



**COUNTY OF STANISLAUS
DEPARTMENT OF PUBLIC WORKS**

**NOTICE TO BIDDERS
AND
SPECIAL PROVISIONS**

FOR CONSTRUCTION ON

STATE HIGHWAY

IN

STANISLAUS COUNTY

ON ROUTE 99 FROM 0.6 MILE SOUTH TO 0.4 MILE NORTH OF ROUTE 219 AND ON ROUTE 219
(KIERNAN AVENUE) FROM 0.1 MILE WEST TO 0.5 MILE EAST OF ROUTE 219

IN DISTRICT 10 ON ROUTE 99, 219

For use in Conjunction with Caltrans Standard Specifications **Dated 2010**, Caltrans Standard Plans **Dated 2010**, and the Labor Surcharge and Equipment Rental Rates in effect on the date the work is accomplished.

**COUNTY CONTRACT NO. 9207
CALTRANS Project ID 1000000100
10-STA-99-22.0/23.0
10-Sta-219 0.0/0.5**

Bid Opening Date & Time: October 31, 2012; 2:00 pm.

**COUNTY CONTRACT NO. 9207
CALTRANS Project ID 1000000100**

DESIGN OVERSIGHT APPROVAL		REGISTRATION NO.	DATE
Printed Name	Signature		

Approved as to impact on State facilities and conformance with applicable State standards and practices and that technical oversight was performed as described in the California Department of Transportation A & E Consultant Services Manual.

The Special Provisions contained herein have been prepared by or under the direction of the following Registered Persons.

HIGHWAYS

Chuong Nguyen

 REGISTERED CIVIL ENGINEER



STRUCTURES

K. Harisazi

 REGISTERED STRUCTURAL ENGINEER



COUNTY CONTRACT NO. 9207

CALTRANS Project ID 1000000100

The Special Provisions contained herein have been prepared by or under the direction of the following Registered Persons.

PUMPING PLANT



REGISTERED STRUCTURAL ENGINEER



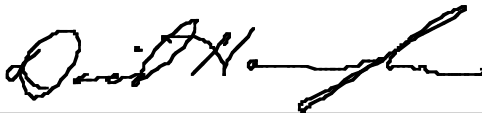
ELECTRICAL



REGISTERED ELECTRICAL ENGINEER



LANDSCAPE



REGISTERED LANDSCAPE ARCHITECT

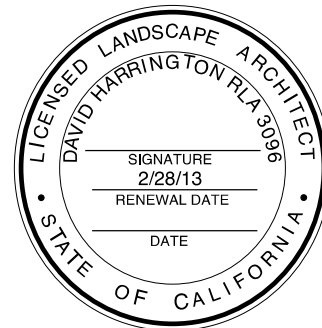


TABLE OF CONTENTS

INVITATION TO BIDDERS	1
INFORMATION TO BIDDERS	3
PROPOSAL	7
SAMPLE AGREEMENT, BONDS, AND GUARANTEE	51
SPECIAL CONDITIONS	66
COPY OF BID ITEM LIST	83
SPECIAL PROVISIONS	103
DIVISION I GENERAL PROVISIONS	104
1 GENERAL	104
2 BIDDING	105
3 CONTRACT AWARD AND EXECUTION	105
5 CONTROL OF WORK	105
6 CONTROL OF MATERIALS	108
7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC	109
8 PROSECUTION AND PROGRESS	110
DIVISION II GENERAL CONSTRUCTION	111
10 GENERAL	111
12 TEMPORARY TRAFFIC CONTROL	113
13 WATER POLLUTION CONTROL	137
14 ENVIRONMENTAL STEWARDSHIP	139
15 EXISTING FACILITIES	146
DIVISION III GRADING	153
16 CLEARING AND GRUBBING	153
19 EARTHWORK	153
20 LANDSCAPE	154
21 EROSION CONTROL	160
DIVISION V SURFACINGS AND PAVEMENTS	163
39 HOT MIX ASPHALT	163
DIVISION VI STRUCTURES	168
49 PILING	168
51 CONCRETE STRUCTURES	171
56 SIGNS	172
DIVISION VII DRAINAGE	173

64 PLASTIC PIPE.....	173
65 CONCRETE PIPE	175
68 SUBSURFACE DRAINS	179
DIVISION VIII MISCELLANEOUS CONSTRUCTION.....	180
72 SLOPE PROTECTION	180
73 CONCRETE CURBS AND SIDEWALKS	180
74 PUMPING EQUIPMENT AND CONTROLS.....	180
75 MISCELLANEOUS METAL	187
80 FENCES	188
DIVISION IX TRAFFIC CONTROL FACILITIES	189
83 RAILINGS AND BARRIERS.....	189
86 ELECTRICAL SYSTEMS	190
DIVISION X MATERIALS	246
90 CONCRETE.....	246
DIVISION XI BUILDING CONSTRUCTION	247
99 BUILDING CONSTRUCTION.....	247
REVISED STANDARD SPECIFICATIONS APPLICABLE TO THE 2010 EDITION OF THE STANDARD SPECIFICATIONS.....	277
APPENDIX.....	324
1. PERMITS.....	324

INVITATION TO BIDDERS

COUNTY OF STANISLAUS

DEPARTMENT OF PUBLIC WORKS

PART I - INVITATION TO BIDDERS

Contractors are invited to submit written, formal bids for the SR 99/SR 219 (Kiernan Avenue) Interchange Project. Estimated Construction cost for this project is \$28,000,000. The work to be accomplished includes reconstruction of the SR 99/219 overcrossing bridge structure, replacement of the storm drain lift station on the mainline SR 99, roadway widening, storm drain improvements, and traffic signal upgrades.

Plans and Specifications are available for viewing on the Modesto Reprographics webpage at www.modestoplanroom.com. Paper copies are available from Modesto Reprographics. Call (209) 544-2400 for questions regarding the purchase of plans and specifications.

Technical Questions: All questions must be submitted in writing. Email your questions to chris.brady@stancounty.com or fax your questions to (209) 541-2506, Attn: Chris Brady.

Bid forms are provided in the Section titled "Proposal". Bids shall be submitted in a sealed envelope and plainly marked "**Proposal for SR 99/SR 219 (Kiernan Avenue) Interchange Project**". Bid envelopes shall be addressed to: Stanislaus County, Clerk of the Board of Supervisors, 1010 10th Street, Ste. 6500, Modesto, California, 95354. Bid envelopes must be delivered to the Clerk of the Board of Supervisors prior to 2:00 p.m., October 31, 2012, as evidenced by the Clerk's date/time stamp on the envelopes. The bids will be publicly opened in the basement Board Chambers and read by the Clerk of the Board after bid closing.

EVENT DESCRIPTION	ANTICIPATED DATE
Board Approval of Plans and Specifications	July 17, 2012
Project Advertisement	September 17, 2012
	September 24, 2012
	October 1, 2012
	October 8, 2012
	October 15, 2012
Last Day Contractors Clarification Requests	October 16, 2012
Issuance of Addendum (if required)	October 19, 2012
Bid Opening	October 31, 2012
Board Approval of Contract	December 4, 2012
Notice to Proceed	Winter/Spring 2013

The award of the contract, if it be awarded, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed.

The lowest bid shall be the lowest bid price on the base contract without consideration of the prices on the additive or deductive items.

All bids will be compared on the basis of the Engineer's Estimate of the quantities of work to be done.

The DBE Contract goal is 14 percent.

Bidders are advised that, as required by 49 CFR Part 26, the County of Stanislaus is implementing a Race Conscious DBE Program. DBE requirements are located in Part V, "Special Conditions," Section SC-12, "Federal Aid Construction Contracts," and Part III, "Proposal," Section 5-1, "Performance of Subcontractor," of the project specifications.

Attention is directed to Section 1-1.02, "Style Variations," of the 2010 Standard Specifications for details on the new style for the 2010 Standard Specifications.

Other such items and details not mentioned herein that are required by the Plans, Standard Specifications or Special Provisions shall be performed, placed, constructed or detailed.

A pre-construction conference shall be required prior to the "Notice to Proceed".

The contractor shall possess a Class A License at the time this contract is awarded.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

The successful bidder shall furnish a payment bond and a performance bond.

Pursuant to Sections 1770 and 1773 of the Labor Code, the Board of Supervisors has ascertained the general prevailing rate of per diem wages applicable to the work to be done for straight time, overtime, Saturday, Sunday, and holiday work. These wage rates are set forth by the Director of the Department of Industrial Relations and are available at their web site and are on file with the Department of Public Works and hereby made a part of the agreement.

Pursuant to and in accordance with the Provisions of Public Contract Code Section 22300, the contractor may elect to substitute securities for retention monies withheld by the County or to request payment of retention monies earned to an escrow agent.

By order of the Board of Supervisors of the County of Stanislaus, State of California, made and entered into this July 17, 2012.

INFORMATION TO BIDDERS

COUNTY OF STANISLAUS

DEPARTMENT OF PUBLIC WORKS

PART II - INFORMATION FOR BIDDERS

1. DATE AND PLACE FOR OPENING PROPOSALS

- 1.1. Pursuant to the "Invitation to Bidders", sealed proposals for performing the work will be received by the Clerk of the Board of Supervisors of the County of Stanislaus.
- 1.2. At the place and time set forth in said "Invitation to Bidders", they will be publicly opened and read. The awarding of the agreement, if awarded, will be made by said Board of Supervisors as soon thereafter as practicable.

2. PRINTED FORM OF PROPOSALS

All proposals must be made upon the blank proposal as included in PART III - PROPOSAL, and must give the price data in figures, and must be signed by the bidder. In accordance with the directions in the proposal, in order to insure consideration the proposal must be enclosed in a return envelope furnished by the bidder, and plainly marked: "**Proposal for the SR 99/219 (Kiernan Avenue) Interchange Project**" and addressed to the Stanislaus County, Attn: Clerk of the Board of Supervisors, 1010 10th Street, Ste. 6500, Modesto, California, 95354. No bid may be withdrawn within Sixty (60) days after time of opening.

3. OMISSIONS AND DISCREPANCIES

Should a bidder find discrepancies in, or omissions from, the drawings or other contract documents, or should the bidder be in doubt as to their meaning, it shall at once notify the Engineer in writing who may send a written instruction to all bidders.

4. ACCEPTANCE OR REJECTION OF PROPOSALS

- 4.1. The Board of Supervisors reserves the right to reject any or all proposals. Without limiting the generality of the foregoing, any proposal that is incomplete, obscure, or irregular may be rejected. Any proposal having erasures or corrections in the price sheet may be rejected. Any proposal that omits a bid on any one or more items in the price sheet may be rejected. Any proposal in which unit prices are obviously unbalanced may be rejected. Any proposal accompanied by an insufficient or irregular bidder's bond may be rejected. Any proposal that does not include and have attached a list of all subcontractors, complete with names and addresses, may be rejected.
- 4.2. Also, the Board reserves the right to reject the proposal of any bidder who is not responsible. The successful bidder shall be licensed by the State of California to perform the work required by the plans and specifications and shall endorse its license number on the proposal. The Board may require additional evidence of experience, financial responsibility, or corporate existence, at its option. Each bidder shall endorse its address to which notices hereunder may be directed on the proposal.

- 4.3. A bidder may be deemed not to be responsible and its bid rejected if a listed subcontractor is not responsible. Responsibility of any bidder or of any listed subcontractor shall be determined at the sole discretion of the Board.

5. CASH, CERTIFIED CHECK, CASHIER'S CHECK OR BIDDER'S BOND

All proposals shall be accompanied by cash, a certified check, certified to by some responsible bank or banker, a cashier's check on a bank, or a bidder's bond prepared and guaranteed by an admitted corporate surety made payable to the "County of Stanislaus" in the amount of ten percent (10%) of the total bid, unless otherwise specified. All such cash or checks will be returned to the respective bidder within ten (10) days after the proposals are opened, except those which the Board of Supervisors elects to hold until the successful bidder has executed the contract. Thereafter, all remaining cash or checks, including that of the successful bidder, will be returned within five (5) days after the issuance of the Notice to Proceed.

6. ACCEPTANCE OF PROPOSALS AND ITS EFFECT

Within sixty (60) days after the opening of the proposals, the Board of Supervisors will act upon them. The acceptance of a proposal will be notice in writing signed by a duly authorized representative of the Board of Supervisors and no other act of the Board of Supervisors shall constitute the acceptance of a proposal. The acceptance of a proposal shall bind the successful bidder to execute the contract and to be responsible for liquidated damages, as provided in Section SC-08. The rights and obligations provided for in the contract shall become effective and binding upon the parties only with its formal execution by the Board of Supervisors or its authorized designee.

7. MANDATORY PRE-BID MEETING AND SITE VISIT – NOT APPLICABLE

8. BID PROTEST

Any Bid protest must be submitted in writing to the County's offices (Attention: Linda Allsop), before 5:00 p.m. of the tenth (10) day following posting on the official bulletin board of the Clerk of the Board of Notice of Intent to Award for Construction. Time will be determined by County staff using the official clock of the Clerk of the Board. County will use reasonable efforts to deliver by facsimile a copy of Notice of Intent to Award for Construction to all Bidders who submitted Bids no later than the Business Day after issuance, although any delay or failure to do so will not extend the Bid protest deadline described above.

- 8.1. The initial protest must contain a complete statement of the basis for the protest.
- 8.2. The protest must refer to the specific portion of the document that forms the basis for the protest.
- 8.3. The protest must include the name, address, and telephone number of the person representing the protesting party.
- 8.4. Only Bidders who the County otherwise determines are responsive and responsible are eligible to protest a Bid; protests from any other Bidder will not be considered.
- 8.5. The party filing the protest must concurrently transmit a copy of the initial protest document and any attached documentation to all other parties with a direct financial interest that may be adversely affected by the outcome of the protest. Such parties shall include all other Bidders who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.
- 8.6. The procedure and time limits set forth in this paragraph are mandatory and are Bidder's sole and exclusive remedy in the event of a Bid protest. Bidder's failure to comply with these procedures shall constitute a waiver of any right to further pursue the Bid protest, including filing a Government Code Claim or legal proceedings. A Bidder may not rely on a protest submitted by another Bidder, but must timely pursue its own protest.

9. WITHDRAWAL OF BIDS

Bidders may withdraw their Bids at any time prior to the Bid opening time fixed in this Information to Bidders, only by written request for the withdrawal of Bid filed with the County at the County's office. Bidder or its duly authorized representative shall execute request to withdraw Bid. The submission of a Bid does not commit the County to award a contract for the Project, to pay costs incurred in the preparation of a Bid, or to procure or contract for any goods or services.

10. TIME FOR EXECUTING CONTRACT AND DAMAGES FOR FAILURE TO EXECUTE

10.1. After Notice of Award, the successful Bidder must execute and submit the following documents as indicated below:

- 10.1.1. Submit the following documents to County by 2:00 p.m. of the tenth (10) Day following Notice of Award. Execution of Contract by County depends upon approval of these documents, and any other document identified in County's Notice of Award:
 - a. Agreement: To be executed by successful Bidder. Submit four originals, each bearing an original signature.
 - b. Construction Performance Bond: To be executed by successful Bidder and surety, in the amount set forth in Construction Performance Bond. Submit one original.
 - c. Construction Labor and Material Payment Bond: To be executed by successful Bidder and surety, in the amount set forth in Construction Labor and Materials Payment Bond. Submit one original.
 - d. Insurance certificates and endorsements required by Section SC-15, "Insurance," of Part V, "Special Conditions." Submit one original set.
 - e. One complete set of documentary information received or generated by successful Bidder in preparation of Bid prices for its Bid, as set forth in Escrow Bid Documents.
 - f. The Guaranty in the form set forth in Guaranty. Submit four originals, each bearing an original signature.
 - g. Any other item described in Notice of Award (if any).

10.2. County shall have the right to communicate directly with Apparent Low Bidder's proposed performance bond surety, to confirm the performance bond. County may elect to extend the time to receive faithful performance and labor and material payment bonds.

10.3. The damages to the County for such breach will include loss from interference with its construction program and other items whose accurate amount will be difficult or impossible to compute. The amount of the cash, certified check, cashier's check or bidder's bond accompanying the proposal of such bidder shall be forfeited and applied by the Board of Supervisors as liquidated damages for such breach. In the event any bidder whose proposal shall be accepted shall fail or refuse to execute the contract as accepted as hereinbefore provided, the Board of Supervisors may, at its option, determine that such bidder has abandoned the contract and thereupon his proposal and the acceptance thereof shall be null and void and the County shall be entitled to liquidated damages as provided in the Special Conditions. In such event, the Board of Supervisors may award the contract to the next low responsible bidder or bidders.

11. DETERMINATION OF LOW BIDDER

Except where the Board of Supervisors exercises the right reserved herein to reject any or all proposals, the contract will be awarded by said Board to the responsible bidder who has submitted the lowest bid. Quantities are approximate, only being as a basis for the comparison of bids. The Board of Supervisors reserves the right to increase, decrease or omit portions of the work as may be deemed necessary or advisable by the Engineer.

12. TIME FOR BEGINNING AND COMPLETING THE WORK

The Contractor shall commence work within five (5) days after the date of the Notice to Proceed, and shall complete the work within seven-hundred twenty (720) working days, excluding days for plant establishment. The date of the Notice to Proceed shall constitute the first working day.

13. PRICES

The prices are to include the furnishing of all materials, plant, equipment, tools, scaffolds, and all other facilities, and the performance of all labor and services necessary or proper for completion of the work, except such as may be otherwise expressly provided in the contract documents.

14. INTERPRETATION OF ADDENDA

Oral interpretations shall not be made to any bidder as to the meaning of any of the contract documents, or be effective to modify any of the provisions of the contract documents. Every request for an interpretation shall be made in writing at least seven (7) calendar days prior to the bid opening and addressed and forwarded to Public Works Engineering, Attn: Chris Brady or bradyc@stancounty.com, 1716 Morgan Road, Modesto, California 95358.

15. RIGHT TO MAKE CORRECTIONS

The Engineer/Architect shall have the right to make such corrections and interpretations as may be deemed necessary for the fulfillment of the intent of the specifications. The Contractor shall be responsible for calling apparent errors or omissions to the attention of the Engineer/Architect for his corrections and/or interpretation. The Contractor shall not take advantage of said apparent errors or omissions.

