be improved.
    - ii. Plans and specifications for the project.
    - iii. Schedule of construction or improvement work and designation of the party or parties to perform the work.
    - iv. Estimates of cost of improvement or construction.
    - v. Agreement as to how cost of work is to be borne including arrangements to share in work or to deposit funds with the performing party for a share of costs.
  - c. If cost recovery funds are provided by El Dorado County for work to be performed by the Forest Service, they shall be deposited in the Treasury of the United States. Any unused balance of cooperative funds for the purposes outlined in the project agreement shall be returned to El Dorado County after completion of the work performed or upon agreement of the Forest Service.

The amount of the cooperative funds as set forth in the project agreement shall be the maximum commitment of the cooperator to the project unless changed by a modification of the project agreement.

- d. Public safety will be the responsibility of the entity performing the improvement work.



F. Modification and Termination.

- a. This agreement may be modified by mutual consent.
- b. This agreement may be terminated by either party upon at least 60 days prior written notice, except that such termination shall in no way affect or change any commitment made authorizing the use of the LTB Bike Path for purposes for which Federal funds were expended, or any operation in progress at time of notice, and provided that such termination shall in no way affect the agreement of the parties hereto with respect to any obligations incurred under the agreement until a full settlement has been made.

G. Miscellaneous.

- a. It is understood that any default by a permittee or other authorized road user creates no liability on the part of the Forest Service.
- b. Where applicable, any contract, agreement, or understanding entered into pursuant to this agreement providing for work to be performed shall include the requirements of Federal laws, Executive orders, and Regulations.

Noxious Weed Risk Assessment  
Lake Tahoe Blvd Enhancement Project - Special Use Permit

UNITED STATES DEPARTMENT OF AGRICULTURE – FOREST SERVICE  
LAKE TAHOE BASIN MANAGEMENT UNIT

LAKE TAHOE BOULEVARD ENHANCEMENT PROJECT- SPECIAL USE PERMIT  
El Dorado County, CA

NOXIOUS WEED RISK ASSESSMENT  
5/11/2012

PREPARED BY: /s/ Blake Engelhardt DATE: 5/11/2012  
Blake Engelhardt, Botanist  
Lake Tahoe Basin Management Unit

APPROVED BY: /s/ Shana Gross DATE: 5/11/2012  
Shana Gross, Ecologist  
Lake Tahoe Basin Management Unit

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*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

## **PROJECT LOCATION**

The Lake Tahoe Blvd Enhancement Project is located in the southwest Lake Tahoe Basin, El Dorado County, California, and is located in portions of Sections 17-20, T.12N, R.18E, in the Echo Lake and Emerald Bay U.S. Geological Survey 7.5-minute quadrangle maps. The project will construct a Class I bike path and Class II bike lanes along Lake Tahoe Blvd near South Lake Tahoe, CA. Associated drainage, water quality, Stream Environment Zone (SEZ) enhancement, and erosion control improvements will also be installed.

## **PROJECT DESCRIPTION**

### **Background**

The Lake Tahoe Boulevard Enhancement Project will complete an important link in the regional bicycle path network and will also stabilize soils, restore stream environment zones (SEZ), and improve storm water quality within the project area. The project supports the Tahoe Regional Planning Agency's and the Tahoe Metropolitan Planning Organization's Lake Tahoe Region Bicycle and Pedestrian Plan by installing a Class I bike path and a Class II bike lane along Lake Tahoe Blvd between Boulder Mountain Dr and Viking Rd. The purpose of the Lake Tahoe Region Bicycle and Pedestrian Plan is to provide access to local businesses, schools, and offices for bicyclists and pedestrians, to reduce vehicular transportation, and to enhance recreation opportunities within the Lake Tahoe Basin. The project also supports TRPA's Environmental Improvement Program and the California Tahoe Conservancy's March 1987 Report on Soil Erosion Control Needs and Projects in the Lake Tahoe Basin by installing low impact Best Management Practices (El Dorado Department of Transportation, 2011).

### **Proposed Action**

The Lake Tahoe Basin Management Unit proposes to issue a special use permit to the EDOT for permanent use of five USFS parcels for the project. The EDOT applied for a special use permit in September of 2011.

The Lake Tahoe Blvd Enhancement Project will construct a Class I bike and pedestrian path from the intersection of Sawmill Rd and Lake Tahoe Blvd along segments of existing dirt road 12N31, and portions of trails 17E79 and 17E78.5A on the northwest side of Lake Tahoe Blvd to D St/Viking Wy. A Class II bike lane will be constructed from the intersection of Sawmill Rd along Lake Tahoe Blvd to Boulder Mountain Dr where an existing Class II bike lane ends. Associated drainage, water quality, Stream Environment Zone (SEZ) enhancement, and erosion control improvements will also be installed.

## **RISK ASSESSMENT<sup>1</sup>**

### **A. Field Assessments and Surveys**

An LTBMU Botanist visited a portion of the project area in November 2011. The presence of *Hypericum perforatum* (St. Johns Wort) was documented and the plants were hand-pulled. Previous surveys in the vicinity of the project have also documented the presence of *Bromus tectorum* (cheatgrass). A survey of the entire project area has yet to be completed; this will occur in June 2012. Current surveys and existing noxious weed sites are shown below (Figure 1). There

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<sup>1</sup> See Appendix A for Noxious Weed Risk Assessment direction.

*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

are known infestations of *Cirsium vulgare* (bull thistle) and *Hypericum perforatum* (St. Johns Wort) in the project area. Due to the botanical surveys not being complete, it is unknown whether there are additional noxious weed infestations within the project area. Therefore the risk associated with the Inventory factor of the Risk Assessment is assumed to be high.

Existing survey results relevant to this project are contained in documents titled 04-08-18, 04-09-05, 04-11-10, and 04-11-11.docx and are stored on the Forest Service network at: O:\NFS\LTMU\Program\2600SensitivePlantsMgmt\2620PlantsPIng\SurveyData\04\_Emerald\_Bay. The GIS shapefile containing all botanical survey data is stored on the Forest Service network at: T:\FS\Reference\GIS\r05\_tmu\Data\TMU\_Library.gdb.

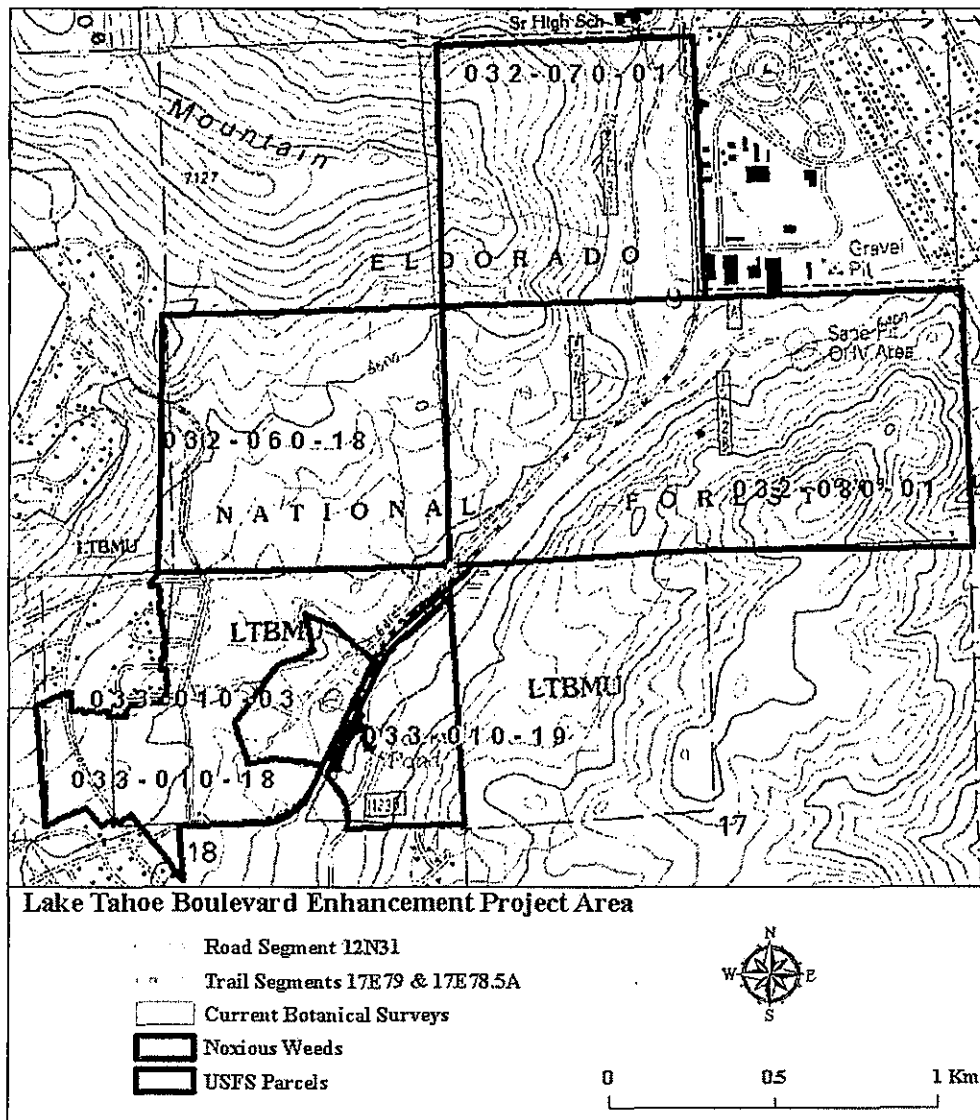


Figure 1. Map of project area including affected road and trail segments, USFS parcels, current botanical surveys, and known noxious weed sites.

*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

**B. Habitat Vulnerability**

The project area consists of a narrow corridor spanning five parcels of USFS land located adjacent to Lake Tahoe Blvd in South Lake Tahoe, El Dorado County, CA. Elevations within the project area boundaries are approximately 6,300 to 6,400 feet, and slopes are mild (0-25°). Substrates are derived from granitic parent material and consist of cobbles, gravel, and sand.

Habitat of the project area is primarily Jeffery pine forest, with some areas dominated by mixed chaparral or perennial grasses/forbs (montane meadow). Portions of the forest uphill from the proposed trail location burned during the Angora Fire in 2007. No perennial streams or known fens occur in the project area. There are some moist areas with riparian vegetation and mosses, as well as one meadow adjacent to Lake Tahoe Blvd.

Project activities will primarily occur in the footprint of an existing road segment and several existing trail segments. Some activities will also occur along Lake Tahoe Blvd (bike lane construction, culverts, armored channels, etc.) where there are known noxious weed infestations.

**C. Non-project Dependent Vectors**

The NFS lands where this project will occur are located in an urban setting and are interspersed with lands owned or under the jurisdiction of other entities including the state of California (California Tahoe Conservancy), El Dorado County, the City of South Lake Tahoe, and private landowners. Existing uses on USFS land within the project area include motorized and non-motorized travel on city streets, county roads, and forest service roads; motorized and non-motorized summer recreation including cars, motorcycles, dirt bikes, hikers, equestrians, and bicyclists along existing forest service roads and trails; and dispersed winter recreation use including skiing and snowmobiling.

**D. Habitat Alteration Expected as a Result of the Project**

The project area consists of approximately 3.5 acres of temporary disturbance, and 2.6 acres of permanent disturbance. Maintenance activities, including annual sweeping and occasional asphalt maintenance and/or repair, will occur within the 2.6 acres of permanent disturbance.

The bike path will consist of an eight foot wide paved path with a two foot wide wood chip shoulder on each side of the path. The path will span SEZs with new culverts and improved upstream and downstream channels. The areas slated for improvement are at existing drainages along the existing dirt road and trail. Removal of 27 trees will be required for bike path construction.

The bike lanes to be installed along both sides of the existing two lane stretch of Lake Tahoe Blvd (from Clear View Dr to Tahoe Mountain Rd) will require a small increase in pavement width. From Tahoe Mountain Rd to Sawmill Rd, the bike lanes will be located within the two existing outside travel lanes. This section of Lake Tahoe Blvd will be reduced from four to two lanes. Approximately two feet of pavement will be removed and restored on both sides of this section of Lake Tahoe Blvd.

Additional activities include: revegetating eroding slopes and bare areas along Lake Tahoe Blvd; armoring eroding conveyance channels along Lake Tahoe Blvd; culvert replacement, channel modifications, and installation of additional drainage inlets; and installation of sediment traps,

*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

rock bowels, and armored channels. Soil disturbed during project construction shall be revegetated using a USFS-approved native seed mix.

**E. Increased Vectors as a Result of Project Implementation**

During project implementation, the primary vectors of concern will include vehicles, equipment, machinery, and personnel travelling into, out of, and through the project area. The presence of these vectors will create an increased risk of spreading noxious weeds within the project area as well as introducing new noxious weeds to the project area. In addition, ground disturbance associated with construction and staging areas will create conditions that are conducive to noxious weed invasion (e.g. bare disturbed soils adjacent to travel corridors).

Existing use, especially along the paved bike path, is expected to increase following completion of project activities. The two foot shoulder along the bike path will initially be wood-chipped but could eventually be colonized by noxious weeds or other undesirable non-native species. The additional vectors associated with project implementation will cease to be of concern following project completion. All soil disturbance will be revegetated following project completion.

**F. Mitigation Measures**

“Weed prevention practices and mitigation measures will be incorporated into all FS activities.”  
USFS Noxious Weed Management Strategy.

- **Botanical surveys will be completed in June 2012, prior to any project implementation, and an updated map of known infestations will be attached to the NWRA. All known and newly-discovered weed infestations in the project area will be treated prior to project implementation in accordance with the design features of the Terrestrial Invasive Plant Species Treatment Project Environmental Assessment (TIPS EA). If an infestation is not treatable, it will be “flagged and avoided” according to the species present, project constraints, and feasibility.**
  - ***Bromus tectorum* (Cheatgrass):** Cheatgrass is known to occur within the project area. Small cheatgrass infestations may be treated (where feasible) by handpulling and bagging the plants. Large cheat grass infestations (> ~50 square feet) should be avoided as much as feasible. When working in cheatgrass-infested areas, equipment will be cleaned before moving to non-infested areas. Prior to implementation, a USFS Botanist will provide a map of cheatgrass infestations and will discuss how to recognize the species with the EDOT Project Leader.
  - ***Cirsium vulgare* (Bull thistle):** Bull thistle is known to occur at one site within the project area (CIVU 435A). Bull thistle will be treated one to two weeks prior to project implementation by digging out as much of the root as possible and either bagging the plant or laying it out where the roots will not be in contact with the ground. If in bud or flowering, all buds and flowers will be clipped and bagged.
  - ***Hypericum perforatum* (St. Johns Wort):** St. Johns Wort is known to occur at two sites within the project area (HYPE 435B and 630). These sites will be treated one month prior to project implementation by herbicide treatment where appropriate, in accordance with the Terrestrial Invasive Plant Species Environmental Assessment (USDA Forest Service 2010). If populations are not treatable they will be flagged and avoided.

*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

- **All vehicles and equipment must be cleaned before moving into the project area, in order to ensure that they are free of non-native invasive species. Equipment will be considered clean when visual inspection does not reveal soil, seeds, plant material, or other debris that could contain or hold seeds of non-native invasive species. It is recommended that all vehicles, especially large, off-road and/or earthmoving vehicles are cleaned when they come into the Lake Tahoe Basin or come from an area known to contain non-native invasive species. “Sanitize maintenance equipment.” USFS National Strategy and Implementation Plan for Invasive Species Management. “Consider requiring off-road equipment and vehicles (both Forest Service and contracted) used for project implementation to be weed free.” USFS Sierra Nevada Forest Plan Amendment Final Environmental Impact Statement of Record.**
- **When working in areas known to harbor non-native invasive species, equipment shall then be cleaned at a washing station<sup>2</sup> before moving to other non-infested lands. If this mitigation isn’t possible, then coordination with the botanist on the project should take place. “Sanitize equipment after working in infested areas.” USFS National Strategy and Implementation Plan for Invasive Species Management.**
- **Staging areas for equipment, materials, or crews will not be situated in areas infested by non-native invasive species. Areas containing non-native invasive species should be avoided during project activities. “Minimize weed spread by incorporating weed prevention and control measures into ongoing management or maintenance activities that involve ground disturbance or the possibility of spreading weeds.” USFS Sierra Nevada Forest Plan Amendment Final Environmental Impact Statement of Record.**
- **All gravel, fill, or other materials are required to be “weed-free”. Use on-site sand, gravel, rock, or organic matter when possible. Otherwise, obtain “weed-free” materials from gravel pits and fill sources that have been surveyed and approved by the Nevada Department of Agriculture or by the noxious weed coordinator. See the annual report of “Material Pit Surveys for Noxious Weeds” for suitable sources of gravel & fill; available upon request. “Require the use of weed-free materials in facilities maintenance and construction. Gravel. Fill. Straw. Weed-free seed mixes.” USFS Noxious Weed Management Strategy.**
- **Use “weed-free” mulches, hay, and seed sources. Salvage topsoil from project area for use in onsite revegetation, unless contaminated with non-native invasive species. Do not use soil or materials from area contaminated by cheatgrass. “Requiring weed free certified seed for restoration.” USFS National Strategy and Implementation Plan for Invasive Species Management. “Make every effort to ensure that all seed, feed, hay, and straw used on National Forest System lands is free of noxious weed seeds.” USFS FSM, 2080 Noxious Weed Management. “Require the use of weed-free materials in facilities maintenance and constructions. Gravel. Fill. Straw. Weed-free seed mixes.” USFS Noxious Weed Management Strategy. “Do not use noxious weeds for revegetation, rehabilitation and restoration projects.” USFS FSM, 2070 Vegetation Ecology. “Require the use of certified weed free hay.” USFS National Strategy and Implementation Plan for Invasive Species Management.**

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<sup>2</sup> See Appendix C for a list of commercial car washes.

*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

- **Minimize the amount of ground and vegetation disturbance in construction areas. Reestablish vegetation where feasible on disturbed bare ground to minimize non-native invasive species establishment and infestation. Revegetation is especially important in staging areas.** “Minimize weed spread by incorporating weed prevention and control measures into ongoing management or maintenance activities that involve ground disturbance or the possibility of spreading weeds.” USFS Sierra Nevada Forest Plan Amendment Final Environmental Impact Statement of Record. “Promote the use of native plant materials for the revegetation, rehabilitation and restoration of native ecosystems.” USFS FSM, 2070 Vegetation Ecology
- **Utilize locally collected native seed sources when possible. Plant and seed material should be collected from or near the project area, from within the same watershed and at a similar elevation when possible. Persistent non-natives such as *Phleum pratense* (cultivated timothy), *Dactylis glomerata* (orchard grass), or *Lolium spp.* (ryegrass) will not be used.** “Ensure genetically appropriate native plant materials are given primary consideration.” USFS FSM, 2070 Vegetation Ecology. “Promote the use of native plant materials for the revegetation, rehabilitation and restoration of native ecosystems.” USFS FSM, 2070 Vegetation Ecology
- **Seed mixes must be approved by a Forest Service botanist or a professional appointed by the forest botanist who has knowledge on local flora.** “Ensure that development, review and/or approval of revegetation, rehabilitation and restoration prescriptions, including species selection, genetic heritage, growth stage and any needed site preparation, is done by a plant materials specialist who is knowledgeable and trained or certified in the plant community type where the revegetation will occur.” USFS FSM, 2070 Vegetation Ecology.
- **The noxious weed coordinator should be notified after project completion so that the project area can be monitored for three years (as funding allows) subsequent to project implementation to ensure additional non-native invasive species do not spread or become established in the areas affected by the project.** “Conduct follow-up inspections of ground disturbing activities.” USFS Sierra Nevada Forest Plan Amendment Final Environmental Impact Statement of Record.