16. SUBSTITUTIONS OF SECURITIES FOR WITHHELD PAYMENTS

Except as otherwise prohibited by law, the Contractor may elect to receive all payments due under the contract pursuant to without any retention. If the Contractor so elects, he shall deposit with the County securities with a value equal to the monies that would otherwise be withheld by the County. Said securities shall be as provided in Section 22300 of the Public Contract Code and shall be approved by the County as to both sufficiency and form.

17. CONSTRUCTION PAYMENT BOND AND CONSTRUCTION LABOR AND MATERIALS BOND SURETY

A surety insurer admitted in the State of California by the Department of Insurance shall execute Construction Payment Bond and Construction Labor and Materials Bond. County shall verify Surety's admission by either: (1) printing out information from the website of the Department of Insurance confirming that Surety is an admitted surety insurer; or, (2) obtaining a certificate from the County Clerk confirming that Surety is an admitted insurer. County shall attach such verification to Construction Payment Bond and Construction Labor and Materials Bond.

18. CONFORMED CONSTRUCTION DOCUMENTS

Following Award of Contract, County may prepare a conformed set of Contract Documents reflecting Addenda issued during bidding, which shall, failing objection, constitute the approved set of Contract Documents.

PROPOSAL

COUNTY OF STANISLAUS DEPARTMENT OF PUBLIC WORKS

PART III - PROPOSAL

STANISLAUS COUNTY BOARD OF SUPERVISORS

FOR THE CONSTRUCTION OF

SR 99/219 (Kiernan Avenue) Interchange

NAME OF BIDDER: _____

BUSINESS P.O. BOX: _____

CITY, STATE, ZIP: _____

BUSINESS STREET ADDRESS: _____

(Please include even if P.O. Box used)

CITY, STATE, ZIP: _____

TELEPHONE NO: () _____

Area Code

FAX NO: () _____

Area Code

CONTRACTOR LICENSE NO.: _____

The work for which this proposal is submitted is for construction in conformance with the special provisions (including the payment of not less than the State general prevailing wage rates), the project plans described below, including any addenda thereto, the contract annexed hereto, and also in conformance with the California Department of Transportation Standard Plans, dated 2010, the Standard Specifications, dated 2010, and the Labor Surcharge and Equipment Rental Rates in effect on the date the work is accomplished.

The specification and project plans for the work to be done were adopted July 17, 2012, and are entitled:

SR 99/219 (Kiernan Avenue) Interchange

Bids are to be submitted for the entire work. The amount of the bid for comparison purposes will be the total of all 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 that 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 unit 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 item 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 Item Total.

If both the unit price and the item total are unreadable or otherwise unclear, or are omitted, the bid may be deemed irregular. Likewise if the item total for a lump sum item is unreadable or otherwise unclear, or is omitted, the bid may be deemed irregular unless the project being bid has only a single item and a clear, readable total bid is provided.

Symbols such as commas and dollar signs will be ignored and have no mathematical significance in establishing any unit price or item total or lump sums. Written unit prices, item totals and lump sums will be interpreted according to the number of digits and, if applicable, decimal placement. Cent symbols also have no significance in establishing any unit price or item total since all figures are assumed to be expressed in dollars and/or decimal fractions of a dollar. Bids on lump sum items shall be item totals only; if any unit price for a lump sum item is included in a bid and it differs from the item total, the items total shall prevail.

The foregoing provisions for the resolution of specific irregularities cannot be so comprehensive as to cover every omission, inconsistency, error or other irregularity which may occur in a bid. Any situation not specifically provided for will be determined in the discretion of the COUNTY OF STANISLAUS, and that discretion will be exercised in the manner deemed by the COUNTY OF STANISLAUS to best protect the public interest in the prompt and economical completion of the work. The decision of the COUNTY OF STANISLAUS respecting the amount of a bid, or the existence or treatment of an irregularity in a bid, shall be final.

Accompanying this proposal shall be a bidder's bond issued by a California admitted surety, or certified or cashier's check, or cash in the amount of ten percent (10%) of the proposal as a form of bidder's security.

If this proposal shall be accepted and the undersigned shall fail to enter into the contract and furnish the 2 bonds in the sum required by Section SC-14, "Bonds," of Part V, "Special Conditions," with surety satisfactory to the COUNTY OF STANISLAUS, within ten (10) days, not including Saturdays, Sundays and legal holidays, after the bidder has received notice from the COUNTY OF STANISLAUS that the contract has been awarded, the COUNTY OF STANISLAUS 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 the security accompanying this proposal shall operate and the same shall be the property of the COUNTY OF STANISLAUS.

The undersigned, as bidder, declares 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 he has carefully examined the location of the proposed work, the annexed proposed form of contract, and the plans therein referred to; and he proposes, and agrees if this proposal is accepted, that he will contract with the COUNTY OF STANISLAUS, in the form of the copy of the 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 he will take in full payment therefore the following prices, to wit:

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 1 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
1	PROGRESS SCHEDULE (CRITICAL PATH METHOD)	LUMP SUM	LS		
2	TEMPORARY FENCE	2,490	LF		
3	TEMPORARY FENCE (TYPE ESA)	1,160	LF		
4	18" TEMPORARY CULVERT	240	LF		
5	PREPARE STORM WATER POLLUTION PREVENTION PLAN	LUMP SUM	LS		
6	TEMPORARY EROSION CONTROL BLANKET	8,080	SQYD		
7	TEMPORARY FIBER ROLL	19,800	LF		
8	TEMPORARY SILT FENCE	19,200	LF		
9	TEMPORARY CONSTRUCTION ENTRANCE	2	EA		
10	MOVE-IN/MOVE-OUT (TEMPORARY EROSION CONTROL)	12	EA		
11	TEMPORARY DRAINAGE INLET PROTECTION	120	EA		
12	TEMPORARY HYDRAULIC MULCH (BONDED FIBER MATRIX)	41,400	SQYD		
13	STREET SWEEPING	LUMP SUM	LS		
14	TEMPORARY CONCRETE WASHOUT (PORTABLE)	LUMP SUM	LS		
15	RAIN EVENT ACTION PLAN	96	EA		
16	STORM WATER ANNUAL REPORT	4	EA		
17	STORM WATER SAMPLING AND ANALYSIS DAY	26	EA		
18	TIME-RELATED OVERHEAD (WDAY)	720	WDAY		
19	CONSTRUCTION AREA SIGNS	LUMP SUM	LS		
20	TRAFFIC CONTROL SYSTEM	LUMP SUM	LS		
21	CHANNELIZER (SURFACE MOUNTED)	870	EA		

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 2 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
22	PORTABLE CHANGEABLE MESSAGE SIGN	LUMP SUM	LS		
23	TEMPORARY RAILING (TYPE K)	21,600	LF		
24	TEMPORARY CRASH CUSHION MODULE (TYPE ARRAY)	260	EA		
25	TEMPORARY CRASH CUSHION MODULE ABSORB 350 (TYPE TL2)	7	EA		
26	TEMPORARY TRAFFIC SCREEN	20,400	LF		
27	JOB SITE MANAGEMENT	LUMP SUM	LS		
28	REMOVE YELLOW PAINTED TRAFFIC STRIPE (HAZARDOUS WASTE)	42,300	LF		
29	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	7,850	LF		
30	REMOVE YELLOW THERMOPLASTIC PAVEMENT MARKING (HAZARDOUS WASTE)	110	SQFT		
31	ABANDON CULVERT	770	LF		
32	DESTROY WELL	1	EA		
33	REMOVE FENCE	1,180	LF		
34	REMOVE PEDESTRIAN BARRICADE	3	EA		
35	REMOVE SINGLE THRIE BEAM BARRIER	1,370	LF		
36	REMOVE FLARED END SECTION	7	EA		
37	REMOVE PAINTED TRAFFIC STRIPE	107,000	LF		
38	REMOVE PAINTED PAVEMENT MARKING	12,900	SQFT		
39	REMOVE THERMOPLASTIC TRAFFIC STRIPE	22,600	LF		
40	REMOVE THERMOPLASTIC PAVEMENT MARKING	6,120	SQFT		
41	REMOVE PAVEMENT MARKER	3,350	EA		

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 3 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
42	REMOVE ROADSIDE SIGN	73	EA		
43	REMOVE ROADSIDE SIGN (SSBM)	2	EA		
44	REMOVE HMA DIKE	1,270	LF		
45	REMOVE CULVERT	2,360	LF		
46	REMOVE INLET	27	EA		
47	REMOVE MANHOLE	5	EA		
48	SALVAGE METAL BRIDGE RAILING	480	LF		
49	RECONSTRUCT CHAIN LINK FENCE (TYPE CL-6)	1,900	LF		
50	ADJUST MANHOLE TO GRADE	7	EA		
51	MODIFY INLET	5	EA		
52	COLD PLANE ASPHALT CONCRETE PAVEMENT (0.15' Maximum)	1,290	SQYD		
53	REMOVE CONCRETE	810	CY		
54	REMOVE EXISTING PUMPING PLANT (PORTION)	LUMP SUM	LS		
55	REMOVE SOUND WALL	260	LF		
56	BRIDGE REMOVAL	LUMP SUM	LS		
57	CLEARING AND GRUBBING	LUMP SUM	LS		
58	ROADWAY EXCAVATION	40,800	CY		
59	ROADWAY EXCAVATION (TYPE Z-2) (ADL)	1,010	CY		
60	LEAD COMPLIANCE PLAN	LUMP SUM	LS		
61	DUST CONTROL PLAN	LUMP SUM	LS		

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 4 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
62	SHOULDER BACKING	85	TON		
63	STRUCTURE EXCAVATION (BRIDGE) (F)	1,319	CY		
64	ELECTRIC SERVICE EXTENSION	LUMP SUM	LS		
65	STRUCTURE EXCAVATION (PUMPING PLANT) (F)	4,124	CY		
66	STRUCTURE BACKFILL (PUMPING PLANT) (F)	1,775	CY		
67	STRUCTURE EXCAVATION (RETAINING WALL) (F)	5,795	CY		
68	STRUCTURE BACKFILL (BRIDGE) (F)	1,036	CY		
69	STRUCTURE BACKFILL (RETAINING WALL) (F)	4,169	CY		
70	SAND BACKFILL	130	CY		
71	PRUNE EXISTING PLANTS	LUMP SUM	LS		
72	IMPORTED TOPSOIL	26	CY		
73	PREPARE HOLES	44	EA		
74	CULTIVATE - GROUND COVER	32,800	SQYD		
75	WEED GERMINATION	32,800	SQYD		
76	SOIL AMENDMENT (40 TREES)	26	CY		
77	FERTILIZER (TABLET)	40	EA		
78	ORGANIC FERTILIZER - GROUND COVER	32,800	SQYD		
79	FIBER ROLLS	3,300	LF		
80	PLANT (GROUP H) (UNROOTED CUTTING)	158,000	EA		
81	PLANT (GROUP U) (NO. 15)	40	EA		

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 5 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
82	MAINTAIN EXISTING PLANTED AREAS	LUMP SUM	LS		
83	PLANT ESTABLISHMENT WORK	LUMP SUM	LS		
84	CONTROL & NEUTRAL CONDUCTORS (ARMOR-CLAD)	LUMP SUM	LS		
85	1" ELECTRIC REMOTE CONTROL VALVE	8	EA		
86	1 1/2" ELECTRIC REMOTE CONTROL VALVE	78	EA		
87	2" ELECTRIC REMOTE CONTROL VALVE	18	EA		
88	3" ELECTRIC REMOTE CONTROL VALVE	1	EA		
89	3" FLOW SENSOR ELECTRIC TRANSMITTER	1	EA		
90	IRRIGATION CONTROLLER (WALL MOUNT) 48 STATION	1	EA		
91	IRRIGATION CONTROLLER (WALL MOUNT) 32 STATION	1	EA		
92	IRRIGATION CONTROLLER (WALL MOUNT) 40 STATION	1	EA		
93	LOCAL RADIO HUB	1	EA		
94	3/4" PLASTIC PIPE (PR 200) (SUPPLY LINE)	5,110	LF		
95	1" PLASTIC PIPE (PR 200) (SUPPLY LINE)	7,700	LF		
96	1 1/4" PLASTIC PIPE (PR 200) (SUPPLY LINE)	10,500	LF		
97	1 1/2" PLASTIC PIPE (PR 200) (SUPPLY LINE)	7,060	LF		
98	2" PLASTIC PIPE (PR 200) (SUPPLY LINE)	8,710	LF		
99	2 1/2" PLASTIC PIPE (PR 200) (SUPPLY LINE)	1,320	LF		
100	4" PLASTIC PIPE (PR 200) (SUPPLY LINE)(MAIN R/T)	8,440	LF		
101	4" PLASTIC PIPE (PR 315) (SUPPLY LINE)	530	LF		

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 6 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
102	6" PLASTIC PIPE (PR 315) (SUPPLY LINE)	230	LF		
103	6" PLASTIC PIPE (PR 200) (SUPPLY LINE)(MAIN R/T)	410	LF		
104	IRRIGATION CONTROLLER ENCLOSURE CABINET	4	EA		
105	3" WATER METER	1	EA		
106	BACKFLOW PREVENTER ASSEMBLY ENCLOSURE	1	EA		
107	3" BACKFLOW PREVENTER ASSEMBLY	1	EA		
108	SPRINKLER (TYPE A-5) GEAR DRIVEN	660	EA		
109	SPRINKLER (TYPE A-6) GEAR DRIVEN	290	EA		
110	SPRINKLER (TYPE C-2) BUBBLER	45	EA		
111	4" GATE VALVE	10	EA		
112	6" GATE VALVE	4	EA		
113	2" WYE STRAINER	28	EA		
114	3" PRESSURE REGULATING VALVE	1	EA		
115	2" BALL VALVE	28	EA		
116	4" DIA (CHARTER COMMUNICATION) CONDUIT (BRIDGE)	310	LF		
117	12" CORRUGATED HIGH DENSITY POLYETHYLENE PIPE CONDUIT (F)	700	LF		
118	BOOSTER PUMP SYSTEM	1	EA		
119	HYDROSEED	66,100	SQFT		
120	COMPOST	22,500	SQFT		
121	CLASS 2 AGGREGATE BASE	18,500	CY		

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 7 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
122	HOT MIX ASPHALT (TYPE A)	24,200	TON		
123	RUBBERIZED HOT MIX ASPHALT (GAP GRADED)	4,000	TON		
124	SHOULDER RUMBLE STRIP (HMA, GROUND-IN INDENTATIONS)	19	STA		
125	DATA CORE	LUMP SUM	LS		
126	PLACE HOT MIX ASPHALT DIKE (TYPE A)	1,670	LF		
127	PLACE HOT MIX ASPHALT DIKE (TYPE C)	190	LF		
128	PLACE HOT MIX ASPHALT DIKE (TYPE E)	3,840	LF		
129	PLACE HOT MIX ASPHALT DIKE (TYPE F)	75	LF		
130	24" CAST-IN-DRILLED-HOLE CONCRETE PILING	4,510	LF		
131	30" CAST-IN-DRILLED-HOLE CONCRETE PILING	4,060	LF		
132	16" CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL)	860	LF		
133	STRUCTURAL CONCRETE, BRIDGE FOOTING (F)	596	CY		
134	STRUCTURAL CONCRETE, BRIDGE (F)	1,652	CY		
135	STRUCTURAL CONCRETE (RETAINING WALL) (F)	1,360	CY		
136	STRUCTURAL CONCRETE (PUMPING PLANT) (F)	854	CY		
137	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N) (F)	307	CY		
138	MINOR CONCRETE (MINOR STRUCTURE) (F)	180	CY		
139	ARCHITECTURAL TREATMENT (RETAINING WALL) (F)	4,620	SQFT		
140	ARCHITECTURAL TEXTURE (BENT CAP AND COLUMN)	950	SQFT		
141	FRACTURED RIB TEXTURE (F)	1,104	SQFT		

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 8 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
142	DRILL AND BOND DOWEL	1,150	LF		
143	FURNISH PRECAST PRESTRESSED CONCRETE WIDE FLANGE GIRDER (100' - 110')	32	EA		
144	ERECT PRECAST PRESTRESSED CONCRETE GIRDER (F)	32	EA		
145	SOUNDWALL (MASONRY BLOCK) (F)	2,030	SQFT		
146	JOINT SEAL (MR 1")	280	LF		
147	BAR REINFORCING STEEL (BRIDGE) (F)	849,258	LB		
148	BAR REINFORCING STEEL (RETAINING WALL) (F)	131,195	LB		
149	BAR REINFORCING STEEL (PUMPING PLANT) (F)	226,099	LB		
150	STRUCTURAL STEEL (PUMPING PLANT) (F)	8,479	LB		
151	FURNISH SIGN STRUCTURE (BRIDGE MOUNTED WITH WALKWAY) (F)	3,681	LB		
152	INSTALL SIGN STRUCTURE (BRIDGE MOUNTED WITH WALKWAY) (F)	3,681	LB		
153	FURNISH SIGN STRUCTURE (TRUSS) (F)	91,318	LB		
154	INSTALL SIGN STRUCTURE (TRUSS) (F)	91,318	LB		
155	FURNISH LAMINATED PANEL SIGN (TYPE A) (OVERHEAD)	820	SQFT		
156	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063"-UNFRAMED)	460	SQFT		
157	FURNISH SINGLE SHEET ALUMINUM SIGN (0.080"-UNFRAMED)	300	SQFT		
158	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063"-FRAMED)	310	SQFT		
159	60" CAST-IN-DRILLED-HOLE CONCRETE PILE (SIGN FOUNDATION)	190	LF		
160	ROADSIDE SIGN - ONE POST	84	EA		
161	ROADSIDE SIGN - TWO POST	6	EA		

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 9 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
162	INSTALL SIGN (STRAP AND SADDLE BRACKET METHOD)	19	EA		
163	16" WATER LINE	590	LF		
164	18" REINFORCED CONCRETE PIPE	1,280	LF		
165	24" REINFORCED CONCRETE PIPE	8,420	LF		
166	36" REINFORCED CONCRETE PIPE	140	LF		
167	96" REINFORCED CONCRETE PIPE	180	LF		
168	JACKED 24" REINFORCED CONCRETE PIPE (CLASS IV)	430	LF		
169	8" PERFORATED PLASTIC PIPE UNDERDRAIN	990	LF		
170	24" CONCRETE FLARED END SECTION	4	EA		
171	36" GCP INLET	71	LF		
172	ROCK SLOPE PROTECTION (No. 2, METHOD B) (F)	24	CY		
173	SLOPE PAVING (PATTERNED CONCRETE)	130	CY		
174	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	850	CY		
175	MINOR CONCRETE (TEXTURED PAVING) CONTRASTED GORE	9,000	SQFT		
176	PUMPING PLANT EQUIPMENT	LUMP SUM	LS		
177	PUMPING PLANT ELECTRICAL EQUIPMENT	LUMP SUM	LS		
178	MISCELLANEOUS IRON AND STEEL (F)	29,414	LB		
179	MISCELLANEOUS METAL (BRIDGE) (F)	72,000	LB		
180	FENCE (TYPE BW, 5 STRAND, METAL POST)	360	LF		
181	CHAIN LINK FENCE (TYPE CL-4, BLACK VINYL-CLAD)	1,430	LF		

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 10 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
182	CHAIN LINK FENCE (TYPE CL-6, SLATTED)	300	LF		
183	6' CHAIN LINK GATE (TYPE CL-6)	3	EA		
184	DELINEATOR (CLASS 1)	58	EA		
185	GUARD RAILING DELINEATOR (TYPE F)	11	EA		
186	OBJECT MARKER (TYPE L)	7	EA		
187	METAL BEAM GUARD RAILING	430	LF		
188	BOLLARD	13	EA		
189	CHAIN LINK RAILING (TYPE 7 MODIFIED)	490	LF		
190	CONCRETE BARRIER (TYPE 26 MODIFIED) (F)	528	LF		
191	SINGLE THRIE BEAM BARRIER	1,370	LF		
192	HANDRAILING	50	LF		
193	TRANSITION RAILING (TYPE WB)	2	EA		
194	END ANCHOR ASSEMBLY (TYPE SFT)	6	EA		
195	END ANCHOR ASSEMBLY (TYPE CA)	10	EA		
196	ALTERNATIVE FLARED TERMINAL SYSTEM	6	EA		
197	CONCRETE BARRIER (TYPE 60D)	1,050	LF		
198	CONCRETE BARRIER (TYPE 736S) (F)	191	LF		
199	CONCRETE BARRIER (TYPE 736SV) (F)	277	LF		
200	4" THERMOPLASTIC TRAFFIC STRIPE	37,400	LF		
201	8" THERMOPLASTIC TRAFFIC STRIPE	8,010	LF		

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 11 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
202	THERMOPLASTIC PAVEMENT MARKING	9,160	SQFT		
203	THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE)	43,300	LF		
204	PAINT TRAFFIC STRIPE (2-COAT)	112,000	LF		
205	PAINT PAVEMENT MARKING (2-COAT)	7,210	SQFT		
206	PAVEMENT MARKER (NON-REFLECTIVE)	330	EA		
207	PAVEMENT MARKER (RETROREFLECTIVE)	4,950	EA		
208	MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION	LUMP SUM	LS		
209	SIGNAL AND LIGHTING (STAGE CONSTRUCTION)	LUMP SUM	LS		
210	SIGNAL AND LIGHTING (LOCATION 1)	LUMP SUM	LS		
211	SIGNAL AND LIGHTING (LOCATION 2)	LUMP SUM	LS		
212	SIGNAL AND LIGHTING (LOCATION 3)	LUMP SUM	LS		
213	SIGNAL AND LIGHTING (COUNTY)	LUMP SUM	LS		
214	LIGHTING (COUNTY)	LUMP SUM	LS		
215	LIGHTING AND SIGN ILLUMINATION (STAGE CONSTRUCTION)	LUMP SUM	LS		
216	LIGHTING AND SIGN ILLUMINATION	LUMP SUM	LS		
217	HIGHWAY ADVISORY RADIO SYSTEM	LUMP SUM	LS		
218	CHANGEABLE MESSAGE SIGN SYSTEM	LUMP SUM	LS		
219	INTERCONNECT SYSTEM	LUMP SUM	LS		
220	ELECTRIC SERVICE (IRRIGATION)	LUMP SUM	LS		
221	VEHICLE CLASSIFICATION STATION	LUMP SUM	LS		

CONTRACTOR'S BID SHEET

SR 99/219 (Kiernan Avenue) Interchange

Sheet 12 of 12

Item No.	Item	Estimated Quantity	Unit of Measure	Unit Price (In Figures)	Item Total (In Figures)
222	CLOSED CIRCUIT TELEVISION SYSTEM	LUMP SUM	LS		
223	HIGH SPEED WIRELESS MODEM	1	EA		
224	RAMP METERING SYSTEM (LOCATION 1)	LUMP SUM	LS		
225	RAMP METERING SYSTEM (LOCATION 2)	LUMP SUM	LS		
226	ELECTRICAL SYSTEMS EQUIPMENT (CONTRACTOR FURNISHED – PURCHASED FROM DEPARTMENT)	LUMP SUM	LS		
227	BUILDING MISCELLANEOUS METAL (F)	13,800	LB		
228	RESIDENT ENGINEER'S OFFICE	LUMP SUM	LS		
229	TELEPHONE CONNECTIONS	LUMP SUM	LS		
230	PULVERIZE PAVEMENT	11,300	SQYD		
231	BUILDING DEMOLITION	LUMP SUM	LS		
232	MINOR CONCRETE (TEXTURED PAVING) ISLAND PAVING	SQFT	5,790		
233	MOBILIZATION (10.0%)	LUMP SUM	LS		
TOTAL BID					

(SIGNED) _____

Date: _____

ADDENDUM SHEET

SR 99/219 (Kiernan Avenue) Interchange

<u>ADDENDUM</u>	<u>DATED</u>	<u>DATE RECEIVED</u>	<u>INITIALS</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Contractor _____

Address _____

Phone () _____ Fax () _____

(SIGNED) _____ Date: _____

Note: This sheet must be completed and submitted with your bid for your bid to be accepted as complete.

SUBCONTRACTORS LIST

The Bidder shall list the name and address of each subcontractor to whom the Bidder proposes to subcontract portions of the work, as required by the provisions in Section 2-1.33C, "Subcontractor List," of the Standard Specifications.

	Bid Item No.	Amount	DBE

Subcontractor	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Business Address			

	Bid Item No.	Amount	DBE

Subcontractor	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Business Address			

	Bid Item No.	Amount	DBE

Subcontractor	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Business Address			

	Bid Item No.	Amount	DBE
Subcontractor			
Business Address			

	Bid Item No.	Amount	DBE
Subcontractor			
Business Address			

	Bid Item No.	Amount	DBE
Subcontractor			
Business Address			

	Bid Item No.	Amount	DBE
Subcontractor			

Business Address

	Bid Item No.	Amount	DBE
_____ Subcontractor	_____	_____	_____

Business Address

	Bid Item No.	Amount	DBE
_____ Subcontractor	_____	_____	_____

Business Address

(SIGNED) _____ Date: _____

Note: This sheet must be completed and submitted with your bid for your bid to be accepted as complete.

BID DOCUMENTS REQUIRED AT BID OPENING

It is required that the following documents must be completed, signed, and submitted with the Proposal at bid opening. Failure to complete or provide any of the required documents will be deemed an incomplete and rejected bid.

- Contractor's Bid Sheet
- Addendum Sheet
- Subcontractors List
- Insurance Requirements Acknowledgement
- Equal Employment Opportunity Certification
- Public Contract code
- Noncollusion Affidavit
- Non-Discrimination of the Handicapped
- Debarment and Suspension Certification
- Proposal Signature Sheet
- Bidder's Bond
- W-9 Form
- Opt Out of Payment Adjustments for Price Index Fluctuations Form (note: submit this form if opting out of payment adjustments for price index fluctuations, see section 2-1.33D "Opt Out of Payment Adjustments for Price Index Fluctuations" of Standard Specifications for details)

Note: The following documents below must be completed, signed, and submitted to 1716 Morgan Road, Modesto, CA 95358 no later than 4:00 p.m. on the 4th business day after bid opening.

DOCUMENT NAME	PAGE
Exhibit 15-G1 Local Agency Bidder DBE Commitment (Construction Contracts)	40
Exhibit 15-H DBE Information – Good Faith Efforts	42

INSURANCE REQUIREMENTS

Your insurance agent must thoroughly review the contract specifications before he issues the Certificate of Insurance. Insurance requirements are as specified in Article SC-15, INSURANCE.

ACKNOWLEDGEMENT of receipt of, and AGREEMENT to obtain/provide an insurance policy for the subject project as per the requirements set forth herein above by both the Contractor and Insurance Agent as listed in our project specifications, Section SC-15 Insurance.

Signature of Contractor	Date
Contractor	Federal ID No.
Street Address	
City, State, Zip	() Phone Number
Type of Business: <input type="checkbox"/> Sole Proprietor <input type="checkbox"/> Partnership <input type="checkbox"/> Non-Profit 501 (c)(3)	
<input type="checkbox"/> Other, please explain: _____	

Signature of Insurance Agent	Date
Insurance Agent / Firm Name	Policy Number
Street Address	
City, State, Zip	() Phone Number

General Liability _____

Auto Liability _____

Workers Comp/Employers Liability _____

(per State of California)

All-Risk Course of Construction _____

Railroad Protective Liability _____

EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION

The bidder _____, proposed subcontractor _____, hereby certifies that he has _____, has not _____, participated in a previous contract or subcontract subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114, or 11246, and that, where required, he has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

Note: The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1)), and **must be submitted by bidders and proposed subcontractors** only in connection with contracts and subcontracts which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime contractors and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such contractor submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

(SIGNED) _____

Date: _____

Note: This sheet must be completed and submitted with your bid for your bid to be accepted as complete.

PUBLIC CONTRACT CODE

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 10232 Statement

In conformance with Public Contract Code Section 10232, the Contractor, hereby states under penalty of perjury, that no more than one final unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board.

(SIGNED) _____

Date: _____

Note: This sheet must be completed and submitted with your bid for your bid to be accepted as complete. 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)

TO THE COUNTY OF STANISLAUS DEPARTMENT OF PUBLIC WORKS

_____, being duly sworn, deposes and says that he or she is
_____, of _____ the party making the
foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership,
company, association, organization, or corporation; that the bid is genuine and not collusive or 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.

(SIGNED) _____ Date: _____

Note: This sheet must be completed and submitted with your bid for your bid to be accepted as complete.

NON-DISCRIMINATION OF THE HANDICAPPED

Policy Statement

In compliance with Section 51.55, Office of Revenue Sharing, Department of the Treasury, it is the policy of Stanislaus County that it will not aid or perpetuate discrimination against a qualified handicapped individual by funding an agency, organization, or person that discriminates on the basis of handicap in providing any aid, benefit, or service to beneficiaries of the program or activity.

The County is committed to provide access to all County services, programs and meetings open to the public to people with disabilities.

In this regard, County and all of its Contractors and Subcontractors will take all reasonable steps in accordance with GRS Section 51.55 to ensure that handicapped individuals have the maximum opportunity for the same level of aid, benefit or service as any other individual.

Certification

Each agency, organization, or person seeking a bid, contract or agreement with Stanislaus County shall sign a certification of compliance with Section 504 of the Rehabilitation Act of 1973 as incorporated in the Revenue Sharing Act.

CERTIFICATION OF BIDDER REGARDING NON-DISCRIMINATION OF THE HANDICAPPED

The bidder hereby certifies that he/she is in compliance with Section 504 of the Rehabilitation Act of 1973 as incorporated in the Revenue Sharing Act, the applicable administrative requirements promulgated in response thereto, and any other applicable Federal laws and regulations relating to handicap discrimination and participation.

NAME OF BIDDER: _____

BUSINESS ADDRESS: _____

TEL. _____

CITY, STATE, ZIP CODE: _____

BY: _____

TITLE: _____

(Signature)

DATED: _____

Note: This sheet must be completed and submitted with your bid for your bid to be accepted as complete.

DEBARMENT AND SUSPENSION CERTIFICATION

TITLE 49, CODE OF FEDERAL REGULATIONS, PART 29

The bidder, under penalty of perjury, certifies that, except as noted below, he/she or any other person associated therewith in the capacity of owner, partner, director, officer, manager:

- Is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any Federal agency;
- Has not been suspended, debarred, voluntarily excluded or determined ineligible by any Federal agency within the past 3 years;
- Does not have a proposed debarment pending; and
- Has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted above, indicate below to whom it applies, initiating agency, and dates of action.

(SIGNED) _____

Date: _____

Note: This sheet must be completed and submitted with your bid for your bid to be accepted as complete. Providing false information may result in criminal prosecution or administrative sanctions.

**Request for Taxpayer
Identification Number and Certification**

**Give form to the
requester. Do not
send to the IRS.**

Print or type See Specific Instructions on page 2.	Name (as shown on your income tax return)	
	Business name, if different from above	
	Check appropriate box: <input type="checkbox"/> Individual/Sole proprietor <input type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Limited liability company. Enter the tax classification (D=disregarded entity, C=corporation, P=partnership) ▶ <input type="checkbox"/> Exempt payee <input type="checkbox"/> Other (see instructions) ▶	
	Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
	City, state, and ZIP code	
List account number(s) here (optional)		

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Social security number : : :
or
Employer identification number : : :

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
- I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here	Signature of U.S. person ▶	Date ▶
------------------	----------------------------	--------

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

The person who gives Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States is in the following cases:

- The U.S. owner of a disregarded entity and not the entity,

- The U.S. grantor or other owner of a grantor trust and not the trust, and
- The U.S. trust (other than a grantor trust) and not the beneficiaries of the trust.

Foreign person. If you are a foreign person, do not use Form W-9. Instead, use the appropriate Form W-8 (see Publication 515, Withholding of Tax on Nonresident Aliens and Foreign Entities).

Nonresident alien who becomes a resident alien. Generally, only a nonresident alien individual may use the terms of a tax treaty to reduce or eliminate U.S. tax on certain types of income. However, most tax treaties contain a provision known as a "saving clause." Exceptions specified in the saving clause may permit an exemption from tax to continue for certain types of income even after the payee has otherwise become a U.S. resident alien for tax purposes.

If you are a U.S. resident alien who is relying on an exception contained in the saving clause of a tax treaty to claim an exemption from U.S. tax on certain types of income, you must attach a statement to Form W-9 that specifies the following five items:

1. The treaty country. Generally, this must be the same treaty under which you claimed exemption from tax as a nonresident alien.
2. The treaty article addressing the income.
3. The article number (or location) in the tax treaty that contains the saving clause and its exceptions.
4. The type and amount of income that qualifies for the exemption from tax.
5. Sufficient facts to justify the exemption from tax under the terms of the treaty article.

Example. Article 20 of the U.S.-China income tax treaty allows an exemption from tax for scholarship income received by a Chinese student temporarily present in the United States. Under U.S. law, this student will become a resident alien for tax purposes if his or her stay in the United States exceeds 5 calendar years. However, paragraph 2 of the first Protocol to the U.S.-China treaty (dated April 30, 1984) allows the provisions of Article 20 to continue to apply even after the Chinese student becomes a resident alien of the United States. A Chinese student who qualifies for this exception (under paragraph 2 of the first protocol) and is relying on this exception to claim an exemption from tax on his or her scholarship or fellowship income would attach to Form W-9 a statement that includes the information described above to support that exemption.

If you are a nonresident alien or a foreign entity not subject to backup withholding, give the requester the appropriate completed Form W-8.

What is backup withholding? Persons making certain payments to you must under certain conditions withhold and pay to the IRS 28% of such payments. This is called "backup withholding." Payments that may be subject to backup withholding include interest, tax-exempt interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

You will not be subject to backup withholding on payments you receive if you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return.

Payments you receive will be subject to backup withholding if:

1. You do not furnish your TIN to the requester,
2. You do not certify your TIN when required (see the Part II instructions on page 3 for details),
3. The IRS tells the requester that you furnished an incorrect TIN,

4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends on your tax return (for reportable interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See the instructions below and the separate Instructions for the Requester of Form W-9.

Also see *Special rules for partnerships* on page 1.

Penalties

Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

Specific Instructions

Name

If you are an individual, you must generally enter the name shown on your income tax return. However, if you have changed your last name, for instance, due to marriage without informing the Social Security Administration of the name change, enter your first name, the last name shown on your social security card, and your new last name.

If the account is in joint names, list first, and then circle, the name of the person or entity whose number you entered in Part I of the form.

Sole proprietor. Enter your individual name as shown on your income tax return on the "Name" line. You may enter your business, trade, or "doing business as (DBA)" name on the "Business name" line.

Limited liability company (LLC). Check the "Limited liability company" box only and enter the appropriate code for the tax classification ("D" for disregarded entity, "C" for corporation, "P" for partnership) in the space provided.

For a single-member LLC (including a foreign LLC with a domestic owner) that is disregarded as an entity separate from its owner under Regulations section 301.7701-3, enter the owner's name on the "Name" line. Enter the LLC's name on the "Business name" line.

For an LLC classified as a partnership or a corporation, enter the LLC's name on the "Name" line and any business, trade, or DBA name on the "Business name" line.

Other entities. Enter your business name as shown on required federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on the "Business name" line.

Note. You are requested to check the appropriate box for your status (individual/sole proprietor, corporation, etc.).

Exempt Payee

If you are exempt from backup withholding, enter your name as described above and check the appropriate box for your status, then check the "Exempt payee" box in the line following the business name, sign and date the form.

Generally, individuals (including sole proprietors) are not exempt from backup withholding. Corporations are exempt from backup withholding for certain payments, such as interest and dividends.

Note. If you are exempt from backup withholding, you should still complete this form to avoid possible erroneous backup withholding.

The following payees are exempt from backup withholding:

1. An organization exempt from tax under section 501(a), any IRA, or a custodial account under section 403(b)(7) if the account satisfies the requirements of section 401(f)(2).

2. The United States or any of its agencies or instrumentalities,

3. A state, the District of Columbia, a possession of the United States, or any of their political subdivisions or instrumentalities,

4. A foreign government or any of its political subdivisions, agencies, or instrumentalities, or

5. An international organization or any of its agencies or instrumentalities.

Other payees that may be exempt from backup withholding include:

6. A corporation,

7. A foreign central bank of issue,

8. A dealer in securities or commodities required to register in the United States, the District of Columbia, or a possession of the United States,

9. A futures commission merchant registered with the Commodity Futures Trading Commission,

10. A real estate investment trust,

11. An entity registered at all times during the tax year under the Investment Company Act of 1940,

12. A common trust fund operated by a bank under section 584(a),

13. A financial institution,

14. A middleman known in the investment community as a nominee or custodian, or

15. A trust exempt from tax under section 664 or described in section 4947.

The chart below shows types of payments that may be exempt from backup withholding. The chart applies to the exempt payees listed above, 1 through 15.