**G. Anticipated Weed Response to Proposed Action**

Factor	Current condition/ Weed Spread Factors	Risk (with Project Implementation)
A. Inventory	Bull thistle, St. Johns wort and cheatgrass are known from the project area. All other species are unknown as botanical surveys are not complete.	High
B. Habitat vulnerability	Project activities will primarily occur within previously-disturbed areas. Disturbed areas are more vulnerable to invasions.	Moderate



*Noxious Weed Risk Assessment  
Lake Tahoe Blvd Enhancement Project - Special Use Permit*

Factors	Current condition / Weed Spread Factors	Risk (with Project Implementation)
C. Non-project dependent vectors	Travel corridors and private property development occur within or adjacent to the project boundary. Motorized and non-motorized users travel on paved streets and dirt roads and trails within and adjacent to the location of project activities. Summer and winter recreation occurs in the project area.	Moderate
D. Habitat alteration expected as a result of the project	Activities will include paving over existing dirt road and trail segments, applying woodchips, installing culverts, channel armoring, SEZ enhancement, pavement removal, and ground disturbance associated with road and landing construction.	Moderate
E. Increased vectors as a result of project implementation	Vectors associated with project implementation include vehicles, equipment, machinery, and personnel. Ground disturbance associated with project construction will be temporary and will be restored following project completion. Non-motorized use at the location of the bike path is expected to increase following project completion.	Moderate
F. Mitigation measures	If no mitigation measures implemented.	High risk
	If some mitigation measures implemented.	Moderately reduced risk
	If all mitigation measures implemented.	Reduced risk
G. Anticipated weed response to proposed action	Bull thistle, St. Johns wort and cheatgrass will likely increase without pre-project treatment. Cheatgrass is known to occur in the project, most likely in disturbed areas; this species will increase unless consistent mitigation measures are implemented. Since botanical surveys have not been completed it is unknown whether there are additional infestations of these or other species; therefore the risk of weed spread is assumed to be high. The risk of introducing new noxious weed species to the project area is high unless appropriate mitigation measures (Section F) are employed.	High risk

*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

**SUMMARY**

The overall risk of noxious weed establishment and/or spread as a result of the project is **high**. This determination is based on the following:

1. Three noxious weeds are known to occur in the project area: *Bromus tectorum* (cheatgrass), *Cirsium vulgare* (bull thistle), and *Hypericum perforatum* (St. Johns wort).
2. Botanical surveys of the entire project area have not yet been completed. The total number of noxious weed species and infestations in the project area is unknown, and therefore the risk is assumed to be high.
3. There will be an increased potential for noxious weed introduction and spread by vehicles and equipment used for project implementation.
4. There are two *Hypericum perforatum* sites and one *Cirsium vulgare* site that are known to occur within the project area. These sites are relatively discrete and should be straightforward to treat prior to project implementation and to avoid spreading during project activities.
5. *Bromus tectorum* is known to occur in the project area but the extent of infestation is unknown. This species typically occurs in disturbed areas along roads and trails. Small cheatgrass infestations (less than ~50 ft<sup>2</sup>) may be feasible to treat by hand pulling and bagging the plants. Larger cheatgrass infestations should be avoided as much as feasible during all project activities. Due to the often dispersed growth pattern of *B. tectorum* along linear features (e.g. roads and trails), flagging of infestations is not practical. If major staging areas or landing zones are located near *B. tectorum* infestations, it may be possible to flag infestations of major concern. When working in cheatgrass-infested areas or treatment units, equipment should always be cleaned before moving to other treatment units within the project area or off the project area to other lands. Due to the ease with which *B. tectorum* spreads and the potentially large extent of infestations, the risk of spreading this species into previously uninfested areas is high.

*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

**TERMINOLOGY**

**Alien species:** A species (including its seeds, eggs, spores, or other biological material capable of propagating that species) that is not native to a particular ecosystem. Executive Order 13112.

**Integrated Weed Management:** An interdisciplinary pest management approach for selecting methods for preventing, containing, and controlling noxious weeds in coordination with other resource management activities to achieve optimum management goals and objectives. Methods include: education, preventive measures, herbicide, cultural, physical or mechanical methods, biological control agents, and general land management practices, such as manipulation of livestock or wildlife grazing strategies, that accomplish vegetation management objectives. USFS FSM 2080 Noxious Weed Management.

**Invasive Species:** An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Executive Order 13112.

**Native plant species:** A plant species which occurs naturally in a particular region, state, ecosystem and habitat without direct or indirect human actions. FSM, 2070 Vegetation Ecology.

**Noxious Weed:** A plant species designated as a noxious weed by the Secretary of Agriculture pursuant to the Plant Protection Act of 2000 or by the responsible State official. Noxious weeds generally possess one or more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host of serious insects or disease, and being non-native or new to or not common to the United States or parts thereof. FSM, 2070 Vegetation Ecology.

**Plant materials:** Seeds, spores, parts of plants or whole plants. FSM, 2070 Vegetation Ecology.

**Rehabilitation:** Reparation of ecosystem processes, productivity and services based on functioning pre-existing or existing ecosystems, but allowing for adaptation of sites to specific current or future uses. FSM, 2070 Vegetation Ecology.

**Restoration:** Assisting the recovery of an ecosystem that has been degraded, damaged or destroyed including the re-establishment of the pre-existing biotic integrity in terms of species composition and community structure. FSM, 2070 Vegetation Ecology.

**Revegetation:** Re-establishment of plants on a site. FSM, 2070 Vegetation Ecology.

**Undesirable Plants:** Plant species that are classified as undesirable, noxious, harmful, exotic, injurious, or poisonous pursuant to State or Federal laws. Species listed as threatened or endangered by the Secretary of the Interior according to the Endangered Species Act of 1973 are not classified as undesirable plants. USFS FSM 2080 Noxious Weed Management.

*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

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*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

**APPENDIX A. Noxious Weed Risk Assessment Direction**

The Sierra Nevada Forest Plan Amendment (SNFP) outlines the direction for completing a noxious weed risk assessment (SNFP Appendix L). In addition, the Forest Service Manual 2080 Noxious Weed Management (effective 11/29/1995) includes a policy statement calling for a risk assessment for noxious weeds to be completed for every project. Specifically, the manual states:

**2081.03 Policy.** When any ground disturbing action or activity is proposed, determine the risk of introducing or spreading noxious weeds associated with the proposed action.

1. For projects having moderate to high risk of introducing or spreading noxious weeds, the project decision document must identify noxious weed control measures that must be undertaken during project implementation.
2. Make every effort to ensure that all seed, feed, hay, and straw used on National Forest System lands is free of noxious weed seeds (FSH 6309.12, sec. 42 and 42.1).
3. Where States have enacted legislation and have an active program to make weed-free forage available, Forest Officers shall issue orders restricting the transport of feed, hay, straw, or mulch which is not declared as weed-free, as provided in 36 CFR 261.50(a) and 261.58(t).
4. Use contract and permit clauses to prevent the introduction or spread of noxious weeds by contractors and permittees. For example, where determined to be appropriate, use clauses requiring contractors or permittees to clean their equipment prior to entering National Forest System lands.

**2081.2 Prevention and Control Measures.** Determine the factors which favor establishment and spread of noxious weeds and design management practices or prescriptions to reduce risk of infestation or spread of noxious weeds.

Where funds and other resources do not permit undertaking all desired measures, address and schedule noxious weed prevention and control in the following order:

1. First Priority: Prevent the introduction of new invaders,
2. Second Priority: Conduct early treatment of new infestations, and
3. Third Priority: Contain and control established infestations.

*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

**APPENDIX B. Noxious and Invasive Weed Species In or Near the Project Area**

Common Name	Scientific Name	Weed Code	SNTPA	NDA	CDFA	CAHPC	LTBWCC	LTBMU	Species Present? Y or N
Russian knapweed	<i>Acroptilon repens</i>	ACRE3	NW	B	B	Moderate	Group 1	Medium	?
Tree of heaven	<i>Ailanthus altissima</i>	AIAL	NW		C	Moderate	Group 1	N/A	?
Cheat grass	<i>Bromus tectorum</i>	BRTE	NW			High		Low	Y
Heart-podded hoarycress/whiteweed	<i>Cardaria draba</i>	CADR	NW	C	B	Moderate	Group 1	Medium	?
Globe-podded hoarycress/hairy whiteweed	<i>Cardaria pubescens</i>	CAPU6	NW		B	Limited	Group 1	Medium	?
Musk thistle	<i>Carduus nutans</i>	CANU4	NW	B	A	Moderate	Group 1	High	?
Purple starthistle/red starthistle	<i>Centaurea calcitrapa</i>	CECA2	NW	A	B	Moderate	Group 1	N/A	?
Diffuse knapweed	<i>Centaurea diffusa</i>	CEDI3	NW	B	A	Moderate	Group 1	Medium	?
Spotted knapweed	<i>Centaurea maculosa</i>	CEMA4	NW	A	A	High	Group 2	Medium	?
Yellow starthistle	<i>Centaurea solstitialis</i>	CESO3	NW	A	C	High	Group 1	Medium*	?
Squarrose knapweed	<i>Centaurea virgata ssp. squarrosa</i>	CESQ	NW	A	A	Moderate		Medium	?
Rush skeletonweed	<i>Chondrilla juncea</i>	CHJU	NW	A	A	Moderate	Group 1	High	?
Canada thistle	<i>Cirsium arvense</i>	CIAR4	NW	C	B	Moderate	Group 1	Medium	?
Bull thistle	<i>Cirsium vulgare</i>	CIVU	NW		C	Moderate	Group 2	High	Y
Poison hemlock	<i>Conium maculatum</i>	COMA2		C		Moderate		Medium	?
Scotchbroom	<i>Cytisus scoparius</i>	CYSC4	NW		C	High	Group 2	Medium	?
Teasel/Fuller's teasel	<i>Dipsacus fullonum</i>	DIFU2				Moderate Alert	Group 1	N/A	?
Stinkwort	<i>Diurichia graveolens</i>	DIGR3				Moderate Alert	Group 1	N/A	?
Quackgrass	<i>Elytrigia repense</i>	ELRE3	NW		B			N/A	?
Hydrilla/Waterthyme	<i>Hydrilla verticillata</i>	HYVE3	NW	A	A	High Alert		N/A	?
St. John's wort / Klamath weed	<i>Hypericum perforatum</i>	HYPE	NW	A	C	Moderate	Group 2	Medium	Y
Dyer's woad	<i>Isatis tinctoria</i>	ISTI	NW	A	B	Moderate	Group 1	Medium	?
Tall whiteweed / Perennial pepperweed/ broadleaved pepperweed	<i>Lepidium latifolium</i>	LELA2	NW	C	B	High	Group 2	Medium	?
Oxeye daisy	<i>Leucanthemum vulgare</i>	LEVU	NW			Moderate	Group 2	Medium	?
Dalmatian toadflax	<i>Linaria genistifolia ssp. dalmatica</i>	LIDAD	NW	A	A	Moderate	Group 2	High	?
Yellow toadflax/butter & eggs	<i>Linaria vulgaris</i>	LIVU2		A		Moderate	Group 2	Medium	?
Purple loosestrife	<i>Lythrum salicaria</i>	LYSA2	NW	A	B	High	Group 1	Medium*	?
Eurasian water milfoil	<i>Myriophyllum spicatum</i>	MYSP2	NW	A		High		N/A	?
Scotch thistle	<i>Onopordum acanthium ssp. acanthium</i>	ONAC	NW	B	A	High	Group 1	High	?
Curlyleaf pondweed/curly pondweed	<i>Potamogeton crispus</i>	POCR3				Moderate		N/A	?

*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

Common Name	Scientific Name	Weed Code	SNFPA	NDA	CDFA	CalIPC	LTBWCC	LTBMU	Species Present? Y or N
Sulfur cinquefoil	<i>Potentilla recta</i>	PORE5		A	A		Group 1	Low	?
Himalaya blackberry	<i>Rubus armeniacus</i> (formerly <i>R. discolor</i> )	RUAR9	NW			High		Low	?
Medusahead	<i>Taeniatherum caput-medusae</i>	TACA8	NW	B	C	High	Group 1	High*	?
Tamarisk/saltcedar	<i>Tamarix chinensis</i> , <i>T. ramosissima</i> , & <i>T. parvifolia</i>	TACH2 TARA TAPA4	NW	C	B	High	Group 1	High*	?
Woolly mullein/common mullein	<i>Verbascum thapsus</i>	VETH	NW			Limited			?

Sierra Nevada Forest Plan Amendment (SNFPA) part 3.6 defines noxious weeds as: those plant species designated as noxious weeds by Federal or State law. Noxious weeds generally possess one or more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host of serious insects or diseases, and generally non-native.

Nevada Department of Agriculture (NDA) noxious weed list ([http://agri.nv.gov/nwac/PLANT\\_NoXWeedList.htm](http://agri.nv.gov/nwac/PLANT_NoXWeedList.htm) divides) divides noxious weeds into categories A, B, and C. Category A: Weeds not found or limited in distribution throughout the state; actively excluded from the state and actively eradicated wherever found; actively eradicated from nursery stock dealer premises; control required by the state in all infestations. Category B: Weeds established in scattered populations in some counties of the state; actively excluded where possible, actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur. Category C: Weeds currently established and generally widespread in many counties of the state; actively eradicated from nursery stock dealer premises; abatement at the discretion of the state quarantine officer.

The California Department of Food and Agriculture's (CDFA) noxious weed list (<http://www.cdfa.ca.gov/phpps/ipc/>) divides noxious weeds into categories A, B, and C. A-listed weeds are those for which eradication or containment is required at the state or county level. With B-listed weeds, eradication or containment is at the discretion of the County Agricultural Commissioner. C-listed weeds require eradication or containment only when found in a nursery or at the discretion of the County Agricultural Commissioner. Q-listed weeds require temporary "A" action pending determination of a permanent rating.

California Invasive Plant Council (Cal-IPC) invasive plant inventory (<http://www.cal-ipc.org/ip/inventory/weedlist.php>) categorizes non-native invasive plants by the ecological impacts of each plant on wildlands into three categories high, moderate, & limited as well as an alert. An "alert" is assigned for species with significant potential for invading new ecosystems. High: these species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Moderate: these species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Limited: these species are invasive but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score.

Lake Tahoe Basin Weed Coordinating Group (LTBWCG) prioritizes invasive weeds of concern by management group. Group 1: watch for, report, and eradicate immediately. Group 2: manage infestations with the goal of eradication (2010).

The Lake Tahoe Basin Management Unit (LTBMU) prioritized noxious weeds based on their ecological impact and invasive potential and on the potential for effective management and control given the tools available to the LTBMU. A noxious weed can fall in to one of three categories: high, medium, or low. High: species that have a large ecological impact and/or invasive potential and that are easily controlled. Medium: species that have a medium ecological impact and/or invasive potential and medium ability to be controlled. Low: species that have a low ecological impact and/or invasive potential and are not easily controlled. The weighted ranking was used in this table except on those species where a weighted ranking was not given; those species are indicated with an asterisk (\*). Species with an N/A were not evaluated.

*Noxious Weed Risk Assessment*  
*Lake Tahoe Blvd Enhancement Project - Special Use Permit*

**APPENDIX C. List of Commercial Car Washes**

Cross Roads Car Wash  
11382 Deerfield Dr  
Truckee, CA  
530-587-5751

Edgin Coin-Op Car Wash  
2281 Lake Tahoe Blvd  
South Lake Tahoe, CA  
530-541-2982

Incline Car Wash  
910 Incline Wy  
Incline Village, NV  
775-831-1485

Kings Beach Car Wash  
11382 Deerfield Dr  
Truckee, CA  
530-587-5751

Sierra Suds  
1119 Emerald Bay Rd  
South Lake Tahoe, CA  
530-544-1589



Authorization ID: ELD100325  
Contact ID: ELDORADO COUNTY  
Use Code: 753, 921

FS-2700-23 (v. 10/09)  
OMB No. 0596-0082

**U.S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
AMENDMENT  
FOR**

**SPECIAL-USE AUTHORIZATION  
Amendment number: 1**

This amendment is attached to and made a part of the special use authorization (identified above) issued to the El Dorado Department of Transportation on 07/12/2012 for the Lake Tahoe Boulevard Enhancement Project, which is hereby amended as follows:

To extend the expiration date of special use authorization ELD100325 to 12/31/2032, in order to facilitate operation and maintenance of a class 1 paved bike path and erosion control structures on five Forest Service parcels (APN's # 033-010-03, 033-010-18, 033-010-19, 032-080-01, and 032-070-01) adjacent to Lake Tahoe Boulevard on Forest Service road (12N31) / trail (17E79).

This amendment covers approximately 3.04 acres and is located in Mt. Diablo Meridian, T. 12 N., R. 18 E., secs. 7, 8, and 17.

This Amendment is accepted subject to the conditions set forth herein, and to conditions N/A hereto and made a part of this Amendment.

EL DOARDO COUNTY DEPARTMENT  
OF TRANSPORTATION

U.S. DEPARTMENT OF AGRICULTURE  
Forest Service: Lake Tahoe Basin Mgmt. Unit

By: Kimberly A. Kerr  
Kimberly A. Kerr  
Interim Director of Transportation

By: Nancy J. Gibson  
NANCY J. GIBSON  
Forest Supervisor

Date: 8/27/12

Date: 8/30/12

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082. The time required to complete this information collection is estimated to average one (1) hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.

Auth ID: ELD100325  
Contact ID: ELDORADO COUNTY  
Use Code: 753, 921

FS-2700-23 (v. 10/09)  
OMB No. 0596-0082

**U.S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
AMENDMENT  
FOR  
SPECIAL-USE AUTHORIZATION  
Amendment#: 2**

This amendment is attached to and made a part of the special use authorization (identified above) issued to the Community Development Agency – Transportation Division on 07/12/2012 for the Lake Tahoe Boulevard Enhancement Project, which is hereby amended as follows:

To amend the permanent and temporary project acreage of special use authorization ELD100325 from 3.48 acres (151,700) to 4.2 acres (182,952 square feet), in order to facilitate construction, operation, and maintenance of a class 1 paved bike path and erosion control structures on five Forest Service parcels (APN's #033-010-03, 033-010-18, 032-010-19, 032-080-01, and 092-070-01) adjacent to Lake Tahoe Boulevard on Forest Service road 12N31 / trail 17E79.

The area to be amended is as follows (Exhibits B-1 through B-6):

Bike path: paved surface is 88,380 square feet (8,838 feet long and 10 feet wide, 2.03 acres).  
Total bike path permitted area: 123,732 square feet, 2.84 acres (8,838 feet long by 14 feet wide).

Temporary erosion control disturbance: 30,280 square feet (0.70 acre)  
Permanent erosion control improvements: 8,880 square feet (0.20 acre)  
Total erosion control disturbance: 39,160 square feet (0.90 acre)

An additional staging and storage area will be set up on APN 032-080-01 (Exhibit B-5). This staging and storage area will consist of 0.16 acre (7,000 square feet) and will only be used for construction efforts associated with the work on APN's 033-010-03, 033-010-18, 033-010-19, 032-080-01, and 032-070-01.

In addition to authorizing project work on the five Forest Service parcels, this amendment authorizes construction of a temporary dirt access road (160 feet long by 20 feet wide, 3,200 square feet) across parcel 032-070-01 (Exhibit B-6). Once constructed, vehicles cannot be driven on the dirt road when the ground is so wet that tracks are made or mud adheres to vehicle tires.

Construction and subsequent restoration/revegetation of this project will occur in 2014-2016 with temporary disturbances totaling 1.16 acre (50,530 square feet); permanent improvements totaling 3.04 acres (132,422 square feet); total project disturbance is 4.2 acres (182,952 square feet). During construction of this project, temporary disturbance within the permitted area will be allowed for up to a period of two years, after which all temporary disturbances will be rehabilitated.

This Amendment is accepted subject to the conditions set forth herein, and to conditions N/A hereto and made a part of this Agreement.

COMMUNITY DEVELOPMENT AGENCY  
TRANSPORTATION DIVISION

U.S. DEPARTMENT OF AGRICULTURE  
Forest Service: Lake Tahoe Basin Mgmt. Unit

By: Bard R. Lower 2/14/14  
Bard R. Lower, Director

By: Nancy J. Gibson  
NANCY J. GIBSON  
Forest Supervisor

Date: 2/14/14

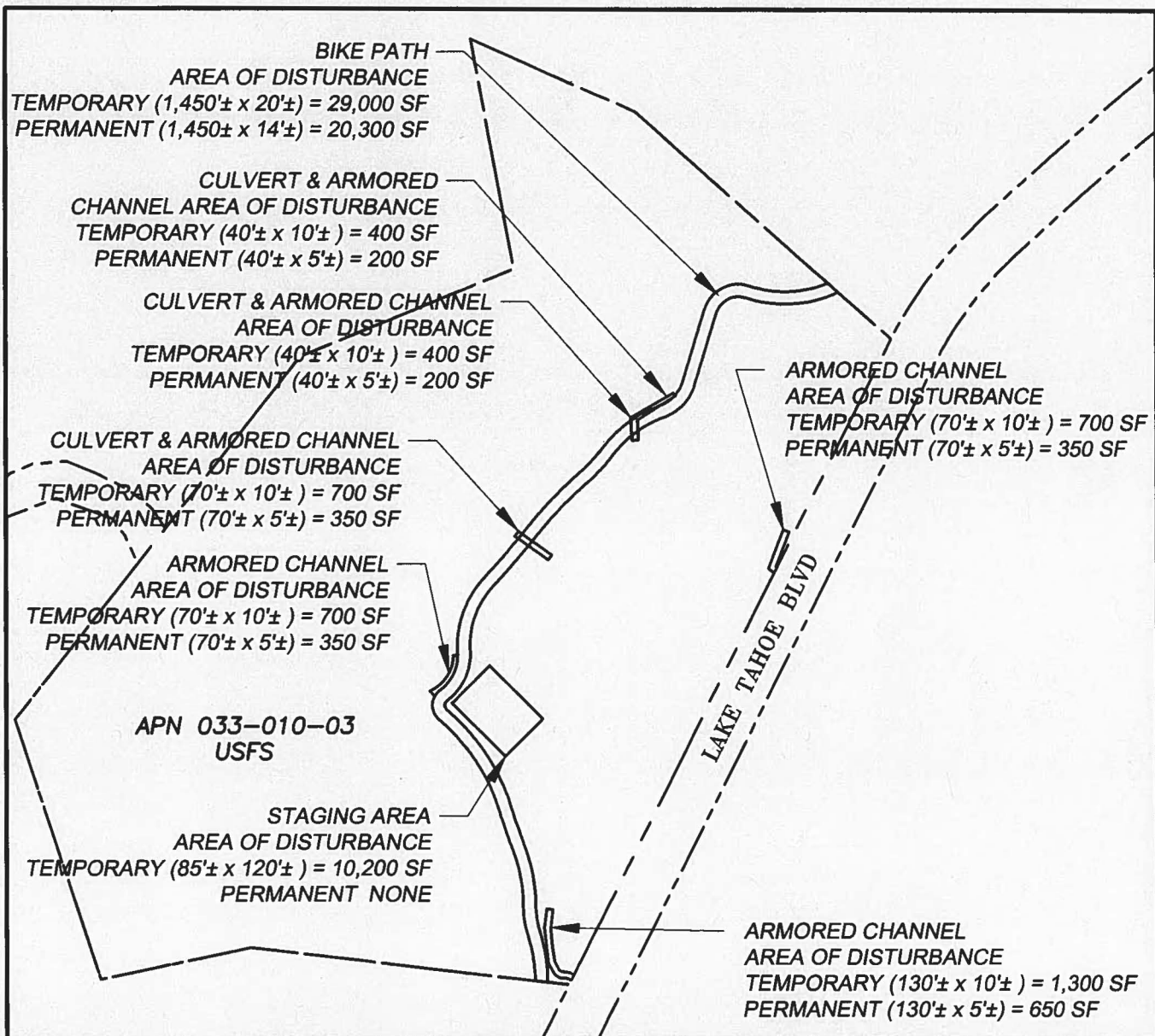
Date: 2/25/14

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SCALE: 1"=250'