IF the payment is for . . .	THEN the payment is exempt for . . .
Interest and dividend payments	All exempt payees except for 9
Broker transactions	Exempt payees 1 through 13. Also, a person registered under the Investment Advisers Act of 1940 who regularly acts as a broker
Barter exchange transactions and patronage dividends	Exempt payees 1 through 5
Payments over \$600 required to be reported and direct sales over \$5,000 ¹	Generally, exempt payees 1 through 7

¹ See Form 1099-MISC, Miscellaneous Income, and its instructions.

² However, the following payments made to a corporation (including gross proceeds paid to an attorney under section 6045(f), even if the attorney is a corporation) and reportable on Form 1099-MISC are not exempt from backup withholding: medical and health care payments, attorneys' fees, and payments for services paid by a federal executive agency.

Part I. Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. If you are a resident alien and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see *How to get a TIN* below.

If you are a sole proprietor and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are a single-member LLC that is disregarded as an entity separate from its owner (see *Limited liability company (LLC)* on page 2), enter the owner's SSN (or EIN, if the owner has one). Do not enter the disregarded entity's EIN. If the LLC is classified as a corporation or partnership, enter the entity's EIN.

Note. See the chart on page 4 for further clarification of name and TIN combinations.

How to get a TIN. If you do not have a TIN, apply for one immediately. To apply for an SSN, get Form SS-5, Application for a Social Security Card, from your local Social Security Administration office or get this form online at www.ssa.gov. You may also get this form by calling 1-800-772-1213. Use Form W-7, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN, or Form SS-4, Application for Employer Identification Number, to apply for an EIN. You can apply for an EIN online by accessing the IRS website at www.irs.gov/businesses and clicking on Employer Identification Number (EIN) under Starting a Business. You can get Forms W-7 and SS-4 from the IRS by visiting www.irs.gov or by calling 1-800-TAX-FORM (1-800-829-3676).

If you are asked to complete Form W-9 but do not have a TIN, write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments. The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

Note. Entering "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

Caution: A disregarded domestic entity that has a foreign owner must use the appropriate Form W-8.

Part II. Certification

To establish to the withholding agent that you are a U.S. person, or resident alien, sign Form W-9. You may be requested to sign by the withholding agent even if items 1, 4, and 5 below indicate otherwise.

For a joint account, only the person whose TIN is shown in Part I should sign (when required). Exempt payees, see *Exempt Payee* on page 2.

Signature requirements. Complete the certification as indicated in 1 through 5 below.

1. Interest, dividend, and barter exchange accounts opened before 1984 and broker accounts considered active during 1983. You must give your correct TIN, but you do not have to sign the certification.

2. Interest, dividend, broker, and barter exchange accounts opened after 1983 and broker accounts considered inactive during 1983. You must sign the certification or backup withholding will apply. If you are subject to backup withholding and you are merely providing your correct TIN to the requester, you must cross out item 2 in the certification before signing the form.

3. Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

4. Other payments. You must give your correct TIN, but you do not have to sign the certification unless you have been notified that you have previously given an incorrect TIN. "Other payments" include payments made in the course of the requester's trade or business for rents, royalties, goods (other than bills for merchandise), medical and health care services (including payments to corporations), payments to a nonemployee for services, payments to certain fishing boat crew members and fishermen, and gross proceeds paid to attorneys (including payments to corporations).

5. Mortgage interest paid by you, acquisition or abandonment of secured property, cancellation of debt, qualified tuition program payments (under section 529), IRA, Coverdell ESA, Archer MSA or HSA contributions or distributions, and pension distributions. You must give your correct TIN, but you do not have to sign the certification.

Secure Your Tax Records from Identity Theft

Identity theft occurs when someone uses your personal information such as your name, social security number (SSN), or other identifying information, without your permission, to commit fraud or other crimes. An identity thief may use your SSN to get a job or may file a tax return using your SSN to receive a refund.

To reduce your risk:

- Protect your SSN,
- Ensure your employer is protecting your SSN, and
- Be careful when choosing a tax preparer.

Call the IRS at 1-800-829-1040 if you think your identity has been used inappropriately for tax purposes.

Victims of identity theft who are experiencing economic harm or a system problem, or are seeking help in resolving tax problems that have not been resolved through normal channels, may be eligible for Taxpayer Advocate Service (TAS) assistance. You can reach TAS by calling the TAS toll-free case intake line at 1-877-777-4778 or TTY/TDD 1-800-829-4059.

Protect yourself from suspicious emails or phishing schemes.

Phishing is the creation and use of email and websites designed to mimic legitimate business emails and websites. The most common act is sending an email to a user falsely claiming to be an established legitimate enterprise in an attempt to scam the user into surrendering private information that will be used for identity theft.

The IRS does not initiate contacts with taxpayers via emails. Also, the IRS does not request personal detailed information through email or ask taxpayers for the PIN numbers, passwords, or similar secret access information for their credit card, bank, or other financial accounts.

If you receive an unsolicited email claiming to be from the IRS, forward this message to phishing@irs.gov. You may also report misuse of the IRS name, logo, or other IRS personal property to the Treasury Inspector General for Tax Administration at 1-800-366-4484. You can forward suspicious emails to the Federal Trade Commission at: spam@uce.gov or contact them at www.consumer.gov/idtheft or 1-877-IDTHEFT(438-4338).

Visit the IRS website at www.irs.gov to learn more about identity theft and how to reduce your risk.

What Name and Number To Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account ¹
3. Custodian account of a minor (Uniform Gift to Minors Act)	The minor ²
4. a. The usual revocable savings trust (grantor is also trustee)	The grantor-trustee ³
b. So-called trust account that is not a legal or valid trust under state law	The actual owner ³
5. Sole proprietorship or disregarded entity owned by an individual	The owner ³
For this type of account:	Give name and EIN of:
6. Disregarded entity not owned by an individual	The owner
7. A valid trust, estate, or pension trust	Legal entity ⁴
8. Corporate or LLC electing corporate status on Form 8832	The corporation
9. Association, club, religious, charitable, educational, or other tax-exempt organization	The organization
10. Partnership or multi-member LLC	The partnership
11. A broker or registered nominee	The broker or nominee
12. Account with the Department of Agriculture in the name of a public entity (such as a state or local government, school district, or prison) that receives agricultural program payments	The public entity

¹ List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

² Circle the minor's name and furnish the minor's SSN.

³ You must show your individual name and you may also enter your business or "DBA" name on the second name line. You may use either your SSN or EIN (if you have one), but the IRS encourages you to use your SSN.

⁴ List first and circle the name of the trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.) Also see *Special rules for partnerships* on page 1.

Note. If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons who must file information returns with the IRS to report interest, dividends, and certain other income paid to you, mortgage interest you paid, the acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA, or Archer MSA or HSA. The IRS uses the numbers for identification purposes and to help verify the accuracy of your tax return. The IRS may also provide this information to the Department of Justice for civil and criminal litigation, and to cities, states, the District of Columbia, and U.S. possessions to carry out their tax laws. We may also disclose this information to other countries under a tax treaty, to federal and state agencies to enforce federal nontax criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism.

You must provide your TIN whether or not you are required to file a tax return. Payers must generally withhold 28% of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to a payer. Certain penalties may also apply.

PROPOSAL SIGNATURE SHEET

Accompanying this proposal is _____ (insert the words "cash," "cashier's check," "certified check," or "bidder's bond," (\$ _____), " as the case may be) in amount equal to at least ten percent of the total of the bid.

The names of all persons interested in the foregoing proposal as principals are as follows:

If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer, and manager thereof; if a copartnership, state true name of firm, also names of all individual copartners composing firm; if bidder or other interested person is an individual, state first and last names in full.

Licensed in conformance with an act providing for the registration of contractors,

License No. _____ Classification(s) _____

Expiration Date _____

ADDENDA – THIS PROPOSAL IS SUBMITTED WITH RESPECT TO THE CHANGES TO THE CONTRACT INCLUDED IN ADDEND NUMBER/S _____

(Fill in addenda numbers if addenda have been received and insert, in this Proposal, any Engineer's Estimate sheets 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 Section 8103 of the Fair Employment and Housing Commission Regulations (Chapter 5, Title 2 of the California Administrative Code). 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 Title 49 Code of Federal Regulations, Part 29 Debarment and Suspension Certification are true and correct.

Date: _____

Signature and Title of Bidder

Business Address: _____

Place of Business: _____

Place of Residence: _____

Note: This sheet must be completed and submitted with your bid for your bid to be accepted as complete.

COUNTY OF STANISLAUS
DEPARTMENT OF PUBLIC WORKS

BIDDER'S BOND

We, _____ as Principal, and
_____ as Surety are bound unto the
County of Stanislaus, State of California, hereafter referred to as "Obligee", in the penal sum of ten percent (10%)
of the total amount of the bid of the Principal submitted to the Obligee for the work described below, for the
payment of which sum we bind ourselves, jointly and severally,

THE CONDITION OF THIS OBLIGATION IS SUCH, THAT:

WHEREAS, the Principal is submitted to the Obligee, for the **SR 99/219 (Kiernan Avenue) Interchange**,
for which bids are to be opened at Stanislaus County Board of Supervisors Office, Tenth Street Place, 1010 10th
Street, Room 6709, Modesto, CA, October 31, 2012.

NOW, THEREFORE, if the Principal is awarded the contract and, within the time and manner required under the
specifications, after the prescribed forms are presented to him for signature, enters into a written contract, in the
prescribed form, in conformance with the bid, and files two bonds with the Obligee, one to guarantee faithful
performance of the contract and the other to guarantee payment for labor and materials as provided by law, then
this obligation shall be null and void; otherwise, it shall remain in full force.

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.

Dated: _____

Principal

Surety

By:

Attorney-in-fact

NOTE: Signatures of those executing for the surety must be properly acknowledged.

CERTIFICATE OF ACKNOWLEDGEMENT

ATTACH APPROPRIATE NOTARY CERTIFICATE AND SEAL

Note: A Bidder's Bond must be completed and submitted with your bid for your bid to be accepted as complete.

Prompt Payment of Withheld Funds to Subcontractors

Federal regulation (49 CFR 26.29) requires one of the following three methods be used in federal-aid contracts to ensure prompt and full payment of any retainage kept by the prime contractor or subcontractor to a subcontractor.

Please check the box of the method chosen by the local agency to ensure prompt and full payment of any retainage.

- Method 1: No retainage will be held by the agency from progress payments due to the prime contractor. Prime contractors and subcontractors are prohibited from holding retainage from subcontractors. Any delay or postponement of payment may take place only for good cause and with the agency's prior written approval. Any violation of these provisions shall subject the violating contractor or subcontractor to the penalties, sanctions, and other remedies specified in Section 7108.5 of the California Business and Professions Code. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies, otherwise available to the contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the contractor, deficient subcontractor performance, and/or noncompliance by a subcontractor. This clause applies to both DBE and non-DBE subcontractors.

- Method 2: No retainage will be held by the agency from progress payments due the prime contractor. Any retainage kept by the prime contractor or by a subcontractor must be paid in full to the earning subcontractor in 30 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment may take place only for good cause and with the agency's prior written approval. Any violation of these provisions shall subject the violating contractor or subcontractor to the penalties, sanctions, and remedies specified in Section 7108.5 of the California Business and Professions Code. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies, otherwise available to the contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the contractor, deficient subcontractor performance, and/or noncompliance by a subcontractor. This clause applies to both DBE and non-DBE subcontractors.

- Method 3: The agency shall hold retainage from the prime contractor and shall make prompt and regular incremental acceptances of portions, as determined by the agency of the contract work and pay retainage to the prime contractor based on these acceptances. The prime contractor or subcontractor shall return all monies withheld in retention from all subcontractors within 30 days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the contract work by the agency. Any delay or postponement of payment may take place only for good cause and with the agency's prior written approval. Any violation of these provisions shall subject the violating prime contractor to the penalties, sanctions, and other remedies specified in Section 7108.5 of the California Business and Professions Code. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to the contractor or subcontractor in the event of: a dispute involving late payment or nonpayment by the contractor; deficient subcontractor performance and/or noncompliance by a subcontractor. This clause applies to both DBE and non-DBE subcontractors.

EXHIBIT 15-G LOCAL AGENCY BIDDER DBE COMMITMENT (CONSTRUCTION CONTRACTS)

NOTE: PLEASE REFER TO INSTRUCTIONS ON THE REVERSE SIDE OF THIS FORM							
LOCAL AGENCY: _____		LOCATION: _____					
PROJECT DESCRIPTION: _____							
TOTAL CONTRACT AMOUNT: \$ _____							
BID DATE: _____							
BIDDER'S NAME: _____							
CONTRACT DBE GOAL: _____							
CONTRACT ITEM NO.	ITEM OF WORK AND DESCRIPTION OR SERVICES TO BE SUBCONTRACTED OR MATERIALS TO BE PROVIDED (or contracted if the bidder is a DBE)	DBE CERT NO. AND EXPIRATION DATE	NAME OF EACH DBE (Must be certified on the date bids are opened - include DBE address and phone number)	DOLLAR AMOUNT DBE			
For Local Agency to Complete: Local Agency Contract Number: _____ Federal-aid Project Number: _____ Federal Share: _____ Contract Award Date: _____ Local Agency certifies that all DBE certifications have been verified and information is complete and accurate. <table style="width:100%; border: none;"> <tr> <td style="width: 30%; border: none;">_____ Print Name Local Agency Representative</td> <td style="width: 30%; border: none;">_____ Signature</td> <td style="width: 40%; border: none;">_____ Date</td> </tr> </table> (Area Code) Telephone Number: _____			_____ Print Name Local Agency Representative	_____ Signature	_____ Date	Total Claimed DBE Participation \$ _____ _____ %	_____ Signature of Bidder _____ (Area Code) Tel. No. Date _____ (Please Type or Print) Person to Contact Local Agency Bidder DBE Commitment (Construction Contracts) (Rev 6/26/09)
_____ Print Name Local Agency Representative	_____ Signature	_____ Date					

Distribution: (1) Copy – Fax or scan a copy to the Caltrans District Local Assistance Engineer (DLAE) within 30 days of contract execution. Failure to send a copy to the DLAE within 30 days of contract execution may result in de-obligation of funds for this project.
 (2) Copy – Include in award package to Caltrans District Local Assistance
 (3) Original – Local agency files

**INSTRUCTIONS - LOCAL AGENCY BIDDER
DBE COMMITMENT (CONSTRUCTION CONTRACTS)**

ALL BIDDERS:

PLEASE NOTE: This information may be submitted with your bid. If it is not, and you are the apparent low bidder or the second or third low bidder, it must be submitted and received as specified in the Special Provisions. Failure to submit the required DBE commitment will be grounds for finding the bid nonresponsive

The form requires specific information regarding the construction contract: Local Agency, Location, Project Description, Total Contract Amount, Bid Date, Bidder's Name, and Contract DBE Goal.

The form has a column for the Contract Item Number and Item of Work and Description of Services to be Subcontracted or Materials to be provided by DBEs. Prime contractors shall indicate all work to be performed by DBEs including, if the prime is a DBE, work performed by its own forces, if a DBE. The DBE shall provide a certification number to the Contractor and expiration date. Enter the DBE prime's and subcontractors' certification numbers. The form has a column for the Names of DBE contractors to perform the work (who must be certified on the date bids are opened and include the DBE address and phone number).

IMPORTANT: Identify all DBE firms participating in the project regardless of tier. Names of the First-Tier DBE Subcontractors and their respective item(s) of work listed should be consistent, where applicable, with the names and items of work in the "List of Subcontractors" submitted with your bid.

There is a column for the DBE participation dollar amount. Enter the Total Claimed DBE Participation dollars and percentage amount of items of work submitted with your bid pursuant to the Special Provisions. (If 100% of item is not to be performed or furnished by the DBE, describe exact portion of time to be performed or furnished by the DBE.) See Section "Disadvantaged Business Enterprise (DBE)," of the Special Provisions (construction contracts), to determine how to count the participation of DBE firms.

Exhibit 15-G must be signed and dated by the person bidding. Also list a phone number in the space provided and print the name of the person to contact.

Local agencies should complete the Local Agency Contract Award, Federal-aid Project Number, Federal Share, Contract Award Date fields and verify that all information is complete and accurate before signing and filing.

EXHIBIT 15-H DBE INFORMATION —GOOD FAITH EFFORTS

DBE INFORMATION - GOOD FAITH EFFORTS

Federal-aid Project No. _____ Bid Opening Date _____

The _____ (City/County of) _____ established a Disadvantaged Business Enterprise (DBE) goal of _____% for this project. The information provided herein shows that a good faith effort was made.

Lowest, second lowest and third lowest bidders shall submit the following information to document adequate good faith efforts. Bidders should submit the following information even if the "Local Agency Bidder DBE Commitment" form indicates that the bidder has met the DBE goal. This will protect the bidder's eligibility for award of the contract if the administering agency determines that the bidder failed to meet the goal for various reasons, e.g., a DBE firm was not certified at bid opening, or the bidder made a mathematical error.

Submission of only the "Local Agency Bidder DBE Commitment" form may not provide sufficient documentation to demonstrate that adequate good faith efforts were made.

The following items are listed in the Section entitled "Submission of DBE Commitment" of the Special Provisions:

- A. The names and dates of each publication in which a request for DBE participation for this project was placed by the bidder (please attach copies of advertisements or proofs of publication):

Publications	Dates of Advertisement

- B. The names and dates of written notices sent to certified DBEs soliciting bids for this project and the dates and methods used for following up initial solicitations to determine with certainty whether the DBEs were interested (please attach copies of solicitations, telephone records, fax confirmations, etc.):

Names of DBEs Solicited	Date of Initial Solicitation	Follow Up Methods and Dates

- C. The items of work which the bidder made available to DBE firms including, where appropriate, any breaking down of the contract work items (including those items normally performed by the bidder with its own forces) into economically feasible units to facilitate DBE participation. It is the bidder's responsibility to demonstrate that sufficient work to facilitate DBE participation was made available to DBE firms.

Items of Work	Bidder Normally Performs Item (Y/N)	Breakdown of Items	Amount (\$)	Percentage Of Contract

- D. The names, addresses and phone numbers of rejected DBE firms, the reasons for the bidder's rejection of the DBEs, the firms selected for that work (please attach copies of quotes from the firms involved), and the price difference for each DBE if the selected firm is not a DBE:

Names, addresses and phone numbers of rejected DBEs and the reasons for the bidder's rejection of the DBEs:

Names, addresses and phone numbers of firms selected for the work above:

- E. Efforts made to assist interested DBEs in obtaining bonding, lines of credit or insurance, and any technical assistance or information related to the plans, specifications and requirements for the work which was provided to DBEs:

F. Efforts made to assist interested DBEs in obtaining necessary equipment, supplies, materials or related assistance or services, excluding supplies and equipment the DBE subcontractor purchases or leases from the prime contractor or its affiliate:

G. The names of agencies, organizations or groups contacted to provide assistance in contacting, recruiting and using DBE firms (please attach copies of requests to agencies and any responses received, i.e., lists, Internet page download, etc.):

Name of Agency/Organization	Method/Date of Contact	Results
_____	_____	_____
_____	_____	_____

H. Any additional data to support a demonstration of good faith efforts (use additional sheets if necessary):

NOTE: USE ADDITIONAL SHEETS OF PAPER IF NECESSARY.

**STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
FINAL REPORT-UTILIZATION OF DISADVANTAGED BUSINESS ENTERPRISES
(DBE), FIRST-TIER SUBCONTRACTORS**

ADA Notice
For individuals with sensory disabilities, this document is available in alternate formats. For information call (916) 654-6410 or TDD (916) 654-3880 or write Records and Forms Management, 1120 N Street, MS-89, Sacramento, CA 95814

CEM-2402F (REV 02/2008)

CONTRACT NUMBER		COUNTY	ROUTE	POST MILES	FEDERAL AID PROJECT NO.	ADMINISTERING AGENCY	CONTRACT COMPLETION DATE
PRIME CONTRACTOR				BUSINESS ADDRESS			ESTIMATED CONTRACT AMOUNT \$
ITEM NO.	DESCRIPTION OF WORK PERFORMED AND MATERIAL PROVIDED	COMPANY NAME AND BUSINESS ADDRESS	DBE CERT. NUMBER	CONTRACT PAYMENTS			DATE OF FINAL PAYMENT
				NON-DBE	DBE	DATE WORK COMPLETE	
				\$	\$		
				\$	\$		
				\$	\$		
				\$	\$		
				\$	\$		
				\$	\$		
				\$	\$		
				\$	\$		
				\$	\$		
				\$	\$		
ORIGINAL COMMITMENT				\$	\$		
\$			TOTAL	\$	\$		
DBE							
List all First-Tier Subcontractors, Disadvantaged Business Enterprises (DBEs) regardless of tier, whether or not the firms were originally listed for goal credit. If actual DBE utilization (or item of work) was different than that approved at time of award, provide comments on back of form. List actual amount paid to each entity.							
I CERTIFY THAT THE ABOVE INFORMATION IS COMPLETE AND CORRECT							
CONTRACTOR REPRESENTATIVE'S SIGNATURE					BUSINESS PHONE NUMBER		DATE
TO THE BEST OF MY INFORMATION AND BELIEF, THE ABOVE INFORMATION IS COMPLETE AND CORRECT							
RESIDENT ENGINEER'S SIGNATURE					BUSINESS PHONE NUMBER		DATE

Copy Distribution-Caltrans contracts: Original - District Construction Copy- Business Enterprise Program Copy- Contractor Copy Resident Engineer
Copy Distribution-Local Agency contracts: Original - District Local Assistance Engineer Copy- District Local Assistance Engineer Copy- Local Agency file

FINAL REPORT – UTILIZATION OF DISADVANTAGED BUSINESS ENTERPRISES (DBE), FIRST-TIER SUBCONTRACTORS
CEM 2402(F) (Rev. 02/2008)

The form requires specific information regarding the construction project: Contract Number, County, Route, Post Miles, Federal-aid Project No., the Administering Agency, the Contract Completion Date and the Estimated Contract Amount. It requires the prime contractor name and business address. The focus of the form is to describe who did what by contract item number and descriptions, asking for specific dollar values of item work completed broken down by subcontractors who performed the work both DBE and non-DBE work forces. DBE prime contractors are required to show the date of work performed by their own forces along with the corresponding dollar value of work.

The form has a column to enter the Contract Item No. (or Item No's) and description of work performed or materials provided, as well as a column for the subcontractor name and business address. For those firms who are DBE, there is a column to enter their DBE Certification Number. The DBE should provide their certification number to the contractor and notify the contractor in writing with the date of the decertification if their status should change during the course of the project.

The form has six columns for the dollar value to be entered for the item work performed by the subcontractor.

The Non-DBE column is used to enter the dollar value of work performed for firms who are not certified DBE.

The decision of which column to be used for entering the DBE dollar value is based on what program(s) status the firm is certified. This program status is determined by the California Unified Certification Program by ethnicity, gender, ownership, and control issues at time of certification. To confirm the certification status and program status, access the Department of Transportation Civil Rights web site at: <http://www.dot.ca.gov/hq/bep> or by calling (916) 324-1700 or the toll free number at (888) 810-6346.

Based on this DBE Program status, the following table depicts which column to be used:

DBE Program Status	Column to be used
If program status shows DBE only with no other programs listed	DBE

If a contractor performing work as a DBE on the project becomes decertified and still performs work after their decertification date, enter the total dollar value performed by this contractor under the appropriate DBE identification column.

If a contractor performing work as a non-DBE on the project becomes certified as a DBE, enter the dollar value of all work performed after certification as a DBE under the appropriate identification column.

Enter the total of each of the six columns in Form CEM-2402(F).

Any changes to DBE certification must also be submitted on Form-CEM 2403(F).

Enter the Date Work Completed as well as the Date of Final Payment (the date when the prime contractor made the "final payment" to the subcontractor for the portion of work listed as being completed).

The contractor and the resident engineer sign and date the form indicating that the information provided is complete and correct.

BIDDER'S LIST OF SUBCONTRACTORS (DBE and NON-DBE)- PART I

The bidder shall list all subcontractors (both DBE and non-DBE) in accordance with Section 2-1.054 of the Standard Specifications and per Title 49, Section 26.11 of the Code of Federal Regulations. This listing is required in addition to listing DBE Subcontractors elsewhere in the proposal. **Photocopy this form for additional firms.**

Firm Name/ Address/ City, State, ZIP		Phone/ Fax	Annual Gross Receipts	Description of Portion of Work to be Performed	Local Agency Use Only (Certified DBE?)
<i>Name</i>		<i>Phone</i>	<input type="checkbox"/> < \$1 million		<input type="checkbox"/> YES
<i>Address</i>			<input type="checkbox"/> < \$5 million		<input type="checkbox"/> NO
<i>City, State ZIP</i>		<i>Fax</i>	<input type="checkbox"/> < \$10 million		<i>If YES list DBE #:</i>
			<input type="checkbox"/> < \$15 million		Age of Firm (Yrs.)
			<input type="checkbox"/> > \$15 million		
<i>Name</i>		<i>Phone</i>	<input type="checkbox"/> < \$1 million		<input type="checkbox"/> YES
<i>Address</i>			<input type="checkbox"/> < \$5 million		<input type="checkbox"/> NO
<i>City, State ZIP</i>		<i>Fax</i>	<input type="checkbox"/> < \$10 million		<i>If YES list DBE #:</i>
			<input type="checkbox"/> < \$15 million		Age of Firm (Yrs.)
			<input type="checkbox"/> > \$15 million		
<i>Name</i>		<i>Phone</i>	<input type="checkbox"/> < \$1 million		<input type="checkbox"/> YES
<i>Address</i>			<input type="checkbox"/> < \$5 million		<input type="checkbox"/> NO
<i>City, State ZIP</i>		<i>Fax</i>	<input type="checkbox"/> < \$10 million		<i>If YES list DBE #:</i>
			<input type="checkbox"/> < \$15 million		Age of Firm (Yrs.)
			<input type="checkbox"/> > \$15 million		
<i>Name</i>		<i>Phone</i>	<input type="checkbox"/> < \$1 million		<input type="checkbox"/> YES
<i>Address</i>			<input type="checkbox"/> < \$5 million		<input type="checkbox"/> NO
<i>City, State ZIP</i>		<i>Fax</i>	<input type="checkbox"/> < \$10 million		<i>If YES list DBE #:</i>
			<input type="checkbox"/> < \$15 million		Age of Firm (Yrs.)
			<input type="checkbox"/> > \$15 million		

Distribution: 1) Original - Local Agency File

BIDDER'S LIST OF SUBCONTRACTORS (DBE and NON-DBE)- PART II

The bidder shall list all subcontractors who provided a quote or bid but were not selected to participate as a subcontractor on this project. This is required for compliance with Title 49, Section 26 of the Code of Federal Regulations. Photocopy this form for additional firms.

Firm Name/ Address/ City, State, ZIP		Phone/ Fax	Annual Gross Receipts	Description of Portion of Work to be Performed	Local Agency Use Only (Certified DBE?)
<i>Name</i>		<i>Phone</i>	<input type="checkbox"/> < \$1 million <input type="checkbox"/> < \$5 million <input type="checkbox"/> < \$10 million <input type="checkbox"/> < \$15 million <input type="checkbox"/> > \$15 million		<input type="checkbox"/> YES <input type="checkbox"/> NO <i>If YES list DBE #:</i>
<i>Address</i>		<i>Fax</i>			<i>Age of Firm (Yrs.)</i>
<i>City, State ZIP</i>					
<i>Name</i>		<i>Phone</i>	<input type="checkbox"/> < \$1 million <input type="checkbox"/> < \$5 million <input type="checkbox"/> < \$10 million <input type="checkbox"/> < \$15 million <input type="checkbox"/> > \$15 million		<input type="checkbox"/> YES <input type="checkbox"/> NO <i>If YES list DBE #:</i>
<i>Address</i>		<i>Fax</i>			<i>Age of Firm (Yrs.)</i>
<i>City, State ZIP</i>					
<i>Name</i>		<i>Phone</i>	<input type="checkbox"/> < \$1 million <input type="checkbox"/> < \$5 million <input type="checkbox"/> < \$10 million <input type="checkbox"/> < \$15 million <input type="checkbox"/> > \$15 million		<input type="checkbox"/> YES <input type="checkbox"/> NO <i>If YES list DBE #:</i>
<i>Address</i>		<i>Fax</i>			<i>Age of Firm (Yrs.)</i>
<i>City, State ZIP</i>					
<i>Name</i>		<i>Phone</i>	<input type="checkbox"/> < \$1 million <input type="checkbox"/> < \$5 million <input type="checkbox"/> < \$10 million <input type="checkbox"/> < \$15 million <input type="checkbox"/> > \$15 million		<input type="checkbox"/> YES <input type="checkbox"/> NO <i>If YES list DBE #:</i>
<i>Address</i>		<i>Fax</i>			<i>Age of Firm (Yrs.)</i>
<i>City, State ZIP</i>					

Distribution: 1) Original – Local Agency File

STATE PREVAILING WAGE RATES

For current rates go to the California Department of Industrial Relations webpage at the following:

<http://www.dir.ca.gov/dlsr/DPreWageDetermination.htm>

OPT OUT OF PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS

You may opt out of the payment adjustments for price index fluctuations as specified in Section 2-1.33D "Opt Out of Payment Adjustments for Price Index Fluctuations," of the Standard Specifications. **If you elect to opt out of the provisions of this specifications, you must complete this form and submit it with your bid.**

Bidder Name: _____

Contract No. _____

I opt out of the payment adjustments for price index fluctuations.

Date: _____

Signature: _____

SAMPLE AGREEMENT, BONDS, AND GUARANTEE

COUNTY OF STANISLAUS DEPARTMENT OF PUBLIC WORKS

PART IV – SAMPLE AGREEMENT, BONDS, AND GUARANTEE

AGREEMENT

THIS AGREEMENT, dated this ____ day of _____, 20__, by and between _____, whose place of business is located at _____ (“Contractor”), and the COUNTY OF STANISLAUS (“County”), acting under and by virtue of the authority vested in the County by the laws of the State of California.

WHEREAS, County, by its Resolution No. _____ adopted on the ____ day of _____, 20__ awarded to Contractor the following Contract:

CONTRACT NUMBER _____

[ENTER PROJECT TITLE]

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, Contractor and County agree as follows:

Article 1. Work

1.1 Contractor shall complete all Work specified in the Contract Documents, in accordance with the Specifications, Drawings, and all other terms and conditions of the Contract Documents.

Article 2. Architect/Engineer and Project Manager

2.1 Public Works Engineering Services designed the Project and furnished the Plans and Specifications. Engineering Services shall have the rights assigned to Architect/Engineer in the Contract Documents.

2.2 County has designated the Public Works Construction Manager as its Project Manager to act as County’s Representative in all matters relating to the Contract Documents.

Article 3. Contract Time and Liquidated Damages

3.1 Contract Time

Contractor shall commence Work on the date established in the Notice to Proceed. County reserves the right to modify or alter the Commencement Date of the Work.

Contractor shall achieve Final Completion of the entire Work and be ready for Final Payment in accordance with Contract Closeout 720 Working Days from the date when the Contract Time commences to run as provided in the Agreement.

3.2 Liquidated Damages

Liquidated Damages shall comply with SC-08 of the Special Conditions and 8-1.10 of the Standard Specifications.

Liquidated damages shall apply cumulatively and except as provided below, shall be presumed to be the damages suffered by County resulting from delay in completion of the Work.

- 3.3 Liquidated damages for delay shall only cover administrative, overhead, interest on bonds, and general loss of public use damages suffered by County as a result of delay. Liquidated damages shall not cover the cost of completion of the Work, damages resulting from Defective Work, lost revenues or costs of substitute facilities, or damages suffered by others who then seek to recover their damages from County (for example, delay claims of other contractors, subcontractors, tenants, or other third-parties), and defense costs thereof.

Article 4. Contract Sum

- 4.1 County shall pay Contractor the Contract Sum for completion of Work in accordance with Contract Documents as set forth in Contractor's Bid.

Article 5. Contractor's Representations

In order to induce County to enter into this Agreement, Contractor makes the following representations and warranties:

- 5.1 Contractor has visited the Site and has examined thoroughly and understood the nature and extent of the Contract Documents, Work, Site, locality, actual conditions, as-built conditions, and all local conditions, and federal, state and local laws and regulations that in any manner may affect cost, progress, performance or furnishing of Work or which relate to any aspect of the means, methods, techniques, sequences or procedures of construction to be employed by Contractor and safety precautions and programs incident thereto.
- 5.2 Contractor has examined thoroughly and understood all reports of exploration and tests of subsurface conditions, as-built drawings, drawings, products specifications or reports, available for Bidding purposes,

of physical conditions, including Underground Facilities, which have been made available for Bidders or which may appear in the Drawings. Contractor accepts the determination set forth in these Documents of the limited extent of the information contained in such materials upon which Contractor may be entitled to rely. Contractor agrees that except for the information so identified, Contractor does not and shall not rely on any other information contained in such reports and drawings.

- 5.3 Contractor has conducted or obtained and has understood all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in Section 5.2 of this Document that pertain to the subsurface conditions, as-built conditions, Underground Facilities and all other physical conditions at or contiguous to the Site or otherwise that may affect the cost, progress, performance or furnishing of Work, as Contractor considers necessary for the performance or furnishing of Work at the Contract Sum, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of the Special Conditions; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by Contractor for such purposes.
- 5.4 Contractor has correlated its knowledge and the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

Article 6. Contract Documents

- 6.1 Contract Documents consist of the following documents, including all changes, Addenda, and Modifications thereto:

- Notice of Award
- Agreement
- Notice to Proceed
- Construction Performance Bond
- Construction Labor and Material Payment Bond
- Special Conditions
- Addenda
- Special Provisions
- Drawings
- Encroachment Permit [if applicable]

- 6.2 There are no Contract Documents other than those listed in this Document, Article 6.

Article 7. Indemnity

- 7.1 County and each of its officers, employees, consultants and agents including, but not limited to the Board, Architect/Engineer and each County Representative, shall not be liable or accountable in any manner for loss or damage that may happen to any part of the Work; loss or damage to materials or other things used or employed in performing the Work; injury, sickness, disease, or death of any person; or damage to property resulting from any cause whatsoever except their sole negligence, willful misconduct or active

negligence, attributable to performance or character of the Work, and Contractor releases all of the foregoing persons and entities from any and all such claims.

- 7.2 To the furthest extent permitted by law (including without limitation California Civil Code Section 2782), Contractor shall assume defense of, and indemnify and hold harmless, County and each of its officers, employees, consultants and agents, including but not limited to the Board, Architect/Engineer and each County representative, from claims, suits, actions, losses and liability of every kind, nature and description, including but not limited to claims and fines of regulatory agencies and attorney's fees and consultant's fees, directly or indirectly arising out of, connected with or resulting from performance of the Work, failure to perform the Work, or condition of the Work which is caused in whole or part by any act or omission of Contractor, Subcontractors, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether it is caused in part by the negligence of County or by any person or entity required to be indemnified hereunder.
- 7.3 With respect to third-party claims against Contractor, Contractor waives any and all rights to any type of express or implied indemnity against County and each of its officers, employees, consultants and agents including, but not limited to County, the Board, Architect/Engineer and each County representative.
- 7.4 Approval or purchase of any insurance contracts or policies shall in no way relieve from liability nor limit the liability of Contractor, its Subcontractors of any tier, or the officers or agents of any of them.
- 7.5 To the furthest extent permitted by law (including, without limitation, Civil Code Section 2782), the indemnities, releases of liability and limitations of liability, claims procedures, and limitations of remedy expressed throughout the Contract Documents shall apply even in the event of breach of contract, negligence (active or passive), fault or strict liability of the party(is) indemnified, released, or limited in liability, and shall survive the termination, rescission, breach, abandonment, or completion of the Work or the terms of the Contract Documents. If Contractor fails to perform any of these defense or indemnity obligations, County may in its discretion back charge Contractor for County's costs and damages resulting therefrom and withhold such sums from progress payments or other contract moneys which may become due.
- 7.6 The indemnities in the Contract Documents shall not apply to any indemnified party to the extent of its sole negligence or willful misconduct; nor shall they apply to County or other indemnified party to the extent of its active negligence.