EL DORADO COUNTY  
 SOUTH LAKE TAHOE OFFICE



LAKE TAHOE BOULEVARD  
 ENHANCEMENT PROJECT  
 SPECIAL USE PERMIT-AMENDMENT #1  
 APN 033-010-03

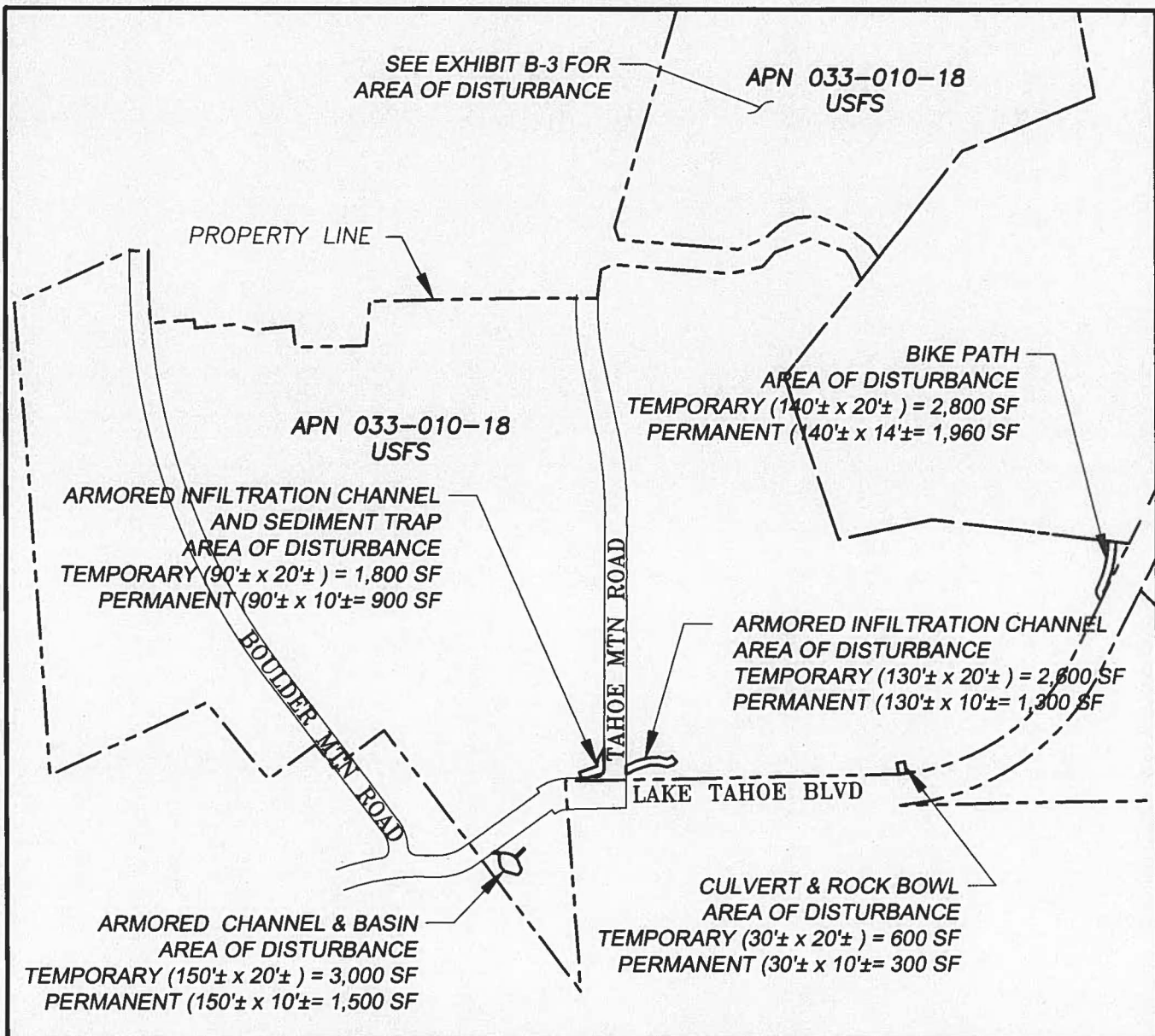
EXHIBIT

B-1

DATE: 4/13

PROJECT NO.: 95186

BY: TA

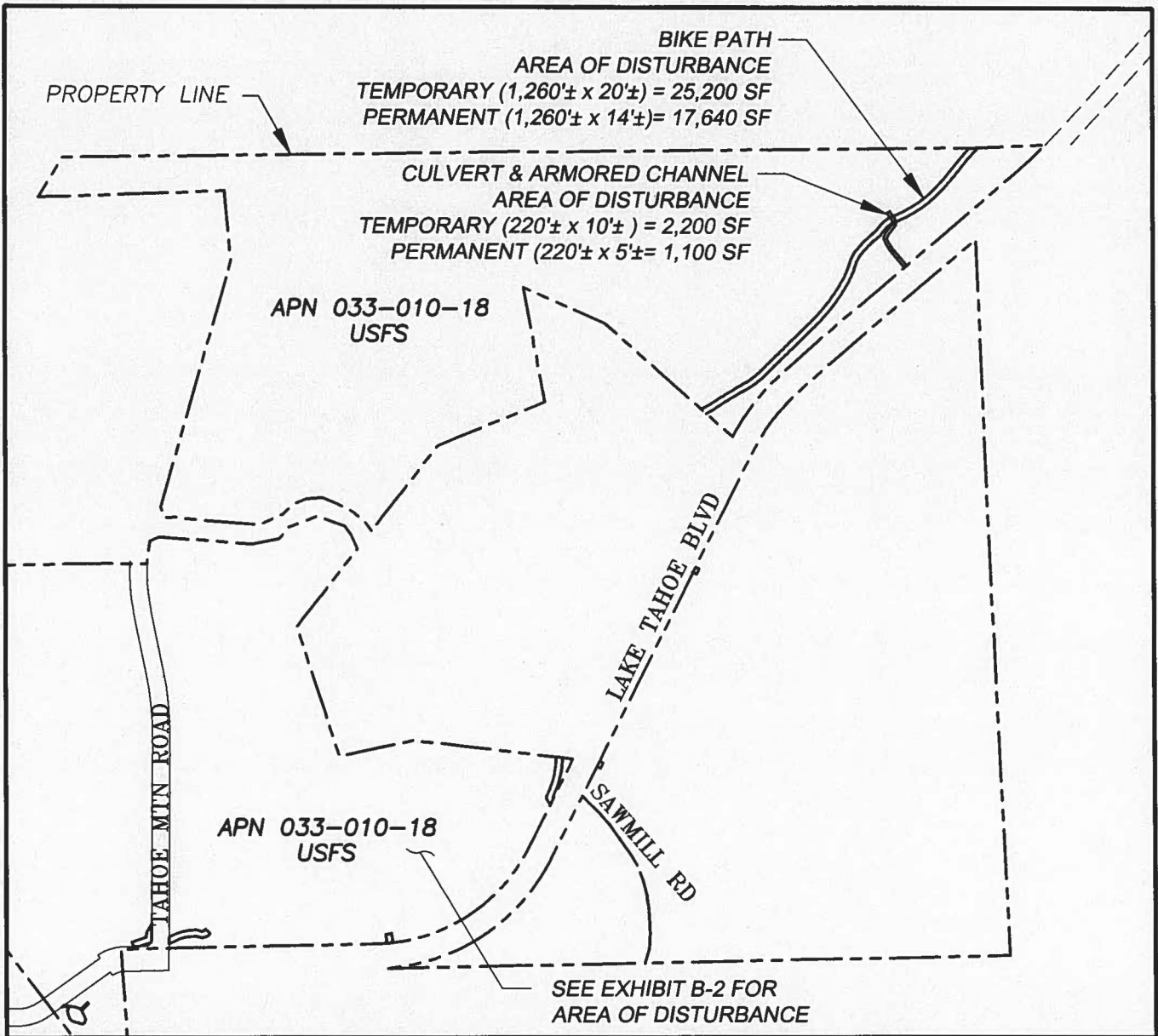


EL DORADO COUNTY  
SOUTH LAKE TAHOE OFFICE


LAKE TAHOE BOULEVARD  
ENHANCEMENT PROJECT  
SPECIAL USE PERMIT-AMENDMENT #1  
APN 033-010-18

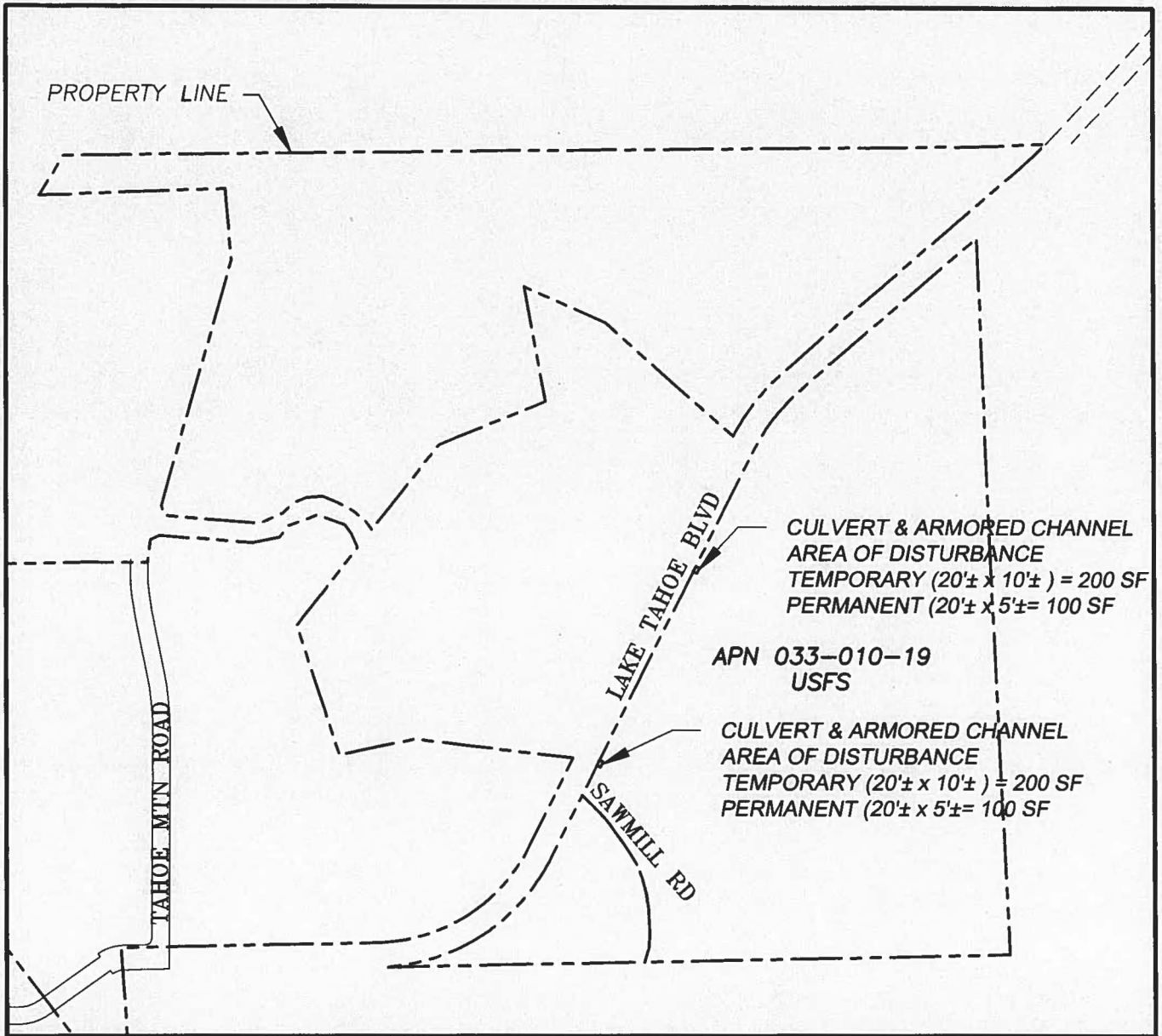
DATE: 4/13      PROJECT NO.: 95186      BY: TA

EXHIBIT  
**B-2**




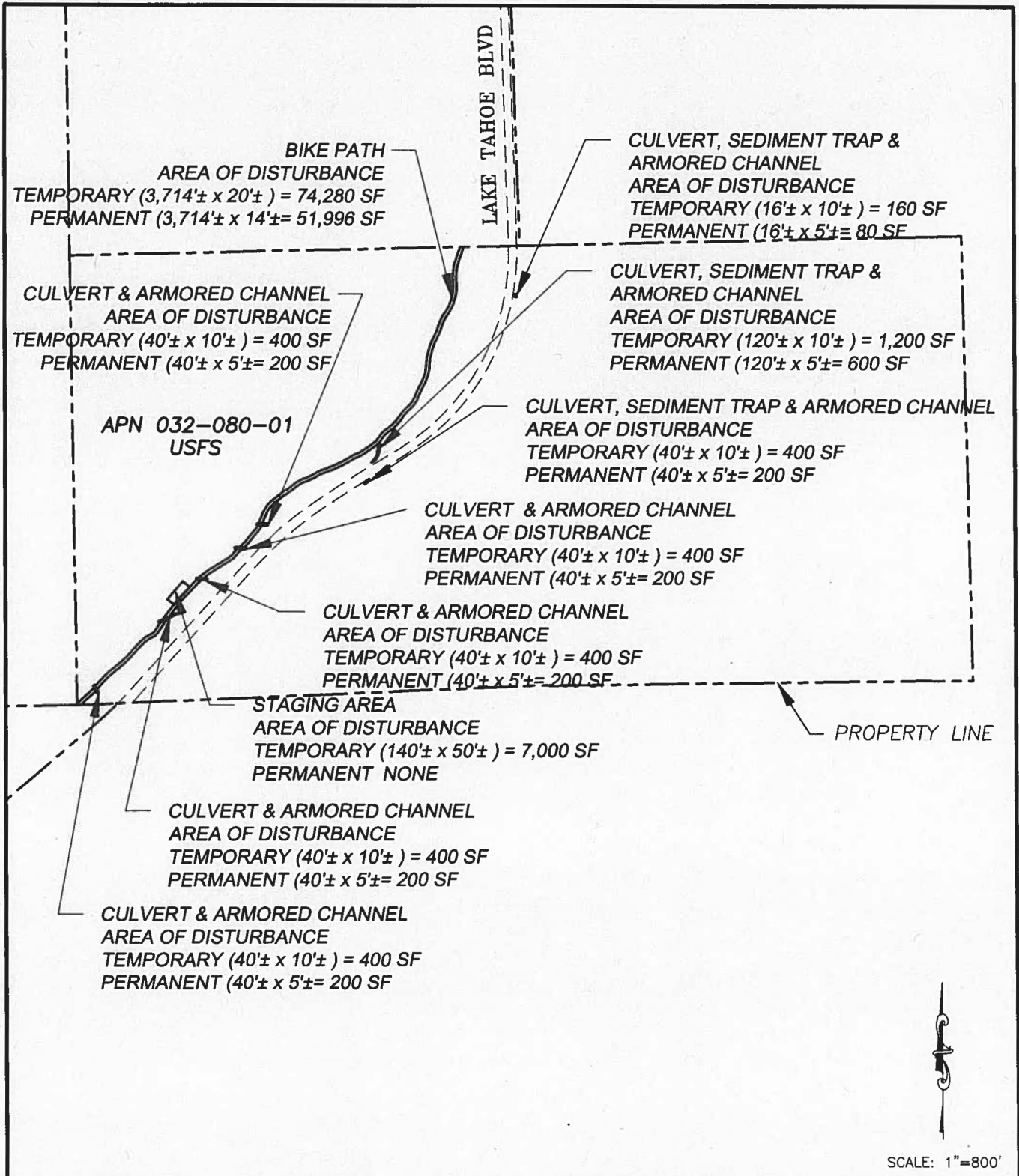
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<p>EL DORADO COUNTY          SOUTH LAKE TAHOE OFFICE</p>		<p>LAKE TAHOE BOULEVARD          ENHANCEMENT PROJECT          SPECIAL USE PERMIT-AMENDMENT #1          APN 033-010-18</p> <p>DATE: 4/13      PROJECT NO.: 95186      BY: TA</p>	<p>EXHIBIT  <b>B-3</b></p>
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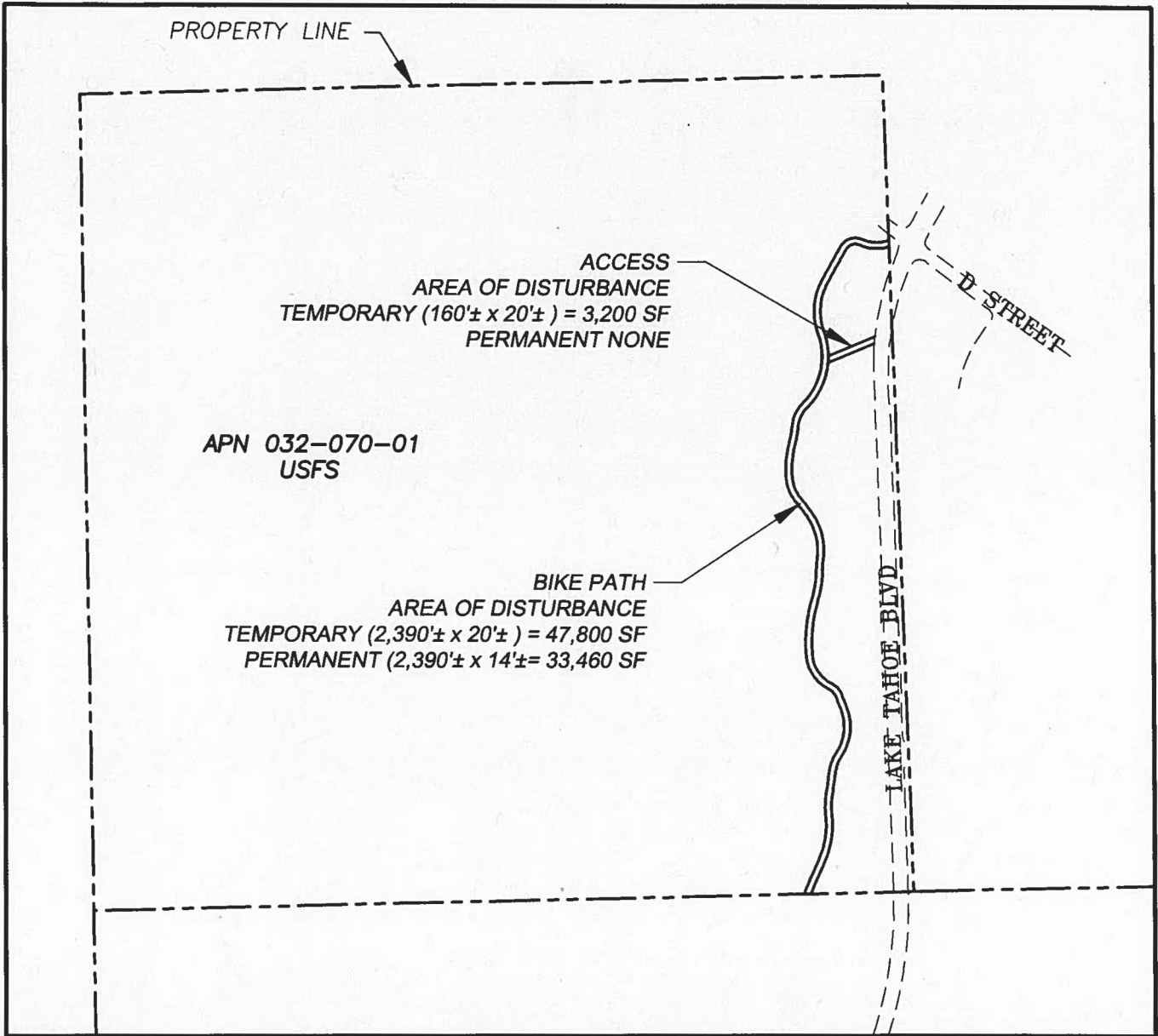
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<p>EL DORADO COUNTY SOUTH LAKE TAHOE OFFICE</p>		<p>LAKE TAHOE BOULEVARD ENHANCEMENT PROJECT SPECIAL USE PERMIT-AMENDMENT #1 APN 033-010-19</p>	<p>EXHIBIT <b>B-4</b></p>
<p>DATE: 4/13</p>	<p>PROJECT NO.: 95186</p>	<p>BY: TA</p>	




EL DORADO COUNTY SOUTH LAKE TAHOE OFFICE		<b>LAKE TAHOE BOULEVARD          ENHANCEMENT PROJECT</b> <b>SPECIAL USE PERMIT-AMENDMENT #1</b> APN 032-080-01		EXHIBIT  <b>B-5</b>
		DATE: 4/13	PROJECT NO.: 95186	BY: TA





SCALE: 1"=500'

<p>EL DORADO COUNTY SOUTH LAKE TAHOE OFFICE</p>		<p>LAKE TAHOE BOULEVARD ENHANCEMENT PROJECT SPECIAL USE PERMIT-AMENDMENT #1 APN 032-070-01</p>	<p>EXHIBIT <b>B-6</b></p>
<p>DATE: 4/13</p>	<p>PROJECT NO.: 95186</p>	<p>BY: TA</p>	

**APPENDIX C3**

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD-  
LAHONTAN REGION**

**BOARD ORDER R6T-2011-0101A1**

**STATE OF CALIFORNIA**

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
LAHONTAN REGION**

**ORDER NO. R6T-2011-101A1  
NPDES NO. CAG616001**

**UPDATED WASTE DISCHARGE REQUIREMENTS AND NATIONAL  
POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT  
FOR  
STORM WATER/URBAN RUNOFF DISCHARGES FROM EL DORADO  
COUNTY, PLACER COUNTY, AND THE CITY OF SOUTH LAKE TAHOE  
WITHIN THE LAKE TAHOE HYDROLOGIC UNIT**

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**FINDINGS**

The California Regional Water Quality Control Board, Lahontan Region (hereinafter referred to as the Water Board) finds that:

**A. Discharger Information and Permit History**

1. The City of South Lake Tahoe (City), El Dorado County, and Placer County discharge storm water/urban runoff to surface waters of the Lake Tahoe Hydrologic Unit (LTHU). These discharges occur within various hydrologic sub-areas (watersheds) throughout the LTHU. The City, El Dorado County, and Placer County are considered Co-Permittees under this National Pollutant Discharge Elimination System (NPDES) Permit and are referred to collectively as "Permittees".
2. These Updated Waste Discharge Requirements and NPDES Permit for Storm Water/Urban Runoff Discharges from El Dorado County, Placer County, and the City of South Lake Tahoe will be referred to throughout this Order as the "Permit."
3. Prior to issuance of this Permit, storm water discharges from the Permit Area were covered under Order No. R6T-2005-0026, adopted by the Water Board on October 12, 2005, which replaced Order No. 6-00-82, adopted by the Regional Water Board on October 12, 2000.
4. The Permittees submitted Reports of Waste Discharge in April 2010 requesting renewal of waste discharge requirements under the NPDES program to permit storm water discharges from municipal storm collection, conveyance, and treatment facilities within their jurisdictions.