Article 8. Miscellaneous

- 8.1 Terms and abbreviations used in this Agreement are defined in Special Conditions, Section 1: DEFINITIONS AND TERMS and will have the meaning indicated therein.
- 8.2 It is understood and agreed that in no instance are the persons signing this Agreement for or on behalf of County or acting as an employee, agent, or representative of County, liable on this Agreement or any of the Contract Documents, or upon any warranty of authority, or otherwise, and it is further understood and agreed that liability of the County is limited and confined to such liability as authorized or imposed by the Contract Documents or applicable law.
- 8.3 Contractor shall not assign any portion of the Contract Documents, and may subcontract portions of the Contract Documents only in compliance with the Subcontractor Listing Law, California Public Contract Code §4100 *et seq.*
- 8.4 The Contract Sum includes all allowances (if any).
- 8.5 In entering into a public works contract or a subcontract to supply goods, services or materials pursuant to a public works contract, Contractor or Subcontractor offers and agrees 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. §15) or under the Cartwright Act (Chapter 2 (commencing with §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 County tenders final payment to Contractor, without further acknowledgment by the parties.

- 8.6 Copies of the general prevailing rates of per diem wages for each craft, classification, or type of worker needed to execute the Contract, as determined by Director of the State of California Department of Industrial Relations, are deemed included in the Contract Documents and on file at County's Office, and shall be made available to any interested party on request. Pursuant to California Labor Code §1861, Contractor represents that it is 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 Contractor shall comply with such provisions before commencing the performance of the Work of the Contract Documents.
- 8.7 Should any part, term or provision of this Agreement or any of the Contract Documents, or any document required herein or therein to be executed or delivered, be declared invalid, void or unenforceable, all remaining parts, terms and provisions shall remain in full force and effect and shall in no way be invalidated, impaired or affected thereby. If the provisions of any law causing such invalidity, illegality or unenforceability may be waived, they are hereby waived to the end that this Agreement and the Contract Documents may be deemed valid and binding agreements, enforceable in accordance with their terms to the greatest extent permitted by applicable law. In the event any provision not otherwise included in the Contract Documents is required to be included by any applicable law, that provision is deemed included herein by this reference (or, if such provision is required to be included in any particular portion of the Contract Documents, that provision is deemed included in that portion).
- 8.8 This Agreement and the Contract Documents shall be deemed to have been entered into in the County of Stanislaus, State of California, and governed in all respects by California law (excluding choice of law rules). The exclusive venue for all disputes or litigation hereunder shall be in Stanislaus County Superior Court. Contractor accepts the Claims Procedure in Special Conditions, Article SC-16, WORK DISPUTES, as a claims procedure by agreement under the California Government Code, Title 1, Division 3.6, Part 3, Chapter 5.
- 8-9 Notices: Any notices, documents, correspondence or other communications concerning this Agreement or the work hereunder may be provided by personal delivery, facsimile or mail and shall be addressed as set forth below. Such communication shall be deemed served or delivered: a) at the time of delivery if such communication is sent by personal delivery; b) at the time of transmission if such communication is sent by facsimile; and c) 48 hours after deposit in the U.S. Mail as reflected by the official U.S. postmark if such communication is sent through regular United States mail.

If to County:

Stanislaus County Public Works
Attn: Chris Brady, Construction Manager
1716 Morgan Road
Modesto, CA 95358
Phone: (209) 525-4130
Fax: (209)541-2506

If to Contractor:

(SIGNATURES NEXT PAGE)

IN WITNESS WHEREOF the parties have executed this Agreement in quadruplicate the day and year first above written.

COUNTY OF STANISLAUS

[ENTER CONTRACTOR]

By: _____

Matt Machado, Director
Public Works Department

By: _____

Name
Title

Approved: BOS Resolution # _____

Dated: _____

APPROVED AS TO FORM:

John P. Doering, County Counsel

By: _____

Thomas E. Boze
Deputy County Counsel

END OF AGREEMENT

CONSTRUCTION PERFORMANCE BOND

This Construction Performance Bond ("Bond") is dated _____ in the penal sum of _____ which is one hundred percent of the Contract Sum, and is entered into by and between the parties listed below to ensure the faithful performance of the Construction Contract listed below. This Bond consists of this page and the Bond Terms and Conditions as stated on the following page. Any singular reference to _____ ("Contractor"), _____ ("Surety"), County of Stanislaus ("County"), or other party shall be considered plural where applicable.

CONTRACTOR:

SURETY:

Name

Name

Address

Principal Place of Business

City/State/Zip

City/State/Zip

CONSTRUCTION CONTRACT: **SR 99/219 (Kiernan Avenue) Interchange**

CONTRACT NUMBER: 9207

Dated _____ in the Amount of \$ _____ (the "Penal Sum").

CONTRACTOR:

Company: (Corp. Seal)

SURETY:

Company: (Corp. Seal)

Signature

Signature

Name

Name

Title

Title

CONSTRUCTION PERFORMANCE BOND TERMS AND CONDITIONS

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to County for the complete and proper performance of the Construction Contract, which is incorporated herein by reference.

2. If Contractor completely and properly performs all of its obligations under the Construction Contract, Surety and Contractor shall have no obligation under this Bond.

3. If there is no County Default, Surety's obligation under this Bond shall arise after:
 - 3.1 County has declared a Contractor Default under the Construction Contract pursuant to the terms of the Construction Contract; and
 - 3.2 County has agreed to pay the Balance of the Contract Sum:
 - 3.2.1 To Surety in accordance with the terms of this Bond and the Construction Contract; or
 - 3.2.2 To a contractor selected to perform the Construction Contract in accordance with the terms of this Bond and the Construction Contract.

4. When County has satisfied the conditions of Paragraph 3, Surety shall promptly (within thirty (30) Days) and at Surety's expense elect to take one of the following actions:
 - 4.1 Arrange for Contractor, with consent of County, to perform and complete the Construction Contract (but County may withhold consent, in which case the Surety must elect an option described in Paragraphs 4.2, 4.3 or 4.4, below); or
 - 4.2 Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; provided, that Surety may not select Contractor as its agent or independent contractor without County's consent; or

- 4.3 Undertake to perform and complete the Construction Contract by obtaining bids from qualified contractors acceptable to County for a contract for performance and completion of the Construction Contract and, upon determination by County of the lowest responsive and responsible Bidder, arrange for a contract to be prepared for execution by County and the contractor selected with County's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract; and, if Surety's obligations defined in Paragraph 6, below, exceed the Balance of the Contract Sum, then Surety shall pay to County the amount of such excess; or
- 4.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances and, after investigation and consultation with County, determine in good faith its monetary obligation to County under Paragraph 6, below, for the performance and completion of the Construction Contract and, as soon as practicable after the amount is determined, tender payment therefore to County with full explanation of the payment's calculation. If County accepts Surety's tender under this Paragraph 4.4, County may still hold Surety liable for future damages then unknown or unliquidated resulting from the Contractor Default. If County disputes the amount of Surety's tender under this Paragraph 4.4, County may exercise all remedies available to it at law to enforce Surety's liability under Paragraph 6, below.
5. If Surety does not proceed as provided in Paragraph 4, then Surety shall be deemed to be in default on this Bond ten (10) Days after receipt of an additional written notice from County to Surety demanding that Surety perform its obligations under this Bond. At all times County shall be entitled to enforce any remedy available to County at law or under the Construction Contract including, without limitation, and by way of example only, rights to perform work, protect Work, mitigate damages, advance critical Work to mitigate schedule delay, or coordinate Work with other consultants or contractors.
6. Surety's monetary obligation under this Bond is limited by the amount of this Bond identified herein as the Penal Sum. This monetary obligation shall augment the Balance of the Contract Sum. Subject to these limits, Surety's obligations under this Bond are commensurate with the obligations of Contractor under the Construction Contract. Surety's obligations shall include, but are not limited to:
- 6.1 The responsibilities of Contractor under the Construction Contract for completion of the Construction Contract and correction of Defective Work;
- 6.2 The responsibilities of Contractor under the Construction Contract to pay liquidated damages, and for damages for which no liquidated damages are specified in the Construction Contract, actual damages caused by non-performance of the Construction Contract including, but not limited to, all valid and proper backcharges, offsets, payments, indemnities, or other damages;
- 6.3 Additional legal, design professional and delay costs resulting from Contractor Default or resulting from the actions or failure to act of the Surety under Paragraph 4, above (but excluding attorney's fees incurred to enforce this Bond).
7. No right of action shall accrue on this Bond to any person or entity other than County or its successors or assigns.
8. Surety hereby waives notice of any change, alteration or addition to the Construction Contract or to related subcontracts, purchase orders and other obligations, including changes of time. Surety consents to all terms of the Construction Contract, including provisions on changes to the Contract. No extension of time, change, alteration, Modification, deletion, or addition to the Contract Documents, or of the Work required thereunder, shall release or exonerate Surety on this Bond or in any way affect the obligations of Surety on this Bond.
9. Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction where a proceeding is pending between County and Contractor regarding the Construction Contract, or in the courts of the County of Stanislaus, or in a court of competent jurisdiction in the location in which the Work is located. Communications from County to Surety under Paragraph 3.1 of this Bond shall be deemed to include the necessary agreements under Paragraph 3.2 of this Bond unless expressly stated otherwise.
- 10 All notices to Surety or Contractor shall be mailed or delivered (at the address set forth on the signature page of this Bond), and all notices to County shall be mailed or delivered as provided in the Agreement. Actual

receipt of notice by Surety, County or Contractor, however accomplished, shall be sufficient compliance as of the date received at the foregoing addresses.

11. Any provision in this Bond conflicting with any statutory or regulatory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein.

12. Definitions

12.1 Balance of the Contract Sum: The total amount payable by County to Contractor pursuant to the terms of the Construction Contract after all proper adjustments have been made under the Construction Contract, for example, deductions for progress payments made, and increases/decreases for approved Modifications to the Construction Contract.

12.2 Construction Contract: The agreement between County and Contractor identified on the signature page of this Bond, including all Contract Documents and changes thereto.

12.3 Contractor Default: Material failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract including, but not limited to, "default" or any other condition allowing a termination for cause as provided in Section 8-1.11 of the State of California, Department of Transportation, Standard Specifications.

12.4 County Default: Material failure of County, which has neither been remedied nor waived, to pay Contractor progress payments due under the Construction Contract or to perform other material terms of the Construction Contract, if such failure is the cause of the asserted Contractor Default and is sufficient to justify Contractor termination of the Construction Contract.

CONSTRUCTION LABOR AND MATERIAL PAYMENT BOND

This Construction Labor and Material Payment Bond ("Bond") is dated _____ in the penal sum of _____ which is one hundred percent of the Contract Sum, and is entered into by and between the parties listed below to ensure the faithful performance of the Construction Contract listed below. This Bond consists of this page and the Bond Terms and Conditions as stated on the following page. Any singular reference to _____ ("Contractor"), _____ ("Surety"), County of Stanislaus ("County"), or other party shall be considered plural where applicable.

CONTRACTOR:

SURETY:

Name

Name

Address

Principal Place of Business

City/State/Zip

City/State/Zip

CONSTRUCTION CONTRACT: SR 99/219 (Kiernan Avenue) Interchange

CONTRACT NUMBER: 9207

Dated _____ in the Amount of \$ _____ (the "Penal Sum").

CONTRACTOR:

Company: (Corp. Seal)

SURETY:

Company: (Corp. Seal)

Signature

Signature

Name

Name

Title

Title

CONSTRUCTION LABOR AND MATERIAL PAYMENT BOND TERMS AND CONDITIONS

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to County and to Claimants, to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference.
2. With respect to County, this obligation shall be null and void if Contractor:
 - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimant; and
 - 2.2 Defends, indemnifies and hold harmless County from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Construction Contract, provided County has promptly notified Contractor and Surety (at the address set forth on the signature page on this Bond) or any claims, demands, lien or suits and tendered defense of such claims, demands, liens or suits to Contractor and Surety, and provided there is no County Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly through its Subcontractors, for all sums due Claimants. If Contractor or its Subcontractors, however, fail to pay any of the persons named in Section 3181 of the California Civil Code, or amounts due under the Unemployment Insurance Code with respect to Work or labor performed under the Contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of Contractor or Subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor, then Surety shall pay for the same, and also, in case suit is brought upon this Bond, a reasonable attorney's fee, to be fixed by the court.
4. Consistent with the California's Mechanic's Lien Law, Civil Code §3082, *et seq.*, Surety shall have no obligation to Claimants under this Bond unless the Claimant has satisfied all applicable notice requirements.
5. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety under this Bond.
6. Amounts due Contractor under the Construction Contract shall be applied first to satisfy claims, if any, under any Construction Performance Bond and second, to satisfy obligations of Contractor and Surety under this Bond.
7. County shall not be liable for payment of any costs, expenses, or attorney's fees of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
8. Surety hereby waives notice of any change, including changes to time, to the Construction Contract or to related subcontracts, purchase orders and other obligations. Surety further hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Construction Contract, or to the Work to be performed thereunder, or materials or equipment to be furnished thereunder or the Specifications accompanying the same, shall in any way affect its obligations under this Bond, and it does hereby waive any requirement of notice or any such change, extension of time, alteration or addition to the terms of the Construction Contract or to the Work or to the Specifications or any other changes.
9. Suit against Surety on this Bond may be brought by any Claimant, or its assigns, at any time after the Claimant has furnished the last of the labor or materials, or both, but, per Civil Code §3249, must be commenced before the expiration of six (6) months after the period in which stop notices may be filed as provided in Civil Code §3184.
10. All notices to Surety or Contractor shall be mailed or delivered (at the address set forth on the signature page of this Bond), and all notices to County shall be mailed or delivered as provided in Agreement. Actual receipt of notice by Surety, County or Contractor, however accomplished, shall be sufficient compliance as of the date received at the foregoing address.

11. This Bond has been furnished to comply with the California Mechanic's Lien Law including, but not limited to, Civil Code §3247, 3248, *et seq.* Any provision in this Bond conflicting with said statutory or other legal requirements shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
13. Definitions:
 - 13.1 Claimant: An individual or entity having a direct contract with Contractor or with a Subcontractor of Contractor to furnish labor, materials or equipment for use in the performance of the Contract, as further defined in California Civil Code §3181. The intent of this Bond shall be to include without limitation in the terms "labor, material or equipment" that part of water, gas, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a stop notice might be asserted. The Term Claimant shall also include the Unemployment Development Department as referred to in Civil Code §3248(b),
 - 13.2 Construction Contract: The agreement between County and Contractor identified on the signature page of this Bond, including all Contract Documents and changes thereto.
 - 13.3 County Default: Material failure of County, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract, provided that failure is the cause of the failure of Contractor to pay the Claimants and its sufficient to justify termination of the Construction Contract.

GUARANTEE

TO: The County of Stanislaus ("County"), for construction of the
_____.

The undersigned guarantees all construction performed on this Project and also guarantees all material and equipment incorporated therein.

Contractor hereby grants to County for a period of one (1) year following the date of Final Acceptance of the Work completed, or such longer period specified in the Contract Documents, its unconditional warranty of the quality and adequacy of all of the Work including, without limitation, all labor, materials and equipment provided by Contractor and its Subcontractors of all tiers in connection with the Work.

Neither final payment nor use nor occupancy of the Work performed by the Contractor shall constitute an acceptance of Work not done in accordance with this Guarantee or relieve Contractor of liability in respect to any express warranties or responsibilities for faulty materials or workmanship. Contractor shall remedy any defects in the Work and pay for any damage resulting therefrom, which shall appear within one year, or longer if specified, from the date of Final Acceptance of the Work completed.

If within one (1) year after the date of Final Acceptance of the Work completed, or such longer period of time as may be prescribed by laws or regulations, or by the terms of Contract Documents, any Work is found to be Defective, Contractor shall promptly, without cost to County and in accordance with County's written instructions, correct such Defective Work. Contractor shall remove any Defective Work rejected by County and replace it with Work that is not Defective, and satisfactorily correct or remove and replace any damage to other Work or the work of others resulting therefrom. If Contractor fails to promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, County may have the Defective Work corrected or the rejected Work removed and replaced. Contractor shall pay for all claims, costs, losses and damages caused by or resulting from such removal and replacement. Where Contractor fails to correct Defective Work, or defects are discovered outside the correction period, County shall have all rights and remedies granted by law.

Inspection of the Work shall not relieve Contractor of any of its obligations under the Contract Documents. Even though equipment, materials, or Work required to be provided under the Contract Documents have been inspected, accepted, and estimated for payment, Contractor shall, at its own expense, replace or repair any such equipment, material, or Work found to be Defective or otherwise not to comply with the requirements of the Contract Documents up to the end of the guarantee period.

All abbreviations and definitions of terms used in this Agreement shall have the meanings set forth in the Contract Documents, including, without means of limitation, Special Provisions.

The foregoing Guarantee is in addition to any other warranties of Contractor contained in the Contract Documents, and not in lieu of, any and all other liability imposed on Contractor under the Contract Documents and at law with respect to Contractor's duties, obligations, and performance under the Contract Documents. In the event of any conflict or inconsistency between the terms of this Guarantee and any warranty or obligation of the Contractor under the Contract Documents or at law, such inconsistency or conflict shall be resolved in favor of the higher level of obligation of the Contractor.

(SIGNATURE NEXT SHEET)

Date: _____

Contractor's Name

Signature

Print Name

Title

Street Address

City, State, Zip Code

SPECIAL CONDITIONS

COUNTY OF STANISLAUS DEPARTMENT OF PUBLIC WORKS

PART V - SPECIAL CONDITIONS

SC-01 DEFINITIONS AND TERMS

The work embraced herein shall be done in accordance with the Standard Specifications dated 2010, and the Standard Plans dated 2010, of the California Department of Transportation insofar as the same may apply and these Special Provisions.

In case of conflict between the Standard Specifications and the Special Provisions, the Special Provisions shall take precedence.

Whenever in the Standard Specifications, Standard Plans, Special Provisions, Invitation to Bidders, Proposal, Contract, or other contract documents the following terms are used, the intent and meaning shall be interpreted as follows:

State or State of California – The State of California and County of Stanislaus

Department of Transportation – The Department of Transportation of the State of California and Stanislaus County, Department of Public Works

Director of Transportation – The executive officer of the Department of Transportation of the State of California and Stanislaus County, Director of Public Works.

District Director – District Director of Department of Transportation of the State of California and Stanislaus County, Director of Public Works

Engineer – Resident Engineer.

Attorney General – Attorney General and Stanislaus County, County Counsel

Contract – Agreement

Amendments to the Standard Specifications set forth in these Specifications shall be considered as part of the Standard Specifications for the purposes set forth in Section 5-1.02, "Contract Components," of the Standard Specifications. Whenever either the term "Standard Specifications is amended" or the term "Standard Specifications are amended" is used in the Special Provisions, the indented text or table following the term shall be considered an amendment to the Standard Specifications. In case of conflict between such amendments and the Standard Specifications, the amendments shall take precedence over and be used in lieu of the conflicting portions.