**B. Permit Area**

1. The jurisdictional areas of the City, El Dorado County, and Placer County that fall within the LTHU are considered the "Permit Area." The Permittees are responsible for all storm water/urban runoff discharges in the Lake Tahoe watershed within the LTHU of their respective City and Counties.
2. Federal, state, regional, or local entities within the Permittees' jurisdictional boundaries and not currently named in this Permit may operate storm drain facilities and/ or discharge storm water to storm drains and receiving waters covered by this NPDES Permit. The Permittees may lack legal jurisdiction over these entities under State and Federal constitutions.

The Water Board will coordinate with these entities not named in this Permit that operate storm drain facilities and/ or discharge storm water to storm drains and receiving waters covered by this NPDES Permit to implement programs that are consistent with the requirements of this Permit.

3. Permittees should work cooperatively to control the contribution from pollutants from one jurisdiction to an adjacent jurisdiction through inter-agency agreements or other formal arrangements.

**C. Nature of Discharge**

1. Municipal point source discharges of runoff from urbanized areas remain a leading cause of impairment of surface waters in California. Urban runoff contains wastes, as defined in the California Water Code, and pollutants, as defined in the federal Clean Water Act (CWA), and adversely affects the waters of the State and their designated beneficial uses. The most common pollutant categories in urban runoff within the LTHU include total suspended solids, sediment (due to anthropogenic activities); pathogens (e.g., bacteria, viruses, protozoa); nutrients (e.g., nitrogen and phosphorus); oxygen demanding substances (decaying vegetation, animal waste); oil, grease, and other petroleum hydrocarbons; and trash. In general, the pollutants that are found in municipal storm water runoff can harm human health and aquatic ecosystems.
2. In addition, the high volumes and high velocities of storm water discharged from municipal separate storm sewer systems (MS4s) into receiving waters can adversely impact aquatic ecosystems and stream habitat and cause stream bank erosion and physical modifications. These changes are collectively termed "hydromodification".

3. Lake Tahoe's deep water transparency, as measured by the Secchi disk, has been declining since transparency measurement began in the late 1960's. The Lake Tahoe TMDL Report (November 2010) identifies elevated levels of very fine sediment (particles less than 16 microns) and increased algal growth rates as the causes of transparency loss. Consequently, the primary pollutants of concern for storm water treatment in the LTHU are the number of fine sediment particles (less than 16 microns) and the mass of nutrients that support algal growth (nitrogen and phosphorus).
4. One of the leading sources of very fine sediment particles is roadways. To enhance the safety of motorists in the winter months, the Permittees' winter roadway operations include the application of traction abrasive and deicing materials. If not properly applied and recovered, traction abrasives can be a significant source of the pollutants of concern.
5. Storm water runoff within the Permittees jurisdiction generally flows into pipes and open channels and often passes through pretreatment vaults, treatment basins, and other treatment structures before being discharged to surface waters or land. This Permit describes all storm water management infrastructure maintained by the Permittees as "collection, conveyance, and treatment facilities". For purposes of this Permit, collection, conveyance, and treatment facilities are synonymous with "municipal separate storm sewer systems" or MS4s.

#### **D. Federal, State and Regional Regulations**

1. The Water Quality Act of 1987 added § 402(p) to the CWA(33U.S.C. § 1251-1387). This section requires the United States Environmental Protection Agency (U.S. EPA) to establish regulations setting forth NPDES requirements for storm water discharges in two phases.
  - a. U.S. EPA Phase I storm water regulations were directed at MS4s serving a population of 100,000 or more, and storm water discharges associated with ten categories of industrial activities, including construction activities disturbing more than five acres. In addition, municipalities whose storm water discharges contribute to violations of water quality standards or is a significant contributor of pollutants to waters of the United States may also be issued a NPDES permit under Phase I. Consequently, some MS4s that serve a population below 100,000, such as the Permittees, were brought into the Phase I program by NPDES permitting authorities. The Phase 1 regulations were published on November 16, 1990 (55 Fed. Reg. 47990).

- b. U.S. EPA Phase II storm water regulations are directed at storm water discharges not covered in Phase I, including small MS4s (population of less than 100,000) in urbanized areas, small construction projects (less than five acres, but greater than one acre), municipal facilities with delayed coverage under the Intermodal Surface Transportation Efficiency Act of 1991, and other discharges for which the U.S. EPA Administrator or the State determines that the storm water discharge contributes to a violation of a water quality standard, or is a significant contributor of pollutants to waters of the U.S. The Phase II Final Rule was published on December 8, 1999 (64 Fed. Reg. 68722).
2. The CWA allows the U.S. EPA to authorize states with an approved environmental regulatory program to administer the NPDES program in lieu of the U.S. EPA. The State of California is an authorized State. The Porter-Cologne Water Quality Control Act (California Water Code) authorizes the State Water Resources Control Board (State Water Board), through the Regional Water Boards, to regulate and control the discharge of wastes that could affect the quality of waters of the State, including waters of the United States, and tributaries thereto.
3. Under CWA § 303(d), States are required to identify a list of impaired water bodies and develop and implement Total Maximum Daily Loads (TMDLs) for these waterbodies (33 USC § 1313(d)(1)). Lake Tahoe is listed on the CWA § 303(d) impaired water bodies list. On November 16, 2010 the Water Board adopted an amendment to its Water Quality Control Plan (Basin Plan) to incorporate a TMDL for Lake Tahoe. The amendment was approved by the State Water Board on April 19, 2011 and the TMDL was approved by the U.S. EPA on August 17, 2011. The Basin Plan amendment established pollutant load reduction requirements for urban storm water discharges for fine sediment particles, total nitrogen, and total phosphorus. Section IV of this Permit incorporates approved load reduction requirements as effluent limits for municipal storm water discharges in the LTHU and requires the preparation of Pollutant Load Reduction Plans (PLRPs) to meet established waste load reduction requirements.
4. This Permit does not constitute an unfunded local government mandate subject to subvention under Article XIIB, Section (6) of the California Constitution for several reasons, including, but not limited to, the following.

First, this Permit implements federally mandated requirements under CWA § 402, subdivision (p)(3)(B)(33 U.S.C. § 1342(p)(3)(B)). This includes federal requirements to effectively prohibit non-storm water discharges and to include such other provisions as the Administrator or the State determines appropriate for the control of such pollutants. The authority exercised under this Permit is not reserved state authority

under the CWA's savings clause (cf. *Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4<sup>th</sup> 613, 627-628 [relying on 33 U.S.C. § 1370, which allows a state to develop requirements which are not "less stringent" than federal requirements]), but instead, is part of a federal mandate to develop pollutant reduction requirements for municipal separate storm sewer systems. To this extent, it is entirely federal authority that forms the legal basis to establish the permit provisions. (See, *City of Rancho Cucamonga v. Regional Water Quality Control Bd.-Santa Ana Region* (2006) 135 Cal.App.4<sup>th</sup> 1377, 1389; *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4<sup>th</sup> 866, 882-883.)

Likewise, this Permit implements federally mandated requirements under 303(d) of the CWA and section 122.44(d)(1)(vii)(B) of the Code of Federal Regulations. Specifically, the provisions of this Permit to implement the Lake Tahoe TMDL are federal mandates. The CWA requires TMDLs to be developed for waterbodies that do not meet federal water quality standards (33 U.S.C. § 1313(d)). Once the U.S. EPA or a state develops a TMDL, federal law requires that permits must contain effluent limitations consistent with the assumptions of any applicable waste load allocation. (40 CFR 122.44(d)(1)(vii)(B)).

Second, the Permittees' obligations under this Permit are similar to, and in many respects less stringent than, the obligations of non-governmental dischargers who are issued NPDES permits for storm water discharges. With a few inapplicable exceptions, the CWA regulates the discharge of pollutants from point sources (33 U.S.C. § 1342) and the California Water Code regulates the discharge of waste (Water Code, § 13263), both without regard to the source of the pollutant or waste. As a result, the "costs incurred by local agencies" to protect water quality reflect an overarching regulatory scheme that places similar requirements on governmental and nongovernmental dischargers. (See *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46, 57-58 [finding that comprehensive workers compensation scheme did not create a cost for local agencies that was subject to state subvention].)

The CWA and the California Water Code largely regulate storm water with an even hand, but to the extent there is any relaxation of this even-handed regulation, it is in favor of the local agencies. Except for municipal separate storm sewer systems, the Clean Water Act requires point source dischargers, including discharges of storm water associated with industrial or construction activity, to comply strictly with water quality standards. (33 U.S.C. § 1311(b)(1)(C), *Defenders of Wildlife v. Browner* (1999) 191 F.3d 1159, 1164-1165 [noting that industrial storm water discharges must strictly comply with water quality standards].) As discussed in prior State Water Resources Control Board decisions, in many respects this Permit does not require strict

compliance with water quality standards. (SWRCB Order No. WQ 2001-15, p. 7.) The Permit, therefore, regulates the discharge of waste in municipal storm water more leniently than the discharge of waste from non-governmental sources.

Third, the Permittees have the authority to levy service charges, fees, or assessments sufficient to pay for compliance with this Order subject to certain voting requirements contained in the California Constitution. (See California Constitution XIII D, section 6, subdivision (c); see also *Howard Jarvis Taxpayers Association v. City of Salinas* (2002) 98 Cal. App. 4th 1351, 1358-1359.) The ability of a local agency to defray the cost of a program without raising taxes indicates that a program does not entail a cost subject to subvention. (*County of Fresno v. State of California* (1991) 53 Cal.3d 482, 487-488.)

Fourth, the Permittees have requested Permit coverage in lieu of compliance with the complete prohibition against the discharge of pollutants contained in federal Clean Water Act section 301, subdivision (a) (33 U.S.C. § 1311(a)). To the extent that the local agencies have voluntarily availed themselves of the permit, the program is not a state mandate. (Accord *County of San Diego v. State of California* (1997) 15 Cal.4th 68, 107-108.) The local agencies' voluntary decision to file a report of waste discharge proposing a program based permit is a voluntary decision not subject to subvention. (See *Environmental Defense Center v. USEPA* (9th Cir. 2003) 344 F.3d 832, 845-848.)

Fifth, the Permittees' responsibility for preventing discharges of waste that can create conditions of pollution or nuisance from conveyances that are within their ownership or control under state law predates the enactment of Article XIII B, Section (6) of the California Constitution.

5. The Water Board adopted a Basin Plan for the Lahontan Region on March 31, 1995. The Basin Plan specifies the beneficial uses of water bodies within the LTHU and contains both narrative and numerical water quality objectives for these waters. The following beneficial uses identified in the Basin Plan apply to all watersheds covered by this Permit:
  - a. Municipal and domestic supply,
  - b. Agricultural supply,
  - c. Water contact recreation,
  - d. Non-contact water recreation,
  - e. Groundwater recharge,
  - f. Freshwater replenishment,
  - g. Navigation,
  - h. Commercial and sport fishing,
  - i. Cold freshwater habitat,
  - j. Wildlife habitat,



- k. Preservation of biological habitats of special significance,
  - l. Rare, threatened, or endangered species,
  - m. Migration of aquatic organisms,
  - n. Spawning, reproduction, and development,
  - o. Water quality enhancement, and
  - p. Flood peak attenuation/flood water storage
6. State Water Board Resolution No. 68-16 contains the state Antidegradation Policy, titled "Statement of Policy with Respect to Maintaining High Quality Waters in California" (Resolution 68-16), which applies to all waters of the state, including ground waters of the state, whose quality meets or exceeds (is better than) water quality objectives. Resolution No. 68-16 is considered to incorporate the federal Antidegradation Policy (40 CFR131.12) where the federal policy applies, (State Water Board Order WQO 86-17). Administrative policies that implement both federal and state antidegradation policies acknowledge that an activity that results in a minor water quality lowering, even if incrementally small, can result in violation of Antidegradation Policies through cumulative effects, for example, when the waste is a cumulative, persistent, or bioaccumulative pollutant.

Federal Antidegradation Policy (40 CFR131.12) states that the State shall develop and adopt a statewide antidegradation policy and identify the methods for implementing such policy pursuant to this subpart. The antidegradation policy and implementation methods shall, at a minimum, be consistent with the following:

- a. Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
- b. Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully.
- c. Where high quality waters constitute an outstanding National resource, including waters of exceptional recreational or ecological significance like Lake Tahoe, that water quality shall be maintained and protected.

The proposed Permit requirements are consistent with both state and federal antidegradation policies. Permittees storm water management and PLRP actions will reduce pollutant loading to Lake Tahoe consistent with established TMDL requirements to maintain and improve water quality.

7. The requirements in this Permit may be more specific or detailed than those enumerated in federal regulations under 40 CFR122.26 or in U.S. EPA guidance. However, the requirements have been designed to implement and be consistent with the federal statutory mandates described in CWA § 402(p)(3)(B)(ii) and (iii) and the related federal regulations. Consistent with federal law, all of the conditions in this Permit could have been included in a permit adopted by U.S. EPA in the absence of the in lieu authority of California to issue NPDES permits.

#### **E. Storm Water Management Plans**

1. The 2005 permit (Order R6T-2005-0026) required the Permittees to develop and implement comprehensive, activity-based storm water management programs that include construction, commercial, industrial, and residential site controls coupled with a facilities inspection program and thorough public outreach and education plans. Each Permittee prepared and submitted detailed Storm Water Management Plans (SWMPs) as required.
2. The current SWMPs provide many of the necessary elements for the Permittees' storm water programs. It will be necessary for the Permittees to update and re-submit their current SWMPs to incorporate all requirements in Section III.B of this Permit, and to reflect current conditions and planned activities.

#### **F. Total Maximum Daily Loads – Lake Tahoe**

1. On November 16, 2010 the Water Board adopted Resolution R6T-2010-0058, amending the Basin Plan to incorporate the TMDL for sediments and nutrients for Lake Tahoe to restore Lake Tahoe to meet the water quality objective for the lake's deep water transparency. The TMDL identified pollutant loads by source category, set load allocations at a basin-wide scale, and identified an implementation plan for restoring Lake Tahoe's deep water transparency.
2. The approved Basin Plan amendment requires the Permittees and the California Department of Transportation (CalTrans) to meet pollutant load reduction requirements specified by the Lake Tahoe TMDL. Pollutant load allocation tables are included in Attachment B of this Permit. The Basin Plan acknowledges that these agencies will likely consider a variety of alternative treatment options, roadway operations

practices, and local ordinances to reduce average annual pollutant loads to meet load reduction requirements.

3. The Permit incorporates numeric and narrative effluent limitations consistent with 40 CFR 122.44(d) that implement the Lake Tahoe TMDL pollutant load reduction requirements. The approved Basin Plan amendment replaces some of the concentration-based storm water effluent limits with effluent limits expressed as annual average pollutant load reduction requirements for the primary pollutants of concern. The Basin Plan eliminated the application of the concentration-based limit for oil and grease to municipal runoff in deference to the Basin Plan's more stringent receiving water limit. Similarly, the Basin Plan removed the concentration-based iron limit because there is no evidence indicating that urban runoff is a source of iron.
4. The Basin Plan amendment and the Lake Tahoe TMDL require Lake Tahoe basin municipalities and the CalTrans to develop and implement comprehensive PLRPs to describe how proposed operations and maintenance activities, capital improvements, facilities retrofit projects, ordinance enforcement, and other actions are expected to meet required pollutant load reduction requirements. PLRPs provide the Permittees the opportunity to prioritize pollutant load reduction efforts and target sub-watersheds that generate the highest annual average pollutant loads.
5. Permittees have primarily relied upon state and federal grant sources to fund water quality improvement infrastructure programs and generally use in-house resources for water quality operations and maintenance practices. As of November 2011 there are fewer grant funds available and economic conditions have negatively impacted local government budgets. Consequently, Permittees will need to effectively prioritize future infrastructure and operations and maintenance actions to maximize pollutant load reductions that can be achieved with available funding.
6. The Water Board developed the Lake Clarity Crediting Program (see Attachment D of this Permit) to establish protocols for accounting and tracking pollutant load reductions within the urban environment.
7. The Lake Tahoe TMDL baseline pollutant loading and load reduction requirements are provided as average annual estimates. For consistency with the TMDL requirements, the Lake Clarity Crediting Program uses average annual pollutant load estimates generated by numeric models. Verification of field conditions and water quality monitoring are needed to ensure that on-the-ground, measured variables are in line with model input parameters and that measured pollutant loading is consistent with modeled estimates.

8. On February 9, 2011 the Water Board Executive Officer issued the Permittees and CalTrans an Order to submit technical reports in accordance with California Water Code Section 13267 requiring the development of jurisdiction-specific baseline load estimates for the Lake Tahoe TMDL pollutants of concern. The submitted baseline pollutant load estimates provide the basis for translating percentage based pollutant load reduction requirements defined by the TMDL into jurisdiction-specific, particle and mass-based pollutant load reduction requirements.
9. The Lake Tahoe TMDL requires new development and re-development project proponents and private property retrofit efforts to first consider opportunities to infiltrate storm water runoff from impervious surfaces. At a minimum, permanent storm water infiltration facilities must be designed and constructed to infiltrate runoff generated by the 20 year, 1-hour storm, which equates to approximately one inch of runoff over all impervious surfaces during a 1-hour period. Infiltrating runoff volumes generated by the 20 year, 1-hour storm may not be possible in some locations due to shallow depth to seasonal groundwater levels, unfavorable soil conditions, or other site constraints such as existing infrastructure or rock outcroppings. In the event that site constraints prohibit opportunities to infiltrate the runoff volume generated by a 20 year, 1-hour storm, project proponents must either (1) meet the numeric effluent limits contained in Basin Plan Table 5.6-1, or (2) document coordination with one of the Permittees or CalTrans to demonstrate that storm water treatment facilities treating private property discharges and public right-of-way storm water are sufficient to meet the Permittees' or CalTrans' average annual fine sediment and nutrient load reduction requirements.
10. The Basin Plan amendment and the Lake Tahoe TMDL requires municipalities to annually demonstrate on a catchment (i.e. sub-watershed) basis that no increased loading in fine sediment particle, total nitrogen, and total phosphorus will result from any land-disturbing activity permitted in the catchment. The Permit includes a narrative effluent limitation to implement this provision.
11. The Basin Plan amendment acknowledges a decline in nearshore water quality as evidenced by increased growth of attached algae. Pollutant load reduction actions taken to implement the Lake Tahoe TMDL, including pollutant load reductions required by this Permit, are anticipated to improve the nearshore environment by decreasing pollutant loads entering the lake. Additional analysis, however, is needed to quantify this benefit and to determine if additional resource management actions are needed to address the nearshore water quality problems. Such analysis is beyond the scope of this Permit.

12. The Basin Plan amendment recognizes the need for a comprehensive program to adaptively manage the Lake Tahoe TMDL program. Future research and monitoring findings, coupled with implementation experience and fiscal realities, may cause the Water Board to revisit the Lake Tahoe TMDL and associated regulatory activities. The Lake Tahoe TMDL Management System will provide the framework for synthesizing and reporting new information and for identifying the need for policy changes.

The Basin Plan amendment further acknowledges the need for adaptive management of the Lake Tahoe TMDL program by explicitly stating “should funding and implementation constraints impact the ability to meet the load reduction milestones, the Water Board will consider amending the implementation plan and load reduction schedules.”

This Permit requires the Permittees to develop PLRPs (Section IV.C) and conduct a fiscal analysis (Section III.B.8) within the first two years of this Permit term. The information provided in these reports, or from other relevant sources, may provide the rationale for future modifications to the Basin Plan load reduction schedules and associated Permit requirements.

#### **G. Public Notification**

1. The issuance of waste discharge requirements pursuant to California Water Code section 13370 et seq. is exempt from the California Environmental Quality Act in accordance with California Water Code section 13389. *County of Los Angeles et al., v. California Water Boards et al.*, (2006), 143 Cal.App.4th 985.
2. The Water Board has notified the Permittees, and interested agencies and persons of its intent to issue waste discharge requirements for this discharge, and has provided them with an opportunity to make statements and submit their comments.
3. This Permit shall serve as a NPDES permit, pursuant to CWA § 402, and shall take effect 90 days from Order adoption date provided the Regional Administrator of the U.S. EPA has no objections.
4. Pursuant to California Water Code § 13320, any aggrieved party may seek review of this Permit by filing a petition with the State Board within 30 days of the date of adoption of the Permit by the Regional Water Board. A petition must be sent to:

State Water Resources Control Board  
Office of the Chief Counsel  
P.O. Box 100  
Sacramento, CA 95812-0100

5. This Permit may be modified or alternatively revoked or reissued prior to its expiration date or any administrative extension thereto, in accordance with 40 CFR 122.41(f) and 122.62.

**IT IS HEREBY ORDERED** that Order No. R6T-2005-0026 is rescinded, and in order to meet the provisions contained in Division 7 of the Cal. Water Code and regulations adopted thereunder, and the provisions of the CWA and regulations adopted thereunder, the Permittees shall comply with the following:

**I. Non-Storm Water Discharges**

- A. The Permittees shall, within their respective jurisdictions, effectively prohibit non-storm water discharges into its collection, conveyance, and treatment facilities and receiving waters, except where such discharges:
  1. Originate from a State, Federal, or other source for which they are preempted from regulating by State or Federal law; or
  2. Are covered by a separate individual or general NPDES permit, or conditional waivers; or
  3. Flows from firefighting activities.
- B. Pursuant to 40 CFR 122.26(d)(2)(iv)(B)(1) the following categories of non-storm water discharges need only be prohibited from entering the Permittees storm water collection, conveyance, and treatment facilities and receiving waters if such categories of discharges are identified by the Permittee (in its SWMP) as a source of pollutants to waters of the United States and the State of California:
  1. Waterline flushing
  2. Landscape irrigation
  3. Diverted stream flows
  4. Rising groundwater
  5. Uncontaminated groundwater infiltration [as defined by 40 CFR 35.2005(20)]
  6. Uncontaminated pumped groundwater
  7. Discharges from potable water sources
  8. Fountain drains
  9. Air conditioning condensation
  10. Irrigation water
  11. Springs
  12. Water from crawl space pumps
  13. Footing drains
  14. Lawn watering
  15. Individual residential car washing
  16. Flows from riparian habitats and wetlands
  17. Dechlorinated swimming pool and spa discharges

- C. When a non-storm water discharge category listed above is identified as a source of pollutants to waters of the State, Permittees shall either:
1. Prohibit the discharge category from entering its storm water collection, conveyance, and treatment system; or
  2. Authorize the discharge category and require implementation of appropriate or additional Best Management Practices to ensure that the discharge will not be a source of pollutants; or
  3. Require or obtain coverage under separate Regional or State Water Board permit for the discharge.

## **II. Other Prohibitions**

- A. Unless specifically granted, authorization pursuant to this Permit does not constitute an exemption to applicable discharge prohibitions prescribed in the Basin Plan.
- B. Discharges from the Permittees' collection, conveyance, and treatment facilities that cause or contribute to a violation of narrative or numeric water quality standards or objectives, as listed in Attachment E and F, are prohibited.
- C. Discharges from the Permittees' collection, conveyance, and treatment facilities shall not cause or contribute to a condition of nuisance.
- D. Storm water discharges regulated by this Permit shall not contain a hazardous substance equal to or in excess of a reportable quantity listed in 40 CFR Part 117 and/or 40 CFR Part 302.
- E. The removal of vegetation or disturbance of ground surface conditions between October 15 of any year and May 1 of the following year is prohibited. Where it can be shown that granting a variance would not cause or contribute to the degradation of water quality, a variance to the dates stated above may be granted in writing by the Executive Officer.
- F. Discharge of any waste or deleterious material to surface waters of the LTHU is prohibited.
- G. The discharge, or threatened discharge, attributable to human activities, of solid or liquid waste materials, including soil, silt, clay, sand, and other organic and earthen materials to the surface waters of the LTHU is prohibited.

- H. The discharge or threatened discharge, attributable to human activities, of solid or liquid waste materials, including soil, silt, clay, sand and other organic and earthen materials, to lands below the high-water rim of Lake Tahoe or within the 100-year floodplain of any tributary to Lake Tahoe, is prohibited.
- I. The discharge or threatened discharge, attributable to new development in Stream Environment Zones, of solid or liquid waste, including soil, silt, sand, clay, rock, metal, plastic, or other organic, mineral or earthen materials to Stream Environment Zones in the LTHU is prohibited.
- J. Waste discharge prohibitions in this Section do not apply to discharges of storm water when wastes in the discharge are controlled through the application of management practices or other means and the discharge does not cause a violation of water quality objectives.

### **III. Storm Water Program Implementation**

#### A. Legal Authority

- 1. No later than **March 15, 2013**, Permittees shall establish, maintain, and enforce the necessary legal authority to prohibit, including, but not limited to:
  - a. Illicit connections and illicit discharges to its collection, conveyance, and treatment facilities,
  - b. The discharge of non-storm water to the Permittees' storm water collection, conveyance, and treatment facilities<sup>2</sup>. Permittees shall maintain adequate legal authority to:
    - a. Control through interagency agreement, the contribution of pollutants from one municipal jurisdiction to another
    - b. Require persons within their jurisdiction to comply with conditions in the Permittees' ordinances, permits, or orders (i.e. hold dischargers to its collection, conveyance, and treatment facilities accountable for their contributions of pollutants and flows)
    - c. Remove illicit connections to public storm water collection, conveyance, and treatment facilities
    - d. Control the discharge of spills, dumping, or material disposal other than storm water to public storm water collection, conveyance, and treatment facilities
    - e. Utilize enforcement measures (e.g., stop work orders, notice of violations, fines, referral to City, County, and/ or District Attorneys,



etc.) by ordinances, permits, contracts, orders, administrative authority, and civil and criminal prosecution

- f. Control the quality of storm water runoff from industrial and construction sites
  - g. Carry out all inspections, surveillance and monitoring procedures necessary to determine compliance and non-compliance with permit conditions including the prohibition on illicit discharges.
  - h. Require the use of control measures to prevent or reduce the discharge of pollutants to the maximum extent practicable.
3. No later than **March 15, 2012** each Permittee shall submit a statement certified by its legal counsel as to whether or not the Permittee possesses the legal authority necessary to comply with this Permit. If the Permittee finds that it does not have the necessary legal authority, the statement must identify specific deficiencies.

No later than **March 15, 2013** each Permittee shall submit a statement certified by its legal counsel that the Permittee possesses all necessary legal authority to comply with this Permit through adoption of ordinances and/ or municipal code modifications. The statement shall include:

- a. Identification of all departments within the jurisdiction that conduct urban runoff related activities and their roles and responsibilities under this Order.
- b. Citation of urban runoff related ordinances and the reasons they are enforceable.
- c. Identification of the local administrative and legal procedures available to mandate compliance with urban runoff related ordinances.
- d. Description of how these ordinances or other legal mechanisms are implemented and actions taken can be appealed.
- e. Description of how the municipality can issue administrative orders and injunctions, or if it must go through the court system for enforcement actions.

#### B. Storm Water Management Plans

Federal Regulations (40 CFR 122.26(d)(2)(iv)) require the Permittees to develop and implement a SWMP during the term of this Order. Each Permittee shall amend its SWMP to include components 1-9 below.

Permittees shall submit amended SWMPs for Water Board consideration no later than **October 1, 2013**. The Water Board will circulate the amended SWMPs for public comment and will consider accepting them at a publicly noticed meeting.

If no hearing for SWMP acceptance is requested during the public comment period, the Executive Officer may accept the amended SMWPs.

1. Construction Component

Each Permittee shall implement a Construction Component of its SWMP to reduce pollutants in runoff from construction sites that involve more than three cubic yards of soil disturbance during all construction phases. The SWMP shall include a description of procedures for identifying inspection priorities and enforcing control measures. At a minimum the construction component plan shall address the following:

a. Construction Site Inventory

Permittees shall develop and update, at least annually, a complete inventory of construction sites within its jurisdiction that involve more than three cubic yards of soil disturbance. This requirement is applicable to all construction sites regardless of whether the construction site is subject to the General Construction Permit (Order R6T-2011-0019). The use of a Geographical Information System (GIS) database is highly recommended, but not required.

b. Construction Site Outreach

Permittees shall conduct construction site outreach efforts that include, at a minimum, measures to educate construction site operators about local ordinance and other regulatory requirements and applicable enforcement mechanisms prior to construction commencement.

c. Construction Site Prioritization and Inspection

Permittees shall develop a prioritization process for its watershed-based inventory (developed pursuant to III.B.1.a above) by threat to water quality. Each construction site shall be classified as a high, medium, or low threat to water quality. In evaluating threat to water quality each Permittee shall consider (1) the magnitude of fine sediment particle discharge potential; (2) site slope; (3) project size and type; (4) stage of construction; (5) proximity and connectivity to receiving water bodies; and (6) any other factors the Permittee deems relevant.

Each Permittee shall conduct construction site inspections for compliance with its ordinances (grading, storm water, etc.), permits (construction, grading, etc.), and discharge prohibitions contained in this Permit in accordance with Section II.B of the Monitoring and Reporting Program (Attachment C). Inspections shall include review of site erosion control and BMP implementation plans. Inspection frequencies and priorities shall be determined by the threat to water quality prioritization.

During the construction season (May 1 through October 15 of each year), each Permittee shall inspect each high priority construction site and all construction projects overseen by the Permittee (e.g. erosion control and storm water treatment projects) at least once per week. Each Permittee shall inspect medium and low priority construction sites at a frequency sufficient to ensure that sediment and other pollutants are controlled and that unauthorized non-storm water discharges are prevented.

d. Construction Site Enforcement

Permittees shall enforce their storm water ordinances and other regulatory mechanisms for all construction sites to maintain compliance with local ordinances and discharge prohibitions contained in this Permit. Permittees shall document any non-compliance with Permit or ordinance requirements and report identified compliance issues as part of their Annual Report as described under Section IV.C of the Monitoring and Reporting Program (Attachment C).

Each Permittee shall follow up on identified compliance issues and take actions necessary for construction sites to comply with Permit requirements.

e. Oversight by Others

Permittees may make use of construction site outreach, inspection, and enforcement actions taken by other responsible agencies (such as the Tahoe Regional Planning Agency (TRPA) or the Water Board). If a Permittee chooses to use the efforts of other agencies to meet Permit requirements, Permittees must provide detailed documentation of the outreach, inspection, and/or enforcement action taken by others.

## 2. Commercial, Industrial, Municipal and Residential Component

Each Permittee shall implement SWMP elements to reduce, to the maximum extent practicable, pollutants in runoff from commercial, industrial, municipal, and residential properties within its jurisdiction. The purpose of this Component is to identify potential pollutant sources, prioritize existing or potential water quality threats associated with different land uses, and provide outreach, education, and enforcement measures to reduce and/or eliminate storm water pollution from these sources.

### a. Commercial, Industrial, and Municipal Site Inventory and Prioritization

Each Permittee shall develop and annually update an inventory of high priority commercial, industrial, and municipal activities and pollutant sources. The high priority commercial, industrial, and municipal site inventory shall consider including the following business types and activities:

- (1) Automobile mechanical repair, maintenance, or cleaning;
- (2) Automobile and other vehicle body repair or painting;
- (3) Retail or wholesale fueling;
- (4) Eating or drinking establishments;
- (5) Mobile carpet, drape or furniture cleaning;
- (6) Concrete mixing or cutting;
- (7) Painting and coating;
- (8) Mobile pool and spa cleaning;
- (9) Snow removal and storage activities;
- (10) Parking areas with more than 30 parking spaces;
- (11) Off-pavement parking and storage yards;
- (12) Municipal maintenance yards.

The use of a GIS database is highly recommended, but not required.

### b. Commercial, Industrial, and Municipal Site Outreach

Permittee outreach efforts shall include, at a minimum, educating commercial, industrial, and municipal site operators about local ordinances and other regulatory measure and associated tiered enforcement mechanisms applicable to commercial, industrial, or municipal site runoff problems.

c. Commercial, Industrial, and Municipal Site Inspections

Each Permittee shall implement a program to inspect high priority commercial, industrial, and municipal sites at least once per year in accordance with Section II.C of the Monitoring and Reporting Program (Attachment C).

d. Commercial, Industrial, and Municipal Site Enforcement

Permittees shall enforce their storm water ordinances and other regulatory mechanisms for all commercial, industrial, and municipal sites to maintain compliance with applicable local ordinances and discharge prohibitions contained in this Permit. Permittees shall document any non-compliance with ordinance and/or Permit requirements and report inspection findings as part of their Annual Report as described under Section IV.D of the Monitoring and Reporting Program (Attachment C).

Each Permittee shall follow up on inspection findings and take actions necessary for commercial, industrial, and municipal sites to comply with Permit and local ordinance requirements.

e. Oversight by Others

Permittees may make use of commercial and industrial site outreach, inspection, and enforcement actions taken by other responsible agencies (such as the TRPA or the Water Board). If a Permittee chooses to use the efforts of other agencies to meet Permit requirements, Permittees must provide detailed documentation of the outreach, inspection, and/or enforcement action taken by others.

f. Residential Property – Outreach and Education

Each Permittee shall identify high priority residential areas and activities for targeted outreach and education. These areas/activities should include:

- (1) Automobile repair and maintenance;
- (2) Off-pavement automobile parking;
- (3) Home and garden care activities and product use (pesticides, herbicides, and fertilizers);
- (4) Disposal of household hazardous waste (e.g., paints, cleaning products);
- (5) Snow removal activities

Permittees shall develop and implement a program to target education and outreach efforts toward identified high priority activities. Such outreach program should include coordination with other Lake Tahoe Basin agencies involved with BMP implementation, including but not limited to the Tahoe Resource Conservation District and the TRPA Erosion Control Team.

3. Storm Water Facilities Inspection Component

Each Permittee shall develop and implement an inspection program to assess the condition of its storm water collection, conveyance and treatment facilities and maintenance needs on a catchment, or sub-watershed basis in accordance with the following requirements, and Section II.A of the Monitoring and Reporting Program (Attachment C).

- a. By the end of the Permit term, each Permittee shall develop and maintain an up-to-date and accurate system map of its collection, conveyance, and treatment facilities.
- b. Each Permittee shall inspect its storm water collection, conveyance and treatment systems at least once annually and maintain a database of inspection findings.
- c. As part of its storm water collection, conveyance, and treatment system inspections, each Permittee shall evaluate and identify potential pollutant sources including but not limited to: private property/residential runoff, commercial site runoff, eroding cut slopes, eroding road shoulders, intercepted groundwater discharges, excessive traction abrasive application, and construction site tracking.
- d. Each Permittee shall document and prioritize identified maintenance needs and perform needed maintenance to ensure storm water systems effectively collect, convey, and treat urban runoff as designed.

4. Illicit Discharge Detection and Elimination Component

Permittees shall implement an Illicit Discharge Detection and Elimination Component containing measures to actively seek and eliminate illicit discharges and connections. At a minimum the Illicit Discharge Detection and Elimination Component shall include the following elements:

- a. Each Permittee shall visually inspect all storm water collection, conveyance, and treatment systems at least once annually as described in Section II.A of the Monitoring and Reporting Program (Attachment C) for evidence of illicit discharges, illicit connections, or other sources of non-storm water discharges.

- b. Each Permittee shall establish and implement a program to investigate and inspect any portion of the storm water collection and conveyance system that indicates a reasonable potential for illicit discharges, illicit connections, or other sources of non-storm water. Each Permittee shall establish criteria to identify portions of the system where follow-up investigations are needed to determine whether illicit discharges, illicit connections, or other sources of non-storm water have occurred or are likely to occur.
  - c. Each Permittee shall implement and enforce its ordinances, orders, or other legal authority or regulatory mechanism to prevent and eliminate illicit discharges and connections to its storm water collection and conveyance system.
  - d. Each Permittee shall promote, publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from its storm water collection and conveyance system. Each Permittee shall facilitate public reporting through development and operation of a public hotline. Public hotlines can be Permittee-specific or shared by Permittees. All storm water hotlines should be capable of receiving reports in both English and Spanish 24 hours per day, seven days per week. Permittees shall respond to and resolve each reported incident. Each Permittee shall keep a record of all reported incidents and how each was resolved.
5. New Development and Redevelopment Component

For new development and redevelopment projects, Permittees shall require project proponents to incorporate permanent storm water treatment facilities that are designed to infiltrate, at a minimum, runoff generated by the 20 year, 1-hour storm, which equates to approximately one inch of runoff over all impervious surfaces during a 1-hour period.

If infiltrating the entire volume of the 20 year, 1-hour storm is not possible at a given new development or redevelopment site, the Permittee shall require project proponents to infiltrate as much runoff as possible and either:

- a. Document how the project proponent will treat runoff to meet the numeric effluent limits described in Table III.B.1 below; or

- b. Document coordination with the project proponent to demonstrate that shared storm water treatment facilities treating private property discharges and public right-of-way storm water are sufficient to meet the municipality's average annual fine sediment and nutrient load reduction requirements described in Section IV.B of this Permit.

Table III.B.1 – Numeric effluent limits for runoff discharges

<u>Constituent</u>	<u>Units</u>	<u>Land Treatment/ Infiltration Systems</u>	<u>Surface Waters</u>
Total Nitrogen	mg/L as N	5.0	0.5
Total Phosphorus	mg/L as P	1.0	0.1
Turbidity	NTU	200	20
Oil and Grease	mg/L	40	2.0
Total Iron	mg/L	4.0	0.5

#### 6. Public Education Component

Permittees shall implement a public education program using any appropriate media to increase the community's knowledge of the effect of urban runoff on surface waters and the measures the public can take to help control storm water pollution and encourage behavior to reduce pollutant discharges.

#### 7. Municipal Personnel Training and Education Component

Permittees shall ensure that all municipal personnel and contractors responsible for implementing Permit requirements, for operating municipal facilities covered under Section III.B.2 of this Permit, and for conducting inspections required under Section III.B1-5 of this Permit are adequately trained and educated to perform such tasks.

#### 8. Fiscal Analysis

Each Permittee shall conduct a fiscal analysis of its urban runoff management program in its entirety, including development and implementation of both SWMP and PLRPs (IV.C below), along with operations and maintenances costs. This analysis shall, for each fiscal year covered by this Permit, evaluate the expenditures (such as capital, operation and maintenance, education, and administrative expenditures) expected for Permit implementation. Such analysis shall include a description of the source(s) of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.



#### **IV. Lake Tahoe Total Maximum Daily Load Implementation – Pollutant Load Reduction Requirements**

##### **A. Baseline Pollutant Loads**

The Lake Tahoe TMDL expresses waste load allocations for the urban upland source, which includes discharges from the Permittee's municipal storm water collection, conveyance, and treatment facilities, as percent reductions from a basin-wide baseline load. The baseline basin-wide pollutant loads for the TMDL reflect conditions as of water year 2003/2004 (October 1, 2003 – September 30, 2004), hereafter referred to as "baseline".

To translate basin-wide urban runoff load reduction requirements into jurisdiction-specific load reduction requirements, the Water Board has required the Permittees to conduct a jurisdiction-scale baseline load analysis as the first step in the TMDL implementation process for the urban pollutant source. Each Permittee has completed this analysis, and the submitted baseline pollutant load estimates are the basis for the particle number- and mass-based effluent limits in this Permit (Table IV.B.1).

Permittees will likely gather additional information in the future to enhance the accuracy of the baseline load analysis. Similarly, numeric models used to estimate pollutant loads may be improved over time. Should a Permittee determine that updated load estimation tools or other information are expected to change its baseline pollutant load estimate may request that the Water Board amend its baseline load estimate. Requests for baseline load estimate amendment must include a description of any new information informing the estimate, the magnitude of the proposed adjustment, and a discussion of how the baseline load estimate adjustment will (or will not) change the Permittees PLRP. Water Board staff will bring all requests to amend Permittee baseline load estimates to the Water Board for consideration.