Attention is directed to Section 1 of the Standard Specifications and to the following additional and qualifying definitions.

Board of Supervisors – Board of Supervisors, Stanislaus County, State of California.

Contractor – Any person or persons, firm, partnership, corporation or a combination thereof who have entered into a contract with any person, corporation, company, special district, the County of Stanislaus as a party or parties of

the second part, or his or their legal representatives, for the construction of any capital improvement within the County of Stanislaus.

County – County of Stanislaus, a political subdivision of the State of California.

Design Engineer – Any person or persons, firm, partnership or corporation legally authorized to practice civil engineering in the State of California who prepares improvement plans and specifications for any improvement or portion of any improvement within the County of Stanislaus.

Department – State of California Department of Transportation and/or Department of Public Works, County of Stanislaus.

Developer/Subdivider – A person, firm, partnership, corporation, association, or agent thereof who causes land to be divided into a subdivision or causes existing property to be developed for himself or for others.

Director – The Public Works Director of County of Stanislaus, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties delegated to them.

Laboratory – Any testing agency or quality control firm licensed to practice in the State of California.

Owner – County of Stanislaus.

Project Plans – The project plans are specific details and dimensions peculiar to the work and are supplemented by the Standard Plans and Standard Drawings insofar as they may apply.

Special Provisions – The special provisions are specific clauses setting forth conditions or requirements peculiar to the work and supplementary to the Standard Specifications of the State of California.

Standard Plans – Standard Plans 2010 of the State of California Department of Transportation unless otherwise noted on the Project Plans.

Standard Specifications – Standard Specifications 2010 of the State of California, Department of Transportation.

SC-02 PROPOSAL REQUIREMENTS AND CONDITIONS

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

In addition to the subcontractors required to be listed in conformance with Section 2-1.33C, "Subcontractor List," of the Standard Specifications, each proposal shall have listed therein the portion of work that will be done by each subcontractor listed. A sheet for listing the subcontractors is included in Part III.

The form of Bidder's Bond mentioned in Section 2-1.34, "Bidder's Security," of the Standard Specifications will be found in Part III.

In conformance with Public Contract Code Section 7106, a Noncollusion Affidavit is included in Part III.

The contractor, subrecipient 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. Each subcontract signed by the bidder must include this assurance.

SC-03 BLANK

SC-04 BLANK

SC-05 EXCAVATION SAFETY PLANS

Attention is directed to Section 7-1.02K(6)(b), "Excavation Safety" of the Standard Specifications and these Special Conditions.

The Contractor’s attention is directed to the provisions, which require submitting a shoring/bracing plan for County’s Review and approval.

Approval by the Engineer of the shoring drawings or shoring inspection performed by the Engineer shall in no way relieve the Contractor of full responsibility for adequacy of the shoring.

When construction is taking place in a public area, the Contractor shall take all necessary precautions to protect the public from the hazards of open excavations. Trenches shall be covered at night, on weekends, and during non-working hours.

SC-06 CONTROL OF MATERIALS

Attention is directed to Section 6-1.01 of the Standard Specifications.

The Contractor shall comply with Section 6-2.03, “Department-Furnished Materials,” of the Standard Specifications and these Special Conditions. The following materials shall be furnished to the Contractor:

NONE

The Contractor shall be responsible for Quality Control. Contractor Quality Control shall comply with 6-3.04 of the Standard Specifications.

The County will perform Quality Assurance testing per 6-3.05 of the Standard Specifications and according to the Quality Assurance program (QAP) Manual for Use by Local Agencies as published by California Department of Transportation.

SC-07 LEGAL RELATIONS AND RESPONSIBILITY

Prevailing Wage and Certified Payrolls

The Contractor shall comply with Section 7-1.02K(2) “Wages” and Section 7-1.02K(3) “Certified Payroll Records” of the Standard Specifications.

The general prevailing wage rates determined by the Director of Industrial Relations, for the County in which the work is to be done, are available at the County of Stanislaus Department of Public Works, Engineering Division, 1716 Morgan Road, Modesto, CA 95358 and the Division of Labor Statistics and Research web page:

http://www.dir.ca.gov/DLSR/statistics_research.html

These wage rates are not included in the Proposal and Agreement for the project. Changes, if any, to the general prevailing wage rates will be available at the same location.

At each job site, the Contractor shall post the notice required by Section 16451(d) of Title 8, of the California Code of Regulations.

The Contractor and their subcontractors shall keep certified payroll records in accordance with Labor Code Section 1776 and shall provide those records on request. Contractors and subcontractors shall submit certified payrolls to the Compliance Monitoring Unit (CMU) at least monthly through CMU’s eCPR system at the following website:

<https://app.mylcm.com>

The Contractor shall be responsible for ensuring that their subcontractors comply with these requirements.

Apprentices

The Contractor shall comply with Section 7-1.02K(4) "Apprentices" of the Standard Specifications" to ensure compliance and complete understanding of the law regarding apprentices.

Water Pollution

Water Pollution Control shall comply with Section 13, "Water Pollution Control" of the Standard Specifications.

Sound Control Requirements

Sound control shall conform to the provisions in Section 14-8.02, "Noise Control," of the Standard Specifications and these Special Conditions.

The noise level from the Contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., shall not exceed 86 DBA at a distance of 50 feet. This requirement shall not relieve the Contractor from responsibility for complying with local ordinances regulating noise level.

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

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

Permits

Caltrans Encroachment Permit

NPDES Permit

The Contractor shall conform to the requirements of Section 5-1.20B "Permits, Licenses, Agreement, and Certification" of Standard Specifications and these Special Conditions. The Contractor shall conform to the requirements of:

NONE

Compensation for conforming to the requirements of "Permits" shall be included in the various items of work, and no additional compensation will be allowed.

Notice and Removal of Asbestos and Hazardous Substances

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

Contractor shall give a written Notice of Hazardous Materials Condition to County promptly, before any of the following conditions are disturbed except in an emergency as required by Article SC-22, Emergencies, and in no event later than twenty four (24) hours after first observance of any:

- a. Material that Contractor believes may be hazardous waste or hazardous material, as defined in Section 25117 of the Health and Safety Code (including, without limitation, asbestos, lead, PCBs, petroleum and related hydrocarbons, and radioactive material) that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law (“hazardous material”); or
- b. Other material that may present an imminent substantial danger to persons or property exposed thereto in connection with Work at the Site (“other materials”).

Except as otherwise provided in the Contract Documents or as provided by applicable law, Contractor shall not be required to give any notice for the disturbance or observation of any such hazardous materials or other materials where such matter is disturbed or observed as part of the scope of Work under the Contract Documents (such as hazardous waste or hazardous material investigation, remediation or disposal activities which are identified as the subject of Work under the Contract Documents), where Contractor complies with all requirements in the Contract Documents and applicable law respecting such materials.

Contractor’s Notice of Hazardous Materials Condition shall indicate whether the hazardous materials or other materials were shown or indicated in the Contract Documents to be within the scope of Work, and whether the hazardous materials or other materials were brought to the Site by Contractor, its Subcontractors, suppliers, or anyone else for whom Contractor is responsible.

Contractor shall not be entitled to any adjustment in the Contract Sum or Contract Time regarding claimed hazardous waste or materials if:

- a. Contractor knew of the existence of such hazardous materials or other materials at the time Contractor submitted its Bid; or
- b. Contractor should have known of the existence of such hazardous material or other materials as a result of its having the responsibility to obtain additional or supplementary examinations, investigation, explorations, tests, studies, and data concerning the conditions at or contiguous to the Site prior to submitting its Bid; or
- c. Contractor failed to give the written notice within the time required by this Article.

If County determines that conditions involve hazardous materials or other materials and that a change in Contract Document terms is justified, County will issue either a Request for Proposal or Construction Change Directive under the procedures described in the Contract Documents, including without limitation Article SC-17 Alterations and Modifications. If County determines that conditions do not involve hazardous materials or other materials or that no change in Contract Document terms is justified, County will notify Contractor in writing, stating the reasons for its determination.

If County and Contractor are unable to agree on entitlement to or as to the amount or length of any adjustment in the Contract Sum or Contract Time required under this section, Contractor shall proceed with the Work as directed by County and may make a claim as provided in Article SC-16, WORK DISPUTES.

In addition to the parties’ other rights under this section, if Contractor does not agree to resume Work based on a reasonable belief that it is unsafe, or does not agree to resume Work under special conditions, County may order the disputed portion of Work deleted from the Work, or performed by others, or County may invoke its right to terminate Contractor’s right to proceed under the Contract Documents in whole or in part, for convenience or for cause as the facts may warrant. If Contractor does not agree with County’s determination of any adjustment in the Contract Sum or Contract Time as a result, Contractor may make a claim as provided in Article SC-16, WORK DISPUTES.

In conformance with Section 25914.2 of the Health and Safety Code, removal of asbestos or hazardous substances including exploratory work to identify and determine the extent of the asbestos or hazardous substance will be performed by separate contract.

If exploratory or removal work delays the current controlling operation, the delay will be considered a right-of-way delay and the Contractor shall be compensated for the delay in conformance with the provisions in Section 8-1.07, “Delays” of the Standard Specifications.

Public Convenience

Where work is to be performed in residential or commercial driveways, suitable provisions approved by the Engineer shall be made by the Contractor prior to commencing work. The Contractor shall minimize the duration of said blocking and notify the property owners of this need at least forty-eight (48) hours in advance.

Contractor shall provide access to each residential or commercial establishment each evening. No driveway shall be closed over a weekend. No driveway shall be closed for more than a total of eight (8) hours. Where concrete has been removed, a temporary surface shall be placed suitable to provide vehicular access to the property if reconstruction has not been completed by that evening. Access to private property shall be provided at all times during construction except when access must be denied to protect forms or to permit improvements to be constructed. The County may require grading to the back of the new driveway approach so as to provide adequate access. Such work shall be done at no additional compensation.

Public Safety

The Contractor shall provide for the safety of traffic and the public in conformance with the provisions in Section 7-1.04, "Public Safety," of the Standard Specifications and these Special Conditions.

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

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

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

When traffic cones or delineators are used to delineate a temporary edge of a traffic lane, the line of cones or delineators shall be considered to be the edge of the traffic lane, however, the Contractor shall not reduce the width of an existing lane to by more than two (2) feet without written approval from the Engineer.

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

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

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

- A. The near edge of the excavation is 15' or less from the edge of the lane, except:
 - i. Excavations covered with sheet steel or concrete covers of adequate thickness to prevent accidental entry by traffic or the public.
 - ii. Excavations protected by existing barrier or railing.

- iii. Trenches less than 1' wide for irrigation pipe or electrical conduit, or excavations less than 1' in depth.
- B. Excavations parallel to the lane for the purpose of pavement widening or reconstruction.
- C. Excavations in side slopes, where the slope is steeper than 4:1 (horizontal:vertical).
- D. Temporarily Unprotected Permanent Obstacles. The work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and the Contractor elects to install the obstacle prior to installing the protective system; or the Contractor, for the Contractor's convenience and with permission of the Engineer, removes a portion of an existing protective railing at an obstacle and does not replace such railing complete in place during the same day.
- E. Storage Areas. Material or equipment is stored within 12' of the lane and the provisions of the Standard Specifications and these Special Conditions do not otherwise prohibit the storage.

The approach end of temporary railing (Type K), installed in conformance with the provisions in this section "Public Safety" and in Section 7-1.04 "Public Safety," of the Standard Specifications, shall be offset a minimum of 15' from the edge of the traffic lane open to public traffic. The temporary railing shall be installed on a skew toward the edge of the traffic lane of not more than 1' transversely to 10' longitudinally with respect to the edge of the traffic lane. If the 15' minimum offset cannot be achieved, the temporary railing shall be installed on the 10:1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules shall be installed at the approach end of the temporary railing.

Temporary railing (Type K) shall conform to the provisions in Section 12-3.08 "Type K Temporary Railing," of the Standard Specifications. Temporary railing (Type K) conforming to the details shown on 2010 Standard Plan T3A and B, may be used.

Temporary crash cushion modules shall conform to the provisions in Section 12-3.15, "Temporary Crash Cushion Module" of the Standard Specifications.

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

Cooperation

The Contractor shall conform to the requirements of Section 5-1.20 "Coordination with Other Entities" of the Standard Specifications and these Special Conditions.

Compensation for conforming to the requirements of "Cooperation" shall be included in the various items of work and no additional compensation will be allowed.

SC-08 PROSECUTION AND PROGRESS

Subcontracting

Attention is directed to the provisions in Section 5-1.13, "Subcontracting," of the Standard Specifications, and SC-2, "Proposal Requirements and Conditions," of these Special Conditions.

Pursuant to the provisions of Section 1777.1 of the Labor Code, the Labor Commissioner publishes and distributes a list of contractors ineligible to perform work as a subcontractor on a public works project. This list of debarred contractors is available from the Department of Industrial Relations web site at:

<http://www.dir.ca.gov/DLSE/Debar.html>

Each subcontract and any lower tier subcontract that may in turn be made shall include the "Required Contract Provisions Federal-Aid Construction Contracts" in SC-12 of these Special Conditions. This requirement shall be enforced as follows:

Noncompliance shall be corrected. Payment for subcontracted work involved shall be withheld from progress payments due, or to become due, until correction is made. Failure to comply may result in termination of the contract.

Prosecution

The Contractor shall comply with the provisions in Section 8-1.04B, "Standard Start," Section 8-1.05, "Time," and Section 8-1.10, "Liquidated Damages," of the Standard Specifications and these Special Provisions.

Liquidated Damages

The County will withhold liquidated damages as described in Section 8-1.10, "Liquidated Damages", of the Standard Specifications. The actual daily withhold will be determined according to the chart in Section 8-1.10A, "General", of the Standard Specifications.

The amount specified may, at the option of the County, be deducted from any payments due or to become due to the Contractor.

County may deduct from any money due or to become due to Contractor subsequent to time for completion of entire Work and extensions of time allowed pursuant to provisions hereof, a sum representing then-accrued liquidated damages. Should Contractor fall behind the approved Progress Schedule, County may deduct liquidated damages based on its estimated period of late completion. County need not wait until Final Completion to withhold liquidated damages from Contractor's progress payments. Should money due or to become due to Contractor be insufficient to cover aggregate liquidated damages due, then Contractor forthwith shall pay the remainder of the assessed liquidated damages to County.

Preconstruction Conference

Prior to the issuance of the Notice to Proceed, a pre-construction conference shall be held at the County of Stanislaus, Department of Public works, Engineering Division, 1716 Morgan Road, Modesto, California, for the purpose of discussing with the Contractor the scope of work, contract drawings, specifications, existing conditions, materials to be ordered, equipment to be used, and all essential matters pertaining to the prosecution of and the satisfactory completion of the project as required. The Contractor's representative at this conference shall include all major superintendents for the work and may include subcontractors.

SC-09 MEASUREMENT AND PAYMENT

Withholds

The County may withhold payment for noncompliance per Section 9-1.16E, "Withholds", of the Standard Specifications.

Partial Payments

Attention is directed to Section 9-1.16, "Progress Payments," and 9-1.17, "Payment After Contract Acceptance," of the Standard Specifications and these Special Conditions.

For the purpose of making progress payments pursuant to Section 9-1.16, "Progress Payments," of the Standard Specifications, the amount set forth for the contract items of work hereinafter listed shall be deemed to be the maximum value of said contract item of work which will be recognized for progress payment purposes.

NONE

After acceptance of the contract pursuant to Section 5-1.46, "Final Inspection and Contract Acceptance," of the Standard Specifications, the amount, if any, payable for a contract item of work in excess of the maximum value for progress payment purposes hereinabove listed for said item, will be included for payment in the first estimate made after acceptance of the contract.

No partial payment will be made for any materials on hand which are furnished but not incorporated in the work.

Payment of Withheld Funds

Pursuant to and in accordance with the provisions of Public Contract Code Section 22300, the contractor may elect to substitute securities for retention monies withheld by the County or to request payment of retention monies earned to an escrow agent.

Final Payment and Claims

Attention is directed to Section 9-1.17D, "Final Payment and Claims," of the Standard Specifications.

SC-10 GEOTECHNICAL DATA AND EXISTING CONDITIONS

The following geotechnical data and existing conditions data is provided to assist the bidder in preparing their bid. This data is supplied for informational purposes. These materials are not contract documents and Contractor shall not in any manner rely on the information in these materials. Subject to the foregoing, Contractor shall make its own independent investigation of all conditions affecting the Work and must not rely on information provided by County.

GEOTECHNICAL DESIGN REPORT

FOUNDATION REPORT

SC-11 SITE DATA

The following site data is provided to assist the bidder in preparing their bid. This data is supplied for informational purposes. These materials are not contract documents and Contractor shall not in any manner rely on the information in these materials. Subject to the foregoing, Contractor shall make its own independent investigation of all conditions affecting the Work and must not rely on information provided by County.

NONE

SC-12 FEDERAL AID CONSTRUCTION CONTRACTS

The Contractors attention is directed to the following Federal Requirements for Federal-Aid Construction Projects:

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

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.

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 of Lobbying Activities," in conformance with its 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 prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts which exceed \$100,000 and that all such subrecipients shall certify and disclose accordingly.

The bidder shall complete the Disclosure of Lobbying Activities form included in Part III, "Proposal" which shall be submitted with its bid.

Federal Lobbying Restrictions

Section 1352, Title 21, United States Code prohibits Federal funds being expended by the recipient or any lower tier sub recipient of a Federal-aid contract to pay for any person for influencing or attempting to influence a Federal agency or Congress in connection with the awarding of any Federal-aid contract, the making of any Federal grant or loan, or the entering into of any cooperative agreement.

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

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

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

The Contractor, subcontractors and any lower-tier contractors shall file a disclosure form at the end of each calendar quarter in which there occurs any event that requires disclosure or that materially affects the accuracy of the information contained in any disclosure form previously filed by the Contractor, subcontractors and any lower-tier contractors. An event that materially affects the accuracy of the information reported includes:

A 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

A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal Action.

Disadvantaged Business Enterprise (DBE)

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

The Contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of BOT-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).

Make work available to DBEs and select work parts consistent with available DBE subcontractors and suppliers.

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

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

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

DBE participation will count towards the Agency's Annual Anticipated DBE Participation Level and the California statewide goal.