##### **B. Pollutant Load Reduction Requirements and Water Quality-Based Effluent Limits**

For the first five year milestone, jurisdiction-specific waste load reduction requirements, incorporated into this Permit as average annual particle number- and mass-based effluent limits (Table IV.B.1), are calculated by multiplying the percentage of reduction required by the urban uplands for each pollutant by each jurisdiction's individual baseline load. Each jurisdiction must reduce fine sediment particle (FSP), total phosphorus (TP), and total nitrogen (TN) loads by 10%, 7%, and 8%, respectively, by **September 30, 2016.**

**Table IV.B.1 – Maximum average annual particle number- and mass-based effluent limits for Fine Sediment Particles (FSP) Total Phosphorus (TP) and Total Nitrogen (TN) to meet the first five year TMDL milestone**

Jurisdiction	Baseline FSP (# of particles)	FSP Allowable Load	Baseline TP (kg)	TP Allowable Load	Baseline TN (kg)	TN Allowable Load
El Dorado County	$2.2 \times 10^{19}$	$2.0 \times 10^{19}$	1043	970	4082	3755
Placer County	$2.6 \times 10^{19}$	$2.3 \times 10^{19}$	1111	1033	4635	4264
City of South Lake Tahoe	$1.9 \times 10^{19}$	$1.7 \times 10^{19}$	789	734	3361	3092

Pollutant load reductions shall be measured in accordance with the processes outlined in the Lake Clarity Crediting Program Handbook (Attachment D). To demonstrate compliance with the average annual fine sediment particle pollutant load reduction requirements outlined in Table IV.B.1, each Permittee must earn and maintain Lake Clarity Credits in accordance with Table IV.B.2 for water year October 1, 2015 to September 30, 2016, and for subsequent water years.

**Table IV.B.2 – Minimum Lake Clarity Credit Requirements**

Jurisdiction	Min. Lake Clarity Credit Requirement*
El Dorado County	220
Placer County	260
City of South Lake Tahoe	190

\*The Lake Clarity Crediting Program Handbook defines one (1) Lake Clarity Credit as equal to  $1.0 \times 10^{16}$  fine sediment particles with a diameter less than 16 micrometers

To ultimately achieve the deep water transparency standard, Permittees shall reduce FSP, TP, and TN loading according to the requirements in the Lake Tahoe TMDL outlined for the “Urban Upland” pollutant source (Attachment B). In accordance with the TMDL, incremental pollutant load reductions will result in attaining the deep water transparency standard by the year 2076.

#### C. Pollutant Load Reduction Plans

Each Permittee shall prepare a detailed plan describing how it expects to meet the pollutant load reduction requirements described in Section IV.B above. Permittees shall submit a plan no later than **March 15, 2013** that shall include, at a minimum, the following elements:

2. Catchment registration schedule

The Pollutant Load Reduction Plan (PLRP) shall include a list of catchments that the Permittee plans to register pursuant to the Lake Clarity Crediting Program (see Attachment D) to meet load reduction requirements. The list shall include catchments where capital improvement projects have been constructed since May 1, 2004 that the Permittee expects to claim credit for, and catchments where projects will be constructed during this Permit term.

The list may also include catchments where Permittees plan actions other than capital improvements (such as enhanced operations and maintenance). The plan shall describe which catchments the Permittee anticipates it will register for each year of this Permit term.

3. Proposed pollutant control measures

For each catchment in the registration plan, the PLRP shall describe storm water program activities to reduce fine sediment particle, total phosphorus, and total nitrogen loading.

4. Pollutant load reduction estimates

For each catchment in the registration plan (or a catchment subset that provides adequate representation of various land use and management practice variables) Permittees shall provide estimates of both baseline pollutant loading and expected pollutant loading to demonstrate that proposed actions will, over the course of this Permit term, reduce the Permittee's jurisdiction-wide pollutant load by the amounts specified in Section IV.B above. The pollutant load reduction estimate shall differentiate between estimates of pollutant load reductions achieved since May 1, 2004 and pollutant load reductions from actions not yet taken.

5. Load reduction schedule

The PLRP shall describe a schedule for achieving the pollutant load reduction requirements described in Section IV.B above. The schedule shall include an estimate of expected pollutant load reductions for each year of this Permit term based on preliminary numeric modeling results.

6. Annual adaptive management

The PLRP shall include a description of the internal process and procedures to annually assess storm water management activities and associated load reduction progress. The adaptive management discussion shall describe how the Permittee will use information from the previous years' monitoring and implementation efforts to make needed adjustments to ensure compliance with the load reduction requirements specified in Section IV.B.

The Water Board will circulate the submitted PLRPs for public review and will consider PLRP acceptance at a Water Board meeting. Each Permittee's PLRP must be accepted by the Water Board for Permittees to achieve Permit compliance.

D. Land Use Changes and Management Practices

If either land use changes or management practices associated with development or re-development result in a reduction of pollutant loads from the estimated baseline, then this reduction can be counted toward meeting pollutant load reduction requirements. Conversely, actions to eliminate any pollutant load *increase* from these changes will not be counted towards the annual load reduction requirements.

In accordance with the Basin Plan, Permittees must ensure that changes in land use, impervious coverage, or operations and maintenance practices do not increase a catchment's average annual baseline pollutant load.

E. Storm Water Facility Operations and Maintenance

Permittees shall operate and maintain storm water collection, conveyance, and treatment facilities to ensure, at a minimum, that the baseline pollutant loading specified in Table IV.B.1 does not increase.

F. Pollutant Load Reduction Progress

To demonstrate pollutant load reduction progress, each Permittee shall submit a Progress Report by **October 1, 2013**. The Progress Report shall include:

1. A list of erosion control and storm water treatment projects the Permittee completed between the May 1, 2004 and October 15, 2011.
2. Pollutant load reduction estimates for all erosion control and storm water projects and any other load reduction actions up to October 15, 2011. The report shall compare the pollutant load estimates for work completed with the pollutant load reduction requirements described in Section IV.B above.

G. Pollutant Load Reduction Monitoring Requirements

Permittees shall comply with all monitoring and reporting requirements specified in Section I of the attached Monitoring and Reporting Program (Attachment C).

**V. Receiving Water Limitations**

The Permittees shall comply with discharge prohibitions specified in Sections I and II of this Permit through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the Permittees' SWMPs and other requirements of this Permit, including any modifications. The Permittees' SWMPs shall be designed to achieve compliance with the requirements of Sections I and II of this Permit. If exceedances of water quality objectives or water quality standards (collectively, WQS) persist notwithstanding implementation of the SWMPs and other requirements of this Permit, the Permittees shall assure compliance with discharge prohibitions and receiving water limitations in Sections I and II of this Permit by complying with the following procedure:

1. Upon a determination by either the Permittee or the Water Board that discharges are causing or contributing to an exceedance of an applicable WQS, the Permittee shall notify and thereafter submit a report to the Water Board that describes Best Management Practices (BMPs) that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of WQs. The report may be incorporated into the annual report required under Section IV of the Monitoring and Reporting Program (Attachment C) unless the Water Board directs an earlier submittal. The report shall include an implementation schedule. The Water Board may require modifications to the report.
2. If SWMP and/or monitoring program modifications are needed to incorporate new or revised BMPs, adjust implementation schedules, or add additional monitoring, the Permittee will make such changes within 30 days following approval of the report described above by the Water Board.
3. If changes have been made, implement the revised SWMP and monitoring program in accordance with the approved schedule.

So long as the Permittee has complied with the procedures set forth above and is implementing its revised SWMP, the Permittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Water Board to develop additional BMPs.

**VI. Administrative Provisions**

- A. The Water Board reserves the right to revise any portion of this Order upon legal notice to, and after opportunity to be heard is given to, all concerned parties.
- B. Permittees may request that the Water Board consider Permit revisions if new information arises that would influence Permittees ability to comply with pollutant load reduction requirements. Such a request must include and be supported by information consistent with that developed pursuant to Permit Sections III.B.8 and IV.C.
- C. All terms of the attached Monitoring and Reporting Program (Attachment C) are hereby incorporated by reference as requirements under this Permit.
- D. Each Permittee shall comply with the Standard Provisions, Reporting Requirements, and Notifications contained in Attachment G of this Order. This includes 24 hour/5 day reporting requirements for any instance of non-compliance with this Order as described in section B.6 of Attachment G.
- E. All plans, reports, and subsequent amendments submitted in compliance with this Order shall be implemented immediately (or as otherwise specified) and shall be an enforceable part of this Order upon submission to the Water Board. All Permittee submittals must be responsive to, and consistent with the requirements of this Order.
- F. This Order expires on **December 5, 2016**. The Permittees must file a report of waste discharge in accordance with Title 23, California Code of Regulations, no later than 180 days in advance of such date as application for an updated Municipal NPDES Permit.

The report of waste discharge must include a preliminary PLRP as outlined in Permit Sections IV.C.2 and IV.C3 The preliminary PLRP shall describe how each Permittee could meet the pollutant load reduction requirements for the second five-year TMDL implementation period, defined as the ten-year load reduction milestone in Attachment B. Specifically, the preliminary Pollutant Load Reduction Plans shall demonstrate how each Permittee could reduce baseline fine sediment particle, total nitrogen, and total phosphorus loads by 21 percent, 14 percent, and 14 percent, respectively, by the end of the next permit term.

## G. Table of Required Submittals

Permit Submittal	Permit Section	Submittal/Required Completion Date
Analysis of Existing Legal Authority	III.A.4	March 15, 2012
Statement of Legal Authority	III.A.4	March 15, 2013
Amended Storm Water Management Plan	III.B	October 1, 2013
Pollutant Load Reduction Plan	IV.C	March 15, 2013
Pollutant Load Reduction Progress Report	IV.F	October 1, 2013
Report of Waste Discharge and preliminary Pollutant Load Reduction Plan	VI.F	June 9, 2016
Monitoring and Reporting Program Submittal	Attach. C Section	Submittal/Required Completion Date
Two (2) Catchment Credit Schedules	I.D	March 15, 2012
Storm Water Monitoring Plan	III.C	March 15, 2013
Annual Report	IV	March 15, 2014 and annually thereafter
Development Impact Statement	I.G, IV.I	March 15, 2015

I, Patty Z. Kouyoumdjian, Executive Officer, do hereby certify that the forgoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Lahontan Region, on October 10, 2012.

  
PATTY Z. KOUYOUMDJIAN  
EXECUTIVE OFFICER

- Attachments:
- A. Fact Sheet
  - B. Pollutant Load Allocation Tables
  - C. Monitoring and Reporting Program
  - D. Lake Clarity Crediting Program Handbook V1.0
  - E. Water Quality Objectives
  - F. Compliance with Water Quality Objectives
  - G. Standard Provisions, Reporting Requirements, and Notifications

# ATTACHMENT C

## STATE OF CALIFORNIA

### CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD LAHONTAN REGION

#### MONITORING AND REPORTING PROGRAM ORDER NO. R6T-2011-0101A1 NPDES NO. CAG616001

#### UPDATED WASTE DISCHARGE REQUIREMENTS AND NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR STORM WATER/URBAN RUNOFF DISCHARGES FROM EL DORADO COUNTY, PLACER COUNTY, AND THE CITY OF SOUTH LAKE TAHOE WITHIN THE LAKE TAHOE HYDROLOGIC UNIT

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#### **I. Pollutant Load Reduction Monitoring Requirements**

##### **A. Lake Clarity Crediting Program**

The Lake Tahoe Total Maximum Daily Load (TMDL) established pollutant load estimates and load reduction requirements for total nitrogen, total phosphorus, and fine sediment particles that source categories must meet on an average annual basis. The Lake Clarity Program (Crediting Program) defines a system to evaluate and track pollutant load reductions to demonstrate compliance with the load reduction requirements for fine particle sediment in the TMDL. This system provides methods for consistently linking implementation of pollutant controls to average annual pollutant load reduction estimates using numeric modeling tools. It establishes Lake Clarity Credits (credits) for actions taken to reduce pollutant loads as required by the Lake Tahoe TMDL. Credits are used in this Monitoring and Reporting Program to provide a consistent metric for assessing compliance with average annual pollutant load reduction requirements. The Crediting Program therefore provides a comprehensive and consistent accounting system to track estimated fine sediment particle load reductions into the Lake Tahoe Hydrologic Unit from urban storm water, provides methods to assess ongoing performance of implementation actions, and guides interaction between the Water Board and Permittees regarding load reduction progress assessment.



Load reductions are defined as the difference between the estimated average annual amount of pollutants entering Lake Tahoe under standardized baseline conditions and the estimated average annual amount of pollutants entering the lake under expected conditions following management practice implementation.

Effective implementation of any pollutant control can generate credits, provided that the Permittees effectively demonstrate to the Water Board that the action (1) will reduce the load of the pollutants of concern to Lake Tahoe from urban land uses, (2) is supported by reasonable load reduction estimate, and (3) is implemented and maintained over time.

Effective implementation of pollutant controls results in actual conditions of urban lands and treatment best management practices (BMPs) that are at or better-than the conditions used as the basis for modeled load reduction estimates, referred to as “expected” conditions. Actual conditions, as assessed during annual inspections outlined in Section I.E of this Monitoring and Reporting Program, are compared to the expected conditions to determine the appropriate amount of credit to award in a given year. When actual conditions are at or better-than expected conditions, the actual pollutant loading from the catchment is considered to be the same or better than the expected pollutant loading and full credit will be awarded. If actual conditions are worse than expected, the actual loading is considered to be higher than expected loading and the credit award will be less than the full credit potential amount.

Credits are tracked and awarded annually. The credit accounting period is a water year, October 1 through September 30. Each year is a unique accounting period – credits awarded in one year cannot be used to meet load reduction requirements in a subsequent or prior year.

The following sections briefly describe components of the Crediting Program protocols and establish phased Crediting Program implementation requirements.

## B. Credit Definition and Credit Requirements

The Crediting Program Handbook (Attachment D) defines one (1) Lake Clarity Credit as equal to  $1.0 \times 10^{16}$  fine sediment particles with a diameter smaller than 16 micrometers ( $\mu\text{m}$ ).

To demonstrate compliance with the pollutant load reduction requirements outlined in Permit Table IV.B.1, each Permittee must earn and maintain Lake Clarity Credits in accordance with Permit Table IV.B.2 for water year October 1, 2015 to September 30, 2016, and for subsequent water years.

### C. Crediting Program Handbook

The Lake Clarity Crediting Program Handbook version 1.0 (Crediting Program Handbook) defines the protocols for implementing the Crediting Program. The Crediting Program Handbook provides detailed technical guidance for estimating load reductions, preparing catchment credit schedules, reporting conditions and awarding credits. The Crediting Program Handbook provides forms, templates, and examples to aide users in implementing the process.

Crediting Program Handbook version 1.0 is incorporated into the Permit as Attachment D and all Lake Clarity Crediting Program procedures are incorporated as enforceable requirements under this Permit. Within the context of this Monitoring and Reporting Program, all Crediting Program Handbook references to “regulator” should be understood to mean the Water Board.

### D. Catchment Credit Schedules

The credit potential for an urban catchment (or subwatershed) is based on estimates of load reduction from baseline to expected conditions. The Crediting Program Handbook describes a document called a *catchment credit schedule*, which defines the baseline condition for all catchments and provides the means to inventory treatment facilities, roadways, private property BMPs, and other pollutant controls. This information is then used to compare the expected conditions to the baseline value after the implementation of pollutant controls and forms the basis for the load reduction estimate and establishes the credit potential for a given catchment.

Crediting Program Handbook Chapter 1 describes the steps for developing a catchment credit schedule and submitting it for Water Board approval. Crediting Program Handbook Appendix A includes a complete example of each step in the process of establishing a catchment credit schedule, and the Tools and Templates section of the Crediting Program Handbook provides detailed instructive support. Generally, the process steps are:

1. Estimate pollutant load reductions and draft catchment credit schedule (see Crediting Program Handbook section 1.1).
2. Verify pollutant load reduction estimate and catchment credit schedule (see Crediting Program Handbook section 1.2).
3. Register catchment in the Accounting and Tracking Tool (see Crediting Program Handbook section 1.3).

For area-wide maintenance practices, Permittees may choose to register their entire jurisdiction as a single catchment. The details associated with such action must follow the procedures and protocols outlined in the Handbook.

To demonstrate proficiency at developing catchment credit schedules and to document pollutant load reduction actions, each Permittee prepared two (2) catchment credit schedules by **March 15, 2012** and participated in catchment credit schedule verification meetings with Water Board staff. Each Permittee will register additional catchments as needed to earn enough credits to meet the requirements contained in Permit Table IV.B.2.

#### E. Condition Assessments

Credits are awarded annually by the Water Board for ongoing implementation of effective pollutant control measures that result in actual, observable conditions of urban lands and treatment BMPs that are consistent with the expected conditions used to estimate pollutant load reductions. Actual conditions, as determined by field inspection findings, are compared to expected conditions to determine the appropriate credit award. In some instances, partial credit may be awarded when actual conditions are worse than expected (see Crediting Program Handbook Appendix C).

Actual field conditions are evaluated and compared with expected conditions used to estimate pollutant load reductions. Each Permittee shall conduct treatment BMP and roadway condition assessments as described in the Crediting Program Handbook for all registered catchments.

Crediting Program Handbook Chapter 2.1 describes the process for defining inspection needs, performing facilities inspections, and recording results for registered catchments. Crediting Program Handbook Appendix B includes a detailed example of condition assessment inspection and reporting. Crediting Program Handbook Appendix C provides an overview of how actual conditions are compared with expected conditions to determine how much credit will be awarded.

Permittees shall use the Best Management Practices Maintenance Rapid Assessment Methodology (BMP RAM) and the Road Rapid Assessment Methodology (Road RAM) or their equivalents (subject to Water Board acceptance) to assess, score, and document the actual condition of treatment BMPs and roadways.

BMP RAM and Road RAM technical documents, users manuals, and databases can be found on the Water Board's website at:

[http://www.waterboards.ca.gov/lahontan/water\\_issues/programs/tmdl/lake\\_tahoe/index.shtml#imp](http://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/lake_tahoe/index.shtml#imp)

The BMP RAM and Road RAM technical documents and users manuals are hereby incorporated into this Monitoring and Reporting Program by reference.

#### F. Condition Assessment Method Alternatives

Should a Permittee consider using a treatment facility assessment method other than the BMP RAM, the Permittee must submit a proposal to the Water Board Executive Officer. The submittal must describe how the Permittee will demonstrate that the proposed equivalent method will effectively evaluate treatment facility condition based on treatment process (infiltration, particle settling, media filtration, or nutrient cycling), is capable of evaluating the condition of the BMP on a 0-5 scale, with 5 representing the highest functioning condition, and produces repeatable results that are consistent with the BMP RAM.

Should a Permittee consider using a roadway condition assessment method other than the established Road RAM, it must submit a detailed proposal to the Water Board Executive Officer. The submittal must demonstrate that any proposed equivalent method will effectively evaluate roadway condition based on field observations of sediment accumulation, can demonstrably extrapolate results to other roadway areas, is capable of evaluating the condition of representative roadway segments on a 0-5 scale, with 5 representing the cleanest condition, and produces repeatable results consistent with the Road RAM.

The initial submittal for alternative condition assessment methods need not contain all technical information of the proposed alternative methods, but must establish a schedule for fully developing and submitting details for Water Board approval. Water Board staff and the Executive Officer will review any proposed alternatives and will bring the proposals before the Water Board for consideration.

#### G. Impacts Influencing Baseline Pollutant Loads

In accordance with the Basin Plan and Permit Section IV.D, Permittees must ensure that changes in land use, impervious coverage, or operations and maintenance practices do not increase a catchment's average annual baseline pollutant load.

For the 2014 water year (October 1 2013 – September 30, 2014) each Permittee shall conduct a general assessment of the changes in land use, impervious coverage, and operations and maintenance practices to determine whether such changes have increased the baseline average annual pollutant loading as described in Permit Table IV.B. The assessment need only consider land use, impervious cover, and operations and maintenance changes that have occurred in hydraulically connected catchments not registered as part of the Crediting Program that may have occurred since the initial baseline analysis was conducted.

If Permittees determine that changes in baseline loading have occurred, each Permittee shall identify the specific catchments where pollutant loads have changes and ensure those catchments have been registered under the Crediting Program.

## II. Inspection Requirements

### A. Storm Water System Inspections

Visual inspection of storm water collection, conveyance, and treatment facilities is the most efficient tool to assess facility function and evaluate maintenance needs.

For portions of a Permittee's jurisdiction not included in a Crediting Program registered catchment, Permittees shall inspect its storm water collection, conveyance, and treatment systems **annually**. Permittees shall conduct facilities inspections between the period of time following spring snow melt and before fall rain and snow storms each year to provide the opportunity to perform facilities maintenance as needed.

Storm water facilities shall be inspected for signs of needed maintenance, evidence of erosion, damage from snow removal equipment, and accumulated sediment and debris. During inspections, Permittees shall also consider potential storm water pollutant sources including but not limited to:

- Private property/residential runoff
- Commercial property runoff
- Eroding cut slopes
- Eroding road shoulders
- Traction abrasive application
- Dislodged sediment from snow removal activities
- Vehicles tracking sediment onto the roadway
- Parking related erosion

Permittees shall implement an inspection documentation and tracking system to record inspection findings and prioritize maintenance needs. At a minimum, the tracking system shall provide mechanisms to document the following:

- Inspector's name
- Date and time of inspection
- Field and weather conditions at the time of the inspection
- Mapped inspection location (i.e. catchment)
- Observed system condition at time of inspection
- An assessment of needed maintenance or other follow-up actions
- Prioritization of needed maintenance

#### B. Construction Site Inspections

Permittees shall establish construction site inspection frequencies based on the water quality prioritization described in Permit Section III.B.1. At a minimum, Permittees shall conduct weekly inspections during the construction season of high priority construction projects and construction projects overseen by the Permittee (e.g. erosion control projects).

Permittees shall inspect each medium and low priority construction site at a frequency sufficient to ensure that sediment and other pollutants are properly controlled and that unauthorized, non-storm water discharges are prevented.

Permittees shall implement a construction site inspection documentation and tracking system to record inspection findings. At a minimum, the tracking system shall provide mechanisms to document the following:

- Inspector's name
- Date and time of inspection
- Field and weather conditions at the time of the inspection
- Inspection location
- Observed facility conditions
- A summary of follow up and enforcement actions taken, if violations are observed.

#### C. Commercial, Industrial, and Municipal Site Inspections

Permittees shall establish commercial, industrial, and municipal site inspection frequencies based on the water quality prioritization described in Permit Section III.B.2. Each Permittee shall inspect each high priority commercial, industrial, and municipal site annually.

Permittees shall implement a commercial, industrial, and municipal site inspection documentation and tracking system to record inspection findings. At a minimum, the tracking system shall provide mechanisms to document the following:

- Inspector's name
- Date and time of inspection
- Field and weather conditions at the time of the inspection
- Inspection location
- Observed facility conditions
- A summary of follow up and enforcement actions taken, if violations are observed.

#### D. Traction Abrasive and Deicing Material

The goal of traction abrasive monitoring program is to measure the quality and quantity of material applied and recovered. To meet that objective, Permittees shall implement a program that, at a minimum, includes the following:

1. Specifications for the amounts of fine sediment particles, total nitrogen, and total phosphorus allowable in material the Permittee applies as traction abrasives.
2. A program to sample supplied traction abrasive materials to determine whether materials meet the specifications defined according to II.D.1 above.
3. A system to track and record the total amount of abrasive and deicing material applied to its roads and parking areas per winter season. Materials applied to Permittee roads by other authorized entities shall be tracked and recorded along with Permittee applied material.
4. A system to track and record the location and amount that maintenance crews, Permittee contractors, or other authorized entities apply abrasive and deicing material (i.e. amount applied per "zone").

### III. Water Quality Monitoring Requirements

#### A. Catchment Scale Runoff Water Quality Monitoring

The Crediting Program and associated load estimation tools, including the Pollutant Load Reduction Model (PLRM), estimate the average annual pollutant load reductions at a catchment scale as a result of pollutant control actions. Storm water monitoring is needed to verify that implementing cumulative pollutant control actions is resulting in

measurable pollutant load reductions at the catchment scale. Documenting and reporting pollutant load reductions at select catchment outlets will help verify that the jurisdictions cumulative pollutant control actions are effective and confirm credit awards are warranted.

To assess the water quality at the urban catchment outfalls and provide load estimation tool comparison data, each Permittee shall, at a minimum:

1. Establish monitoring locations at storm water outfalls of no less than two (2) Crediting Program registered catchments, targeting catchments that discharge directly to surface waters.
2. Obtain continuous flow data at the catchment outfall and report data as seasonal [Fall/Winter (October 1 – February 28) Snow melt (March 1 – May 31) and Summer (June 1 – September 30)] total outflow volumes (in cubic feet).
3. Collect the first flush sample for each seasonal event type (rain-on-snow, snowmelt, summer thunderstorm, fall rain) and collect additional samples spanning storm event hydrographs. For all event types, report the average first flush concentration (mg/L) for each year sampled.

Due to the large total volume of the spring snow melt, collect supplemental samples periodically throughout the snow melt hydrograph. Designate each sample as first flush, rising limb or falling limb of the snow melt hydrograph. Use the range of samples collected to estimate the snow melt event mean concentration (mg/L) for each year sampled, in addition to the first flush concentration.

4. Analyze all collected water samples for the Lake Tahoe TMDL pollutants of concern – fine sediment particles, total suspended sediment, total nitrogen, and total phosphorus. The priority pollutant is fine sediment particles (FSP) less than 16 micrometers ( $\mu\text{m}$ ) in diameter, that should be reported as both concentration by mass (mg/L) and the number of particles per liter of water. Samples collected and analyzed for FSP shall span the range of expected FSP concentrations experienced at the selected catchment outfall.
5. Total nitrogen, total phosphorus, and total suspended solids sample analyses may be conducted with lesser frequency than FSP analyses provided. Permittees must demonstrate the proposed approach will adequately reflect the range of nutrient and total suspended solid concentrations at the catchment outlet. The sampling strategy shall include a range of event types that is proportional to their frequency of occurrence and total seasonal volume contributions.



6. Collect paired turbidity and FSP measurements concurrently with flow at the catchment outfall. Relate FSP concentration by mass (mg/L) results to turbidity measurements by developing an FSP concentration/turbidity rating curve that correlates FSP concentration data collected over the range of conditions to measured turbidity. Use accepted FSP mass to particle number conversions to report FSP results as number of particles.
7. Use collected data to estimate the average flow-weighted concentration of each pollutant for each season monitored.
8. Calculate the total load (mass in kilograms for total nitrogen, total phosphorus, and total suspended solids and number of particles for FSP) of each pollutant for each season monitored as the product of the total seasonal volume and the average seasonal concentration.
9. Use long-term regional meteorological data to identify whether the data were collected during dry, average, or wet seasons.
10. Follow quality assurance protocols established by the Regional Storm Water Monitoring Program (RSWMP) Quality Assurance Project Plan (May 2011) for all sampling activities.
11. Maintain monitoring locations and collect samples for no fewer than three water years (October 1 – September 30).

B. Best Management Practice (BMP) Effectiveness Monitoring

The PLRM and other pollutant load estimation tools use the best available information to assess water quality benefits expected from implementing storm water treatment devices and other BMPs. Condition assessments are used to verify that the condition of a BMP or specific land use is being maintained at an acceptable condition. BMP effectiveness monitoring is needed to verify that each Permittee's BMP implementation and maintenance practices are resulting in actual measured pollutant load reductions. BMP effectiveness monitoring is also needed to improve installation and maintenance practices for various BMPs to optimize water quality benefits.

Each Permittee must, at a minimum:

1. Select at least one (1) storm water treatment device or other BMP and monitor effectiveness for at least three successive years.

2. If the selected BMP is a flow-through structure/device, obtain continuous flow at the inlet and outlet to support seasonal [Fall/Winter (October 1 – February 28) Snow melt (March 1 – May 31) and Summer (June 1 – September 30)] inflow and outflow volume reporting.

If the selected BMP is not a flow-through device, devise a reasonable method to obtain continuous flow at the inlet to support seasonal volume reporting of storm water treated/infiltrated/contained by the BMP.

If the selected BMP is a pollutant source control measure, the Permittee need not report hydrology and the monitoring plan shall describe methods to calculate the mass of pollutant controlled per land surface area.

3. Collect influent (or up gradient) and effluent (or down gradient) storm water samples to assess treatment device/activity performance.
4. Analyze all collected water samples for the Lake Tahoe TMDL pollutants of concern – fine sediment particles, total nitrogen, and total phosphorus. The priority pollutant is FSP reported as the number of particles per liter of water. Samples collected and analyzed for FSP shall span the range of expected FSP concentrations experienced at the inlet and outlet.

Total nitrogen, total phosphorus, and total suspended solids sample analyses may be conducted with lesser frequency than FSP analyses provided Permittees demonstrate the proposed approach will provide a representative sampling of the range of pollutant concentrations. The sampling strategy should include a range of event types that is proportional to their frequency of occurrence and total seasonal volume contributions.

5. Use collected data to estimate the average concentration of each pollutant for each season monitored.
6. If evaluating a pollutant or hydrologic source control BMP, describe a data collection approach and reasonable extrapolation method to estimate volume of runoff eliminated (hydrologic source control) or the mass of the pollutant, or number of particles eliminated per unit area of the land surface affected (pollutant source control). Describe how this value will be used to estimate pollutant loads controlled per season [Fall/Winter (October 1 – February 28) Snow melt (March 1 – May 31) and Summer (June 1 – September 30)].

7. Use long-term regional meteorological data to identify whether the data were collected during dry, average, or wet seasons.
8. Follow quality assurance protocols established by the RSWMP Quality Assurance Project Plan (May 2011) for all sampling activities.

C. Monitoring Plan

By **March 15, 2013** each Permittee shall prepare and submit to the Water Board a storm water monitoring plan to implement the requirements described in Sections III.A and III.B above.

For catchment outfall monitoring, the plan shall describe how the requirements in Section III.A above will be met, including which catchments the Permittee proposes to monitor, proposed monitoring instrumentation, proposed sampling frequency, data management and proposed analysis and reporting methods. The monitoring plan shall include a detailed discussion of the rationale for the chosen sampling sites, methods, and frequency and a discussion of how the proposed monitoring will support, enhance, or otherwise inform the Permittee's existing load estimation or condition assessment methods and the Permittee's pollutant load reduction program.

For the BMP effectiveness monitoring, the plan shall describe how the requirements in Section III.B above will be met, including a description of the selected storm water treatment device or BMP, a discussion of influent (or upstream) and effluent (downstream) monitoring locations, and a description of how the proposed monitoring will evaluate the effectiveness of the chosen BMP and provide information to improve the collective understanding of how the chosen BMP should be installed and maintained over time.

The submitted monitoring plans must be reviewed and approved by the Water Board to ensure compliance with Permit and Monitoring and Reporting Program requirements.

D. Storm Water Monitoring Data Management

Electronic data shall be in a format compatible with the Surface Water Ambient Monitoring Program (SWAMP) database (See <http://mpsl.mlml.calstate.edu/swdataformats.htm>) and the *California Environmental Data Exchange Network (CEDEN)* at [www.ceden.org](http://www.ceden.org).

Permittees shall make all monitoring data and associated analytical reports available to managers of a regional data center (such as the Tahoe Integrated Information Management System or RSWMP database), and through their web sites. Permittees shall notify stakeholders and members of the general public about the availability of electronic and paper monitoring reports through notices distributed through appropriate means, such as an electronic mailing list or posting on Permittee websites.

#### **E. Storm Water Monitoring Compliance Options**

To promote cost savings through economies of scale and avoid monitoring redundancy, Permittees may obtain monitoring data through various organizational structures, including use of data obtained by other parties.

Permittees may also choose to comply with the storm water monitoring requirements through a collaborative effort. Should the Permittees chose to conduct monitoring described in Sections III.A and III.B above as part of a collaborative effort, the group may submit a single storm water monitoring plan to fulfill the requirement contained in Section III.C above.

Any collaborative monitoring plan shall include plans to collect samples from no less than four (4) urban catchments (with at least one catchment in each jurisdiction) and evaluate performance of no less than two (2) BMPs. Permittees must describe how the selected catchments span an adequate range of land use conditions, size, and water quality improvement strategies to avoid duplication of data collection efforts.

Similarly, selected BMPs must reflect differing treatment processes and treatment approaches implemented by the Permittees to provide a range of useful monitoring findings. The submitted monitoring plan shall describe how the proposed collaborative effort will effectively enhance the usefulness of collected data, achieve cost savings, and meet the requirements outlined in Sections III.A and III.B above.

For each monitoring component that is conducted collaboratively, Permittees shall prepare a single report on behalf of all contributing Permittees; separate water quality monitoring reports are not required.

If an existing collaborative organization or other research and monitoring effort has initiated plans after the adoption of this Permit to conduct monitoring that would fulfill the requirements described in Sections III.A, III.B, and III.C above, the Permittees may request the Water Board adjust monitoring and reporting dates to synchronize with such efforts.

#### IV. Annual Reporting Requirements

For each water year (October 1-September 30), Permittees shall develop and submit an Annual Report by **March 15, 2014** and by **March 15** of each subsequent year of the permit term. Annual Reports shall include the following elements:

##### A. Pollutant Load Reduction Reporting

Each Permittee must describe actions taken to fulfill the requirements of Monitoring and Reporting Section I. Specifically, each Permittee's annual report must include a list of catchments registered in the Accounting and Tracking Tool and a summary of applicable condition assessment results for all registered catchments pursuant to Section I.D above.

Each Permittee shall list its total credit award for the previous water year to demonstrate progress at meeting pollutant load reduction requirements.

Each Permittee shall describe load reduction progress in context of its Pollutant Load Reduction Plan (PLRP), including a discussion of whether catchment registration, associated load reduction estimates, and implementation actions are consistent with the submitted and accepted PLRP. Permittees shall discuss any deviations from the accepted PLRP, provide rationale for those deviations, and, if necessary, describe how the Permittee will compensate for any noted shortfalls in expected pollutant load reductions.

##### B. Storm water Facilities Inspection Report

The annual report shall include a summary report of all storm water facility inspections performed pursuant to Section II.A of this Monitoring and Reporting Program. The report shall include a list of all areas inspected, a description of identified pollutant sources and/or problem areas, and a discussion of any planned or completed maintenance and/or enforcement follow up activities.

C. Construction Site Inspection Report

The annual report shall include a summary report of all construction inspections performed pursuant to Section II.B of this Monitoring and Reporting Program. The summary report shall include a list of all construction sites inspected, a description of identified problems, and a discussion of any planned or completed enforcement follow up activities.

D. Commercial, Industrial, and Municipal Site Inspection Report

The annual report shall include a summary of all commercial, industrial, and municipal site inspections performed pursuant to Section II.C of this Monitoring and Reporting Program. The summary shall include a list of all commercial, industrial, and municipal sites inspected, a description of identified problems, and a discussion of any planned or completed enforcement follow up activities.

E. Traction Abrasive and Deicing Material Report

The annual report shall include a summary report of the monitoring data collected pursuant to Section II.C of this Monitoring and Reporting Program.

F. Storm water Monitoring Report

By March 15, 2014 and by **March 15** of each subsequent year of the Permit term, each Permittee shall submit a comprehensive electronic report that summarizes cumulative storm water monitoring results from the catchment load monitoring and BMP effectiveness evaluations conducted during the previous water year (October 1 – September 30).

The storm water monitoring report shall include, at a minimum, the following:

1. A discussion of monitoring purpose and study design and the underlying rationale.
2. Details of the data collection methods, sampling protocols and analytical methods including detection limits.
3. Quality Assurance/Quality Control summaries.
4. Maps and descriptions of all monitoring locations including latitude and longitude coordinates and data obtained at each location.
5. Raw analytical data that includes sample identification, collection date, time and analytical reporting results for all collected samples.

6. Documentation of data management procedure.
7. Details of data analysis, calculations and assumptions used to obtain results and draw conclusions.
8. Catchment outlet monitoring - data tables and graphical data summaries that include seasonal total volume (cubic feet), seasonal average concentrations (milligrams/liter and number of particles/liter) and load (kilograms and number of particles) of each pollutant outlined in section III.A.4 of this Monitoring and Reporting Program.
9. Catchment outlet monitoring – provide interpretation of annually collected data relative to modeled average annual estimates and conduct an assessment of this data in the context of the water year type (wet, average, dry) using the regional meteorological analysis.
10. For long-term catchment monitoring, provide recent data in context with cumulative comparable results from previous years, noting trends. Consider the season type (wet, average, dry,) for each seasonal data point when evaluating trends and inter-annual variability in catchment results. Compare measured pollutant loads with modeled average annual variables and model outputs.
11. For flow-through BMPs - data tables and graphical data summaries of seasonal volume (cubic feet), average inlet and outlet pollutant concentrations (milligrams/liter and number of particles/liter) and pollutant loads (kilograms and number of particles) for each pollutant outlined in section III.B.4 of this Monitoring and Reporting Program. Permittees shall report the seasonal storm water volume (cubic feet) and pollutant load reduced (kilograms and number of particles) for each pollutant for each season of measure.
12. For hydrologic or pollutant source control BMPs - data tables and graphical summaries of seasonal storm water volumes (cubic feet) (hydrologic source control) as a result of the BMP implementation and maintenance or seasonal pollutant mass (kilograms and number of particles) reduced over the area of land surface subject to the chosen BMP for each pollutant described in Section III.B.4. For multi-year BMP evaluations, provide recent data in context with cumulative comparable results from previous years, noting trends.
13. For BMP monitoring – provide interpretation of annually collected data relative to applicable model parameters and conduct an assessment of this data in the context of the water year type (wet, average, dry) using the regional meteorological analysis.

14. A final monitoring summary including the following values for each monitored location.

Season	Seasonal Volume (cf)	Pollutant	Seasonal Concentration (mg/L)	Seasonal Concentration (# particles/L)	Seasonal Load (kg)
Fall Winter (Oct 1-Feb 28)	x	FSP	x	x	x
		TSS	x		x
		TP	x		x
		TN	x		x
Spring Melt (Mar 1-May 31)	x	FSP	x	x	x
		TSS	x		x
		TP	x		x
		TN	x		x
Summer (June 1-Sept 31)	x	FSP	x	x	x
		TSS	x		x
		TP	x		x
		TN	x		x
<b>Water Year Totals: Total WY precipitation (in/yr)</b>					
<b>Water year type: very dry, dry, average, wet, very wet</b>					
Water Year Total	x	FSP			x
		TSS			x
		TP			x
		TN			x

15. A discussion of lessons learned from storm water monitoring efforts including, but not limited to, catchment water quality improvement strategies, pollutant sources analyses, pollutant fate and transport within sampled catchments, BMP design and/or implementation improvements, and maintenance strategy effectiveness (including techniques or frequency).

16. A discussion of any proposed changes to the storm water monitoring program and the rationale for each proposed change.

If Permittees are working collaboratively to meet the requirements specified in Section III of this Monitoring and Reporting Program, a single report for participating Permittees will be accepted.

G. Illicit Discharge Report

To assess compliance with Permit Sections I.A and III.B.5 each Permittee's annual report shall describe actions taken to prevent unauthorized non-storm water discharges and report any identified illicit discharges to its collection, conveyance, and treatment facilities. The report shall include a description of any education, outreach, or inspection activities conducted pursuant to Permit Sections III.B.1, III.B.2, III.B.3 and III.B.4 that support the Permittee's program to prohibit unauthorized non-storm water discharges.



H. Education Component Report

Each Permittee's annual report shall summarize all training and education activities conducted during the previous year, including a list of all education materials distributed and training provided to the public, to municipal employees, and to construction, commercial, industrial, or municipal site operators.

I. Impacts Influencing Baseline Pollutant Loads Report

In the annual report for the 2014 water year, Each Permittee shall summarize the assessment conducted pursuant to Monitoring and Reporting Program Section I.G to demonstrate compliance with Permit Order IV.D.

J. Provisions

Permittees shall comply with the "General Provisions for Monitoring and Reporting" dated September 1, 1994 that is attached to and made part of this Monitoring and Reporting Program as Attachment G.

County of El Dorado, State of California  
Community Development Agency  
Transportation Division

P&C # 394-C1599 / CIP Nos. 95163/95175

**LAKE TAHOE BLVD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT**

**THIS AGREEMENT** ("Agreement") approved by the Board of Supervisors this \_\_\_\_ day of \_\_\_\_\_, in the year of 20\_\_, made and concluded, in duplicate, between the COUNTY OF EL DORADO, a political subdivision of the State of California, by the Community Development Agency, Transportation Division, thereof, the party of the first part hereinafter called "County," and [CONTRACTOR], the 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:

**LAKE TAHOE BLVD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT**

The project is located along Lake Tahoe Blvd from Clear View Drive/ Mule Deer Circle to Industrial Avenue, in eastern El Dorado County, in the Tahoe Basin. 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 erosion control improvements including sediment traps, drainage inlets, culverts, concrete headwall, pavement removal, signing, and pavement markings. Other items or details not mentioned above, that are required by the plans, Standard Plans, Standard Specifications, or these Special Provisions must be performed, constructed or installed.

**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, Subcontractor List, 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); the Contract which includes this Agreement with all Exhibits thereto, including the Fair Employment Practices Addendum and the Nondiscrimination Assurances, the Performance Bond, and Payment Bond; the drawings listed and identified as the Project Plans; the Special Provisions which incorporate by reference the State of California Department of Transportation (Caltrans) Standard Plans 2010, and Standard Specifications 2010, Revised 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 Caltrans 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 8 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 the Notice to Bidders annexed hereto, plus any extensions thereof allowed in accordance with Section 8 of the Standard Specifications and 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 **\$1,800**, 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.

### **Article 5. INDEMNITY**

To the fullest extent allowed by law, Contractor shall defend, indemnify, and hold County, its (their) officers, directors, and employees, and the State of California (State), its officers, directors, agents (excluding agents who are design professionals), the California Tahoe Conservancy, and each of its members, officers, agents, 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, CTC, 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, CTC, or any federal government agencies, the Contractor, subcontractors or employees of any of these, except for the active, or sole negligence of the County, the State of California, CTC, or any federal government agencies their officers and employees,, or where expressly prescribed by statute.

The duty to indemnify and hold harmless the County, the State, CTC, 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.

**Article 6. VENUE**

Any litigation arising out of this Contract shall be brought in El Dorado County and governed by California law.

**Article 7. NOTIFICATION OF SURETY COMPANY**

The surety company shall familiarize itself with all of the conditions and provisions of this Contract, and shall waive the right of special notification of any change or modifications of this Contract or extension of time, or of decreased or increased work, or of the cancellation of the Contract, or of any other act or acts by County or its authorized agents, under the terms of this Contract; and failure to so notify the aforesaid surety company of changes shall in no way relieve the surety company of its obligation under this Contract.

**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 7-1.02 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.

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. SUCCESSORS AND ASSIGNS**

This Agreement shall bind and inure to the heirs, devisees, assignees, and successors in interest of Contractor and to the successors in interest of County in the same manner as if such parties had been expressly named herein.

#### **Article 12. REPORTING ACCIDENTS**

Contractor shall prepare and submit (within 24 hours of such incidents) reports of accidents at the site and anywhere else the work is in progress in which bodily injury is sustained or property loss in excess of Five Hundred Dollars (\$500.00) occurs.

#### **Article 13. EMISSION REDUCTION**

Contractor shall comply with emission reduction regulations mandated by the California Air Resources Board, and sign a certification of knowledge thereof:

#### **CERTIFICATE OF KNOWLEDGE – EMISSIONS REDUCTION REGULATIONS**

I am aware of the emissions reduction regulations being mandated by the California Air Resources Board. I will comply with such regulations before commencing the performance of the Work and maintain compliance throughout the duration of this Contract.

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

**Article 14. 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 15. 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 16. RETAINAGE**

The retainage from payment is set forth in Section 9-1.16F(1) 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 17. RESERVED**

**Article 18. 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. 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/OPRL/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 Community Development Agency, Transportation Division'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 constitutes a legal day's work upon all work done hereunder, and Contractor and any subcontractor employed under this Contract must conform to and be bound by the provisions of Labor Code Sections 1810 through 1815.

This project is subject to the requirements of Title 8, Chapter 8, Subchapter 4.5 of the California Code of Regulations

including the obligation to furnish certified payroll records directly to the Compliance Monitoring Unit under the Labor Commissioner within the Department of Industrial Relations Division of Labor Standards Enforcement in accordance with Section 16461.

No contractor or subcontractor may be awarded the contract for this Project unless registered with the Department of Industrial Relations in accordance with Labor Code section 1725.5.

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. Comply with Exhibit D of this Agreement and 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 must pay not less than the higher wage rate. The Community Development Agency, Transportation Division 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 must pay not less than the federal minimum wage rate which most closely approximates the duties of the employees in question.

#### **Article 19. 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 20. 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.
- k. Will comply with the Department of Industrial Relations pursuant to Labor Code sections 1725.5 and 1771.1.

Any subcontract entered into as a result of this Contract shall contain all of the provisions of this Article.



**Article 21. 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 County of El Dorado 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 22. TAXES**

Contractor certifies that as of today’s date, it is not in default on any unsecured property taxes or other taxes or fees owed by Contractor to County. Contractor agrees that it shall not default on any obligations to County during the term of this Agreement.

**Article 23. CONTRACT ADMINISTRATOR**

The County Officer or employee with responsibility for administering this Agreement is John Kahling, Deputy Director Engineering, Headington Unit, Community Development Agency, Transportation Division, or successor.

**Article 24. 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.

**Article 25. PARTIAL INVALIDITY**

If any provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions will continue in full force and effect without being impaired or invalidated in any way.

**Article 26. NO THIRD PARTY BENEFICIARIES**

Nothing in this Agreement is intended, nor will be deemed, to confer rights or remedies upon any person or legal entity not a party to this Agreement.

**Article 27. COUNTERPARTS**

This Agreement may be executed in one or more counterparts, each of which shall be an original and all of which together shall constitute one and the same instrument.

**Article 28. ENTIRE AGREEMENT**

This document and the documents referred to herein or exhibits hereto are the entire Agreement between the parties and they incorporate or supersede all prior written or oral agreements or understandings.

**Article 29. DRUG-FREE WORKPLACE**

Contractor agrees to maintain a drug-free workplace in accordance with Government Code Section 8355, et seq. by doing all of the following:

- a. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person’s or organization’s workplace, and specifying actions that will be taken against employees for violations of this prohibition;
- b. Establishing a drug-free awareness program to inform employees about (1) the dangers of drug abuse in the workplace; (2) the person’s or organization’s policy of maintaining a drug-free workplace; (3) any available drug counseling, rehabilitation, and employee assistance programs; and (4) the penalties that may be imposed upon employees for drug abuse violations;
- c. Submitting a drug-free workplace certification form Exhibit D to County with the submittal of the signed

Agreement;

- d. Requiring that each employee engaged in the performance of the contract be given a copy of the certification.

Draft

**IN WITNESS WHEREOF**, the said Community Development Agency, Transportation Division 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 Date: \_\_\_\_\_

Chair, Board of Supervisors

Attest:  
James S. Mitrisin  
Clerk of the Board of Supervisors

Dated: \_\_\_\_\_

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

Deputy Clerk

**CONTRACTOR**

Dated: \_\_\_\_\_

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

Federal Employee Identification Number \_\_\_\_\_

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

President

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 in 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 they are 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 County prior to signing this document.

Mailing Address \_\_\_\_\_

Business Address \_\_\_\_\_

Email Address \_\_\_\_\_

Phone (\_\_\_\_) \_\_\_\_\_ Fax (\_\_\_\_) \_\_\_\_\_

**EXHIBIT A  
CONTRACTOR'S BID AND BID SCHEDULE  
LAKE TAHOE BLVD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT  
CONTRACT NO. PW 14-31076, CIP NOS. 95163/95175**

ITEM NO.	ITEM CODE	ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE (in Figures)		ITEM TOTAL (in Figures)	
1	999990	MOBILIZATION	LS	1				
2	072007	EXCAVATION SAFETY	LS	1				
3	120100	TRAFFIC CONTROL SYSTEM	LS	1				
4	130100	JOBSITE MANAGEMENT	LS	1				
5	130640	TEMPORARY FIBER ROLL	EA	11				
6	130670A	TEMPORARY REINFORCED SILT FENCE MODIFIED	LF	445				
7	130730	STREET SWEEPING	LS	1				
8	141000	TEMPORARY FENCE (TYPE ESA)	LF	870				
9	141000A	TEMPORARY FENCE (TYPE ESA) (TREE TRUNK PROTECTION)	EA	1				
10	150711	REMOVE PAINTED TRAFFIC STRIPE	LF	7,111				
11	150712	REMOVE PAINTED PAVEMENT MARKING	SQFT	51				
12	150770A	REMOVE ASPHALT CONCRETE PAVEMENT (SQFT)	SQFT	20,456				
13	151572	P RECONSTRUCT METAL BEAM GUARD RAILING	LF	40				
14	182386	RELOCATE ROADSIDE SIGN-ONE POST	EA	2				
15	190101A	F ROADWAY EXCAVATION (SEDIMENT BASIN)	CY	161				
16	194001A	DITCH EXCAVATION (BLANKET LINED CHANNEL)	LF	82				
17	210011A	HUMUS	CY	28				

ITEM NO.	ITEM CODE	ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE (in Figures)	ITEM TOTAL (in Figures)
18	210012A	MULCH	CY	33		
19	210013A	TACKIFIER	SQFT	10,526		
20	260203	CLASS 2 AGGREGATE BASE (CY)	CY	386		
21	390132	HOT MIX ASPHALT (TYPE A)	TON	113		
22	510502	F MINOR CONCRETE (MINOR STRUCTURE)	CY	2		
23	510502A	F MINOR CONCRETE (MINOR STRUCTURE) (COLLAR AND ENCASEMENT)	CY	2		
24	510502B	DRAINAGE INLET - TYPE 3	EA	2		
25	560248	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063" - UNFRAMED)	SQFT	33		
26	566011	ROADSIDE SIGN - ONE POST	EA	14		
27	641107A	18" PLASTIC PIPE (HDPE)	LF	412		
28	641113A	24" PLASTIC PIPE (HDPE)	LF	93		
29	665018	18" CORRUGATED STEEL PIPE (0.109" THICK)	LF	13		
30	685100A	18" PERFORATED PLASTIC PIPE UNDERDRAIN	LF	80		
31	700639	36" CORRUGATED STEEL PIPE INLET (0.109" THICK)	LF	30		
32	700655	48" CORRUGATED STEEL PIPE INLET (0.109" THICK)	LF	27		
33	705011	18" STEEL FLARED END SECTION	EA	7		
34	705015	24" STEEL FLARED END SECTION	EA	2		
35	707225	48" PRECAST CONCRETE PIPE MANHOLE	EA	1		
36	721026A	F ROCK SLOPE PROTECTION (NO. 1, METHOD A) (CY)	CY	59		
37	840655	PAINT TRAFFIC STRIPE (1-COAT)	LF	14,361		

ITEM NO.	ITEM CODE	ITEM DESCRIPTION	UNIT OF MEASURE	ESTIMATED QUANTITY	UNIT PRICE (in Figures)		ITEM TOTAL (in Figures)	
38	840665	PAVEMENT MARKING (1-COAT)	SQFT	352				
<b>TOTAL BID</b>								

(F) Final Pay Quantity

(P) Eligible for Partial Payment

(LS) Lump Sum

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 nondiscrimination 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 s 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  
(NOT USED)**

*Draft*

**APPENDIX C  
to  
EXHIBIT C  
(NOT USED)**

*Draft*

**APPENDIX D  
to  
EXHIBIT C  
(NOT USED)**

*Draft*

**EXHIBIT D**

**(NOT USED)**

*Draft*

**EXHIBIT E**  
**DRUG-FREE WORKPLACE CERTIFICATION**

---

COMPANY/ORGANIZATION NAME

---

The Contractor named above hereby certifies compliance with Government Code Section 8355 in matter relating to providing a drug-free workplace. The above named contractor will:

1. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations, as required by Government Code Section 8355(a).
2. Establish a Drug-Free Awareness Program as required by Government Code Section 8355(b), to inform employees about all of the following:
  - a. The dangers of drug abuse in the workplace,
  - b. The person's or organization's policy of maintaining a drug-free workplace,
  - c. Any available counseling, rehabilitation, and employee assistance programs, and
  - d. Penalties that may be imposed upon employees for drug abuse violations.
3. Provide as required by Government Code Section 8355(c), that every employee who works on the proposed contract:
  - a. Will receive a copy of the company's drug-free policy statement, and
  - b. Will agree to abide by the terms of the company's statement as a condition of employment on the contract.

---

**CERTIFICATION**

---

I, the official named below, hereby swear that I am duly authorized legally to bind the contractor to the above-described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

---

OFFICIALS NAME

---

DATE EXECUTED

---

EXECUTED IN THE COUNTY OF

---

CONTRACTOR SIGNATURE

---

TITLE

---

FEDERAL I.D. NUMBER

---

**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:

**LAKE TAHOE BLVD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT  
CONTRACT No. PW 14-31076/ CIP Nos. 95163/95175**

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

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

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

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

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 Obligees, necessary to perform and complete, and to perform and complete in a good and workmanlike manner, the work of **Contract No. PW 14-31076/ CIP Nos. 95163/95175 for the Lake Tahoe Blvd Erosion Control/ Stream Environment Zone 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 Obligees and judgment is recovered, the Surety shall pay all costs incurred by the Obligees in such suit, including a reasonable attorney's fee to be fixed by the court.

This guarantee shall insure the Obligees 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 Obligees 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

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

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

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

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)

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: COUNTY OF EL DORADO,  
STATE OF CALIFORNIA  
COMMUNITY DEVELOPMENT AGENCY  
TRANSPORTATION DIVISION,**

for the construction of  
the

**LAKE TAHOE BLVD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT  
CONTRACT No. PW 14-31076 / CIP Nos. 95163/95175**

NAME OF BIDDER \_\_\_\_\_

MAILING ADDRESS \_\_\_\_\_

CITY, STATE, ZIP \_\_\_\_\_

PHYSICAL ADDRESS \_\_\_\_\_

*(Please include even if Mailing Address used)*

CITY, STATE, ZIP \_\_\_\_\_

TELEPHONE NO:        AREA CODE (        ) \_\_\_\_\_

FAX NO:                AREA CODE (        ) \_\_\_\_\_

EMAIL ADDRESS \_\_\_\_\_

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 2010, the Standard Specifications 2010, Revised 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:

Lake Tahoe Blvd Erosion Control/  
Stream Environment Zone Project  
Contract No. PW 14-31076, CIP Nos. 95163/95175  
May 2015

County of El Dorado  
**Proposal**  
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**LAKE TAHOE BLD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT  
CONTRACT No. PW 14-31076 / CIP Nos. 95163/95175**

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 Community Development Agency, Transportation Division'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 in accordance with the special provisions within five (5) 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**  
**LAKE TAHOE BLVD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT**  
**CONTRACT NO. PW 14-31076, CIP NOS. 95163/95175**

ITEM NO.	ITEM CODE	P-F	DESCRIPTION	UNIT	ESTIMATED QUANTITY	ITEM PRICE	TOTAL
1	999990		MOBILIZATION	LS	1		
2	072007		EXCAVATION SAFETY	LS	1		
3	120100		TRAFFIC CONTROL SYSTEM	LS	1		
4	130100		JOBSITE MANAGEMENT	LS	1		
5	130640		TEMPORARY FIBER ROLL	EA	11		
6	130670A		TEMPORARY REINFORCED SILT FENCE MODIFIED	LF	445		
7	130730		STREET SWEEPING	LS	1		
8	141000		TEMPORARY FENCE (TYPE ESA)	LF	870		
9	141000A		TEMPORARY FENCE (TYPE ESA) (TREE TRUNK PROTECTION)	EA	1		
10	150711		REMOVE PAINTED TRAFFIC STRIPE	LF	7,111		
11	150712		REMOVE PAINTED PAVEMENT MARKING	SQFT	51		
12	150770A		REMOVE ASPHALT CONCRETE PAVEMENT (SQFT)	SQFT	20,456		
13	151572	P	RECONSTRUCT METAL BEAM GUARD RAILING	LF	40		
14	152386		RELOCATE ROADSIDE SIGN-ONE POST	EA	2		
15	190101A	F	ROADWAY EXCAVATION (SEDIMENT BASIN)	CY	161		
16	194001A		DITCH EXCAVATION (BLANKET LINED CHANNEL)	LF	82		
17	210011A		HUMUS	CY	28		
18	210012A		MULCH	CY	33		
19	210013A		TACKIFIER	SQFT	10,526		
20	260203		CLASS 2 AGGREGATE BASE (CY)	CY	386		
21	390132		HOT MIX ASPHALT (TYPE A)	TON	113		
22	510502	F	MINOR CONCRETE (MINOR STRUCTURE)	CY	2		
23	510502A	F	MINOR CONCRETE (MINOR STRUCTURE) (COLLAR AND ENCASEMENT)	CY	2		
24	510502B		DRAINAGE INLET - TYPE 3	EA	2		
25	560248		FURNISH SINGLE SHEET ALUMINUM SIGN (0.063" - UNFRAMED)	SQFT	33		
26	566011		ROADSIDE SIGN - ONE POST	EA	14		
27	641107A		18" PLASTIC PIPE (HDPE)	LF	412		



ITEM NO.	ITEM CODE	P-F	DESCRIPTION	UNIT	ESTIMATED QUANTITY	ITEM PRICE	TOTAL	
28	641113A		24" PLASTIC PIPE (HDPE)	LF	93			
29	665018		18" CORRUGATED STEEL PIPE (0.109" THICK)	LF	13			
30	685100A		18" PERFORATED PLASTIC PIPE UNDERDRAIN	LF	80			
31	700639		36" CORRUGATED STEEL PIPE INLET (0.109" THICK)	LF	30			
32	700655		48" CORRUGATED STEEL PIPE INLET (0.109" THICK)	LF	27			
33	705011		18" STEEL FLARED END SECTION	EA	7			
34	705015		24" STEEL FLARED END SECTION	EA	2			
35	707225		48" PRECAST CONCRETE PIPE MANHOLE	EA	1			
36	721026A	F	ROCK SLOPE PROTECTION (NO. 1, METHOD A) (CY)	CY	59			
37	840655		PAINT TRAFFIC STRIPE (1-COAT)	LF	14,361			
38	840665		PAVEMENT MARKING (1-COAT)	SQFT	352			
<b>TOTAL</b>								

(F) Final Pay Quantity

(P) Eligible for Partial Payment

(LS) Lump Sum

(NOTICE: Bidders failure to execute the questionnaires and statements contained in this proposal as required by applicable laws and regulations, or the determinations by County of El Dorado based upon those questionnaires and statements, may prohibit award of the subject Contract to the bidder.)

## SUBCONTRACTOR LIST

The Bidder must 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 section 2-1.33. The Bidder must 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**

	<u>Has</u>	<u>Has Not</u>
The Bidder _____	_____	_____
Proposed Subcontractor(s) _____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

hereby certifies the above information regarding participation in a previous contract or subcontract subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114, 11246, and 11375, and as supplemented by 41 CFR 60, 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 AND SUSPENSION CERTIFICATION, UNITED STATES DEPARTMENT  
OF AGRICULTURE (USDA) UNIFORM FEDERAL ASSISTANCE REGULATIONS, 7  
CFR 3016, UNIFORM ADMINISTRATIVE REQUIREMENTS FOR GRANTS AND  
COOPERATIVE AGREEMENTS TO STATE AND LOCAL GOVERNMENTS, AND  
EXECUTIVE ORDER 12549**

The Bidder, under penalty of perjury under the laws of the State of California, certifies that, except as noted below, he or any person associated therewith in the capacity of owner, partner, director, officer, 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 may result in denial of award, and will be considered in determining Bidder responsibility. For any exception noted above, indicate below to whom it applied, initiating agency, and dates of action.

**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.



# DISCLOSURE OF LOBBYING ACTIVITIES

COMPLETE THIS FORM TO DISCLOSE LOBBYING ACTIVITIES PURSUANT TO 31 U.S.C. 1352

<p><b>1. Type of Federal Action:</b></p> <p><input type="checkbox"/> a. contract  <input type="checkbox"/> b. grant  <input type="checkbox"/> c. cooperative agreement  <input type="checkbox"/> d. loan  <input type="checkbox"/> e. loan guarantee  <input type="checkbox"/> f. loan insurance</p>	<p><b>2. Status of Federal Action:</b></p> <p><input type="checkbox"/> a. bid/offer/application  <input type="checkbox"/> b. initial award  <input type="checkbox"/> c. post-award</p>	<p><b>3. Report Type:</b></p> <p><input type="checkbox"/> a. initial  <input type="checkbox"/> b. material change</p> <p style="text-align: right;"><b>For Material Change Only:</b>  year ____ quarter ____  date of last report _____</p>
<p><b>4. Name and Address of Reporting Entity</b></p> <p><input type="checkbox"/> Prime                      <input type="checkbox"/> Subawardee  Tier _____, if known</p> <p style="text-align: center;">Congressional District, if known</p>	<p><b>5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:</b></p> <p style="text-align: center;">Congressional District, if known</p>	
<p><b>6. Federal Department/Agency:</b></p>	<p><b>7. Federal Program Name/Description:</b></p> <p style="text-align: right;">CFDA Number, if applicable _____</p>	
<p><b>8. Federal Action Number, if known:</b></p>	<p><b>9. Award Amount, if known:</b></p>	
<p><b>10. a. Name and Address of Lobby Entity</b>  (If individual, last name, first name, MI)</p>	<p><b>b. Individuals Performing Services</b> (including address if different from No. 10a)  (last name, first name, MI)</p>	
(attach Continuation Sheet(s) if necessary)		
<p><b>11. Amount of Payment (check all that apply)</b></p> <p>\$ _____ <input type="checkbox"/> actual    <input type="checkbox"/> planned</p>	<p><b>13. Type of Payment (check all that apply)</b></p> <p><input type="checkbox"/> a. retainer  <input type="checkbox"/> b. one-time fee  <input type="checkbox"/> c. commission  <input type="checkbox"/> d. contingent fee  <input type="checkbox"/> e. deferred  <input type="checkbox"/> f. other, specify _____</p>	
<p><b>12. Form of Payment (check all that apply):</b></p> <p><input type="checkbox"/> a. cash  <input type="checkbox"/> b. in-kind; specify: nature _____  Value _____</p>		
<p><b>14. Brief Description of Services Performed or to be performed and Date(s) of Service, including officer(s), employee(s), or member(s) contacted, for Payment Indicated in Item 11:</b></p> <p style="text-align: center;">(attach Continuation Sheet(s) if necessary)</p>		
<p><b>15. Continuation Sheet(s) attached:</b>      Yes <input type="checkbox"/>      No <input type="checkbox"/></p>		
<p><b>16. Information requested through this form is authorized by Title 31 U.S.C. Section 1352. This disclosure of lobbying reliance was placed by the tier above when his transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to Congress semiannually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.</b></p>		
		<p>Signature: _____  Print Name: _____  Title: _____  Telephone No.: _____ Date: _____</p>
		<p>Authorized for Local Reproduction  Standard Form - LLL</p>
<p><b>Federal Use Only:</b></p>		

Standard Form LLL Rev. 04-28-06

## INSTRUCTIONS FOR COMPLETION OF SF-LLL,

Lake Tahoe Blvd Erosion Control/  
Stream Environment Zone Project  
Contract No. PW 14-31076, CIP Nos. 95163/95175  
May 2015

County of El Dorado  
**Proposal**  
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## 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 amount of the total 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 Debarment Suspension, Ineligibility and Voluntary Exclusion Certification; the Non-lobbying Certification for Federal-Aid Contracts and the Disclosure of Lobbying Activities (Standard Form LLL); the Fair Employment Practice Addendum, the Nondiscrimination Assurances, of Bidder or Bidder's Subcontractor 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 \_\_\_\_\_, 20\_\_\_\_

at \_\_\_\_\_ County, State of \_\_\_\_\_



\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name and Title of Bidder \_\_\_\_\_

Name of Firm \_\_\_\_\_

**END OF PROPOSAL**

**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

**LAKE TAHOE BLVD EROSION CONTROL/  
STREAM ENVIRONMENT ZONE PROJECT  
CONTRACT No. PW 14-31076, CIP NOS. 95163/95175**

**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

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

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)