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

1. 100 percent counts if the materials or supplies are obtained from a DBE manufacturer.
2. 60 percent counts 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 count if obtained from a DBE that is neither a manufacturer or regular dealer. 49 CFR 26.55 defines "manufacturer" and "regular dealer."

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

DBE Commitment Submittal

Submit DBE information on the "Local Agency Bidder-DBE Commitment (Construction Contracts)," Exhibit 15-G1 form included in Part III, "Proposal". If the form is not submitted with the bid, remove the form from the Bid book before submitting your bid.

If the DBE Commitment form is not submitted with the bid, the apparent low bidder, the 2nd low bidder, and the 3rd low bidder must complete and submit the DBE Commitment form to the Agency. DBE Commitment form must be received by the Agency no later than 4:00 p.m. on the 4th business day after bid opening.

Other bidders do not need to submit the DBE Commitment form unless the Agency requests it. If the Agency requests you to submit a DBE Commitment form, submit the completed form within 4 business days of the request.

Submit written confirmation from each DBE stating that it is 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 is participating in the contract.

If you do not submit the DBE Commitment form within the specified time, the Agency finds your bid nonresponsive.

Good Faith Efforts Submittal

If you have not met the DBE goal, complete and submit the "DBE Information - Good Faith Efforts," Exhibit 15-H, form with the bid showing that you made adequate good faith efforts to meet the goal. If good faith efforts documentation is not submitted with the bid, it must be received by the Agency no later than 4:00 p.m. on the 4th business day after bid opening.

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 also submit good faith efforts documentation within the specified time to protect your eligibility for award of the contract in the event the Agency finds that the DBE goal has not been met.

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

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

Final Report – Utilization of Disadvantaged Business Enterprises

The Contractor shall submit the Final Report –Utilization of Disadvantaged Business Enterprises (DBE), First – Tier Subcontractors Form (Exhibit 17-F) to the Resident Engineer within ten (10) days following final payment to the subcontractor(s).

SC-13 BLANK

SC-14 BONDS

General

At or before the date indicated in Part II – INFORMATION TO BIDDERS, Contractor shall file with County the following bonds:

- a. Corporate surety bond, in the form of Construction Performance Bond, in the penal sum of 100% of the Contractor's Bid as accepted, to guaranty faithful performance of the Work; and
- b. Corporate surety bond, in the form of Construction Labor and Material Payment Bond, in the penal sum of 100% of the Contractor's Bid as accepted, to guaranty payment of wages for services engaged and of bills contracted for materials, supplies, and equipment used in performance of Contract Documents.

Sureties shall be satisfactory to County. Corporate sureties on these bonds and on bonds accompanying Bids shall be duly licensed to do business in the State of California and shall have an A.M. Best Company financial rating of [A,VII] or better in termination of the contract.

SC-15 INSURANCE

At or before the date specified in Instructions to Bidders, Contractor shall furnish to County satisfactory proof that Contractor has in force continuously for the entire period covered by the Contract the following classes of insurance in the form and with limits and deductibles specified below:

- a. Comprehensive or Commercial General Liability Insurance covering claims for personal injury, bodily injury and property damage arising out of the Work and in a form providing coverage not less than that of a Standard Commercial General Liability Insurance policy ("Occurrence Form"). Such insurance shall provide for all operations and include independent contractors, products liability, completed operations for one year after Final Completion of the last phase to be completed and acceptance of the final payment for the Work, contractual liability, and coverage for explosion, collapse and underground hazards.
- b. The limits of such insurance shall not be coverage of less than \$3,000,000 each occurrence, \$3,000,000 general aggregate limit, and \$3,000,000] aggregate for products and completed operations. The policies shall be endorsed to provide Broad Form Property Damage Coverage.
- c. Comprehensive Automobile Liability Insurance covering all owned, non-owned, and hired vehicles. Such insurance shall provide coverage not less than the standard Comprehensive Automobile Liability policy with limits not less than \$1,000,000 each person Bodily Injury, \$1,000,000 each occurrence Bodily Injury and \$1,000,000 each occurrence Property Damage (or \$1,000,000 combined single limit, each accident).
- d. Workers' Compensation and Employer's Liability Insurance for all persons whom the Contractor may employ in carrying out Work contemplated under Contract Documents, in accordance with the Act of Legislature of State of California, known as "Workers' Compensation Insurance and Safety Act," approved May 26, 1913, and all acts amendatory or supplemental thereto, in the statutory amount.
- e. All-Risk Course of Construction Insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake,

collapse, debris removal, demolition occasioned by enforcement of Laws, water damage, flood, and damage caused by frost and freezing, in the amount of 100 percent of the completed value of the Work to be performed under this Contract. Deductible shall not exceed \$25,000. Each loss shall be borne by Contractor.

All policies of insurance shall be placed with insurers acceptable to County. The insurance underwriter(s) must be duly licensed to do business in the State of California and (other than for workers' compensation) must have an A. M. Best Company rating of [A,VII] or better. Required minimum amounts of insurance may be increased should conditions of Work, in opinion of County, warrant such increase. Contractor shall increase required insurance amounts upon direction by County.

Required Endorsements: The policies required under paragraphs A, B, AND C, shall be endorsed, in a form and manner acceptable to County, as follows:

1. Name County of Stanislaus, its Board of Supervisors and their employees, representatives, consultants (including without limitation Engineer), and agents, as additional insureds, but only with respect to liability arising out of the activities of the named insured.
2. Each such policy shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limit of the insurance company's liability required under paragraphs A, B, AND C.
3. Insurance shall be primary and no other insurance or self-insured retention carried or held by County shall be called upon to contribute to a loss covered by insurance for the named insured.
4. Insurance shall contain a provision requiring the insurance carriers to waive their rights of subrogation against County and all additional insureds, as well as other insurance carriers for the Work

Declarations Pages Required. Contractor or its insurance broker shall submit a copy of the Declarations page for each policy under Sections A AND B above. The page shall include the name of the carrier, the policy number, the types of coverage and limits, the effective dates of the policy, and the broker's name and license number.

Certificates of insurance and endorsements shall have clearly typed thereon County Contract Number and title of Contract Documents. Written notice of cancellation, non-renewal, or reduction in coverage of any policy shall be mailed to County, Attention: Administrative Services Division at the address listed in Agreement, thirty (30) Days in advance of the effective date of the cancellation, non-renewal, or reduction in coverage. Contractor shall maintain insurance in full force and effect during entire period of performance of Contract Documents. Contractor shall keep insurance in force during warranty and guarantee periods, except that Contractor may discontinue All-Risk Course of Construction Insurance after Final Payment. At time of making application for extension of time, and during all periods exceeding the Contract Time resulting from any cause, Contractor shall submit evidence that insurance policies will be in effect during requested additional period of time. Upon County's request, Contractor shall submit to County, within thirty (30) Days, copies of the actual insurance policies or renewals or replacements.

Contractor shall pay all insurance premiums, including any charges for required waivers of subrogation or the endorsement of additional insureds. If Contractor fails to maintain insurance, County may take out comparable insurance, and deduct and retain amount of premium from any sums due Contractor under Contract Documents.

If injury occurs to any employee of Contractor, Subcontractor or sub-subcontractor for which the employee, or the employee's dependents in the event of employee's death, is entitled to compensation from County under provisions of the Workers' Compensation Insurance and Safety Act, as amended, or for which compensation of any kind is claimed from County, County may retain out of sums due Contractor under Contract Documents, amount sufficient to cover such compensation, as fixed by the Act, as amended, until such compensation is paid, or until it is determined that no compensation is due. If County is compelled to pay compensation, County may, in its discretion, either deduct and retain from the Contract Sum the amount so paid, or require Contractor to reimburse County.

Nothing in this Article shall be construed as limiting in any way the extent to which Contractor or any Subcontractor may be held responsible for payment of damages resulting from their operations.

Except that Subcontractors need obtain only \$1,000,000 of Comprehensive General Liability insurance, all Subcontractors shall maintain the same insurance required to be maintained by Contractor with respect to their portions of the Work, and Contractor shall cause the Subcontractors to furnish proof thereof to County within ten Days of County's request.

The following provisions apply to any licensed professional engaged by Contractor to perform portions of the Work ("Professional").

1. Each Professional shall maintain the following insurance at its sole cost and expense:
 - a. Provided such insurance is customarily required by County when professionals engaged in the profession practiced by Professional directly contract with County, Professional Liability Insurance, insuring against professional errors and omissions arising from Professional's work on the Project, in an amount not less than \$1,000,000 combined single limit for each occurrence. If Professional cannot provide an occurrence policy, Professional shall provide insurance covering claims made as a result of performance of Work on this Project and shall maintain such insurance in effect for not less than three years following Final Completion of the Project.
 - b. All insurance required by this section shall satisfy all other provisions of this Article relating to that insurance, including without limitation providing required insurance certificates (containing the required endorsements) and declarations pages before commencing its Work on the Project.

If required by County, Contractor shall obtain and maintain Contractor's Pollution Legal Liability Insurance in a form, with limits, and from an insuring entity reasonably satisfactory to County.

SC-16 WORK DISPUTES

All disputes shall comply with the requirements set forth in section 5-1.43, "Potential Claim and Dispute Resolution," of the Standard Specifications.

SC-17 ALTERATIONS AND MODIFICATIONS

The County reserves the right to make changes to the plans and specifications in accordance with section 4-1.05, "Changes and Extra Work," of the Standard Specifications.

SC-18 DISCOVERY OF CONFLICTS, ERRORS, OMISSIONS, OR DISCREPANCIES

In case of discovery by Contractor of conflict, discrepancies, errors, or omissions among the various Contract Documents the matter shall be submitted in writing by Contractor to Engineer for clarification. Any work affected by Contractor prior to clarification by Engineer shall be at Contractor's risk.

SC-19 DIFFERING SITE CONDITIONS

See Section 4-1.06, "Differing Site Conditions" of the Standard Specifications.

If either of the following conditions is encountered at Site when digging trenches or other excavations that extend deeper than four (4) feet below the surface, Contractor shall give a written Notice of Differing Site Conditions to County promptly before conditions are disturbed, except in an emergency as required by Article SC-22, Emergencies, and in no event later than seven (7) days after first observance of:

- a. Subsurface or Latent physical conditions which differ materially from those indicated in the Contract Documents; or
- b. Unknown physical conditions of an unusual nature or which differ materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents.

In response to Contractor's Notice of Differing Site Conditions under this paragraph, County will investigate the identified conditions, and if they differ materially and cause increase or decrease in Contractor's cost of, or time required for, performance of any part of the Work, County will issue either a Request for Proposal or a Construction Change Directive under the procedures described in the Contract Documents, including without limitation Article SC-17 Alterations and Modifications. If County determines that physical conditions at the Site are not latent or are not materially different from those indicated in Contract Documents or that no change in terms of the Contract Documents is justified, County will so notify Contractor in writing, stating reasons.

Contractor shall not be entitled to any adjustment in the Contract Sum or Contract Time regarding claimed Latent or materially different Site conditions (whether above or below grade) if:

- a. Contractor knew of the existence of such conditions at the time Contractor submitted its Bid; or
- b. Contractor should have known of the existence of such conditions as a result of having complied with the requirements of Contract Documents, or
- c. Contractor was required to give written Notice of Differing Site Conditions and failed to do so within the time required.

SC-20 BLANK

SC-21 TIME ADJUSTMENT AND ENTITLEMENTS FOR DELAYS

Contractor may receive a time extension and be compensated for delays caused directly and solely by the County. Submit an RFI per Section 8-1.07, "Delays", of the Standard Specifications.

All delay related time adjustments shall be per Section 8-1.07B, "Time Adjustments" of the Standard Specifications.

All delay related payment adjustments shall be per Section 8-1.07C, "Payment Adjustments", of the Standard Specifications.

SC-22 EMERGENCIES

In emergencies affecting the safety or protection of persons or Work or property at the Site or adjacent thereto, Contractor, without special instruction or authorization from County, is obligated to act to prevent threat and damage, injury or loss, until directed otherwise by County. Contractor shall give County prompt written notice if Contractor believes that any significant changes in Work or variations from Contract Documents have been caused thereby. If County determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Change Order or Construction Change Directive will be issued to document the consequences of such action.

SC-23 WORKING HOURS AND LEGAL HOLIDAYS

County will provide inspectors during normal hours of work at no cost to the Contractor. Normal hours of work shall be defined as hours between 7 a.m. and 5 p.m. any day Monday through Friday of any week, excluding the following legal holidays:

- New Year’s Day, January 1
- Martin Luther King Day, January, third Monday
- President’s Day, February, third Monday
- Memorial Day, May, last Monday
- Independence Day, July 4
- Labor Day, September, first Monday
- Veteran’s Day, November 11
- Thanksgiving Day, November, fourth Thursday
- Friday after Thanksgiving Day
- Christmas Eve, 1PM -5PM
- Christmas Day, December 25

If the Contractor elects to schedule work outside normal hours of work, the Contractor shall request the additional days or hours at least forty-eight (48) hours prior to the work. No work shall be done outside of the normal working hours, without the prior consent of the County. The Contractor shall be responsible for payment to the County for providing inspectors for those days or hours. Inspector costs shall be the full reimbursable rate established by the County. Rates will be available to the Contractor at the pre-construction meeting if requested.

SC-24 SUBMITTALS

Each submittal should meet the requirements of Section 5-1.23, “Submittals”, of the Standard Specification and these Special Conditions.

Each Submittal must include:

1. Contract Number.
2. Designation as an “Action” or “Informational” Submittal
3. Sequential submittal number
4. A concise description of the material or item submitted
5. Be referenced to the bid item and Specification section

Submittals may be rejected if they are missing required information or do not meet the requirements of the Specification.

COPY OF BID ITEM LIST

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
1	70012	PROGRESS SCHEDULE (CRITICAL PATH METHOD)	LS	LUMP SUM
2	71301	TEMPORARY FENCE	LF	2,490
3	71325	TEMPORARY FENCE (TYPE ESA)	LF	1,160
4	73006	18" TEMPORARY CULVERT	LF	240
5	74019	PREPARE STORM WATER POLLUTION PREVENTION PLAN	LS	LUMP SUM
6	74027	TEMPORARY EROSION CONTROL BLANKET	SQYD	8,080
7	70028	TEMPORARY FIBER ROLL	LF	19,800
8	74029	TEMPORARY SILT FENCE	LF	19,200
9	74033	TEMPORARY CONSTRUCTION ENTRANCE	EA	2
10	74037	MOVE-IN/MOVE-OUT (TEMPORARY EROSION CONTROL)	EA	12
11	74038	TEMPORARY DRAINAGE INLET PROTECTION	EA	120
12	74040	TEMPORARY HYDRAULIC MULCH (BONDED FIBER MATRIX)	SQYD	41,400
13	74041	STREET SWEEPING	LS	LUMP SUM
14	74042	TEMPORARY CONCRETE WASHOUT (PORTABLE)	LS	LUMP SUM
15	74056	RAIN EVENT ACTION PLAN	EA	96
16	74057	STORM WATER ANNUAL REPORT	EA	4
17	74058	STORM WATER SAMPLING AND ANALYSIS DAY	EA	26
18	90100	TIME-RELATED OVERHEAD (WDAY)	WDAY	720
19	120090	CONSTRUCTION AREA SIGNS	LS	LUMP SUM
20	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM
21	120165	CHANNELIZER (SURFACE MOUNTED)	EA	870

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
22	128650	PORTABLE CHANGEABLE MESSAGE SIGN	LS	LUMP SUM
23	129000	TEMPORARY RAILING (TYPE K)	LF	21,600
24	129100	TEMPORARY CRASH CUSHION MODULE (TYPE ARRAY)	EA	260
25	129101A	TEMPORARY CRASH CUSHION MODULE ABSORB 350 (TYPE TL2)	EA	7
26	129150	TEMPORARY TRAFFIC SCREEN	LF	20,400
27	130100	JOB SITE MANAGEMENT	LS	LUMP SUM
28	141101	REMOVE YELLOW PAINTED TRAFFIC STRIPE (HAZARDOUS WASTE)	LF	42,300
29	141103	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	LF	7,850
30	141104	REMOVE YELLOW THERMOPLASTIC PAVEMENT MARKING (HAZARDOUS WASTE)	SQFT	110
31	150204	ABANDON CULVERT	LF	770
32	150230	DESTROY WELL	EA	1
33	150608	REMOVE FENCE	LF	1,180
34	150646	REMOVE PEDESTRIAN BARRICADE	EA	3
35	150666A	REMOVE SINGLE THRIE BEAM BARRIER	LF	1,370
36	150668	REMOVE FLARED END SECTION	EA	7
37	150711	REMOVE PAINTED TRAFFIC STRIPE	LF	107,000
38	150712	REMOVE PAINTED PAVEMENT MARKING	SQFT	12,900
39	150714	REMOVE THERMOPLASTIC TRAFFIC STRIPE	LF	22,600
40	150715	REMOVE THERMOPLASTIC PAVEMENT MARKING	SQFT	6,120
41	150722	REMOVE PAVEMENT MARKER	EA	3,350

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
42	150742	REMOVE ROADSIDE SIGN	EA	73
43	150747	REMOVE ROADSIDE SIGN (SSBM)	EA	2
44	150771	REMOVE HMA DIKE	LF	1,270
45	150809	REMOVE CULVERT	LF	2,360
46	150820	REMOVE INLET	EA	27
47	150826	REMOVE MANHOLE	EA	5
48	151270	SALVAGE METAL BRIDGE RAILING	LF	480
49	151540	RECONSTRUCT CHAIN LINK FENCE (TYPE CL-6)	LF	1,900
50	152440	ADJUST MANHOLE TO GRADE	EA	7
51	152604	MODIFY INLET	EA	5
52	153103	COLD PLANE ASPHALT CONCRETE PAVEMENT (0.15' Maximum)	SQYD	1,290
53	153121	REMOVE CONCRETE	CY	810
54	153212A	REMOVE EXISTING PUMPING PLANT (PORTION)	LS	LUMP SUM
55	153251	REMOVE SOUND WALL	LF	260
56	157550	BRIDGE REMOVAL	LS	LUMP SUM
57	160102	CLEARING AND GRUBBING	LS	LUMP SUM
58	190101	ROADWAY EXCAVATION	CY	40,800
59	190105	ROADWAY EXCAVATION (TYPE Z-2) (ADL)	CY	1,010
60	190110	LEAD COMPLIANCE PLAN	LS	LUMP SUM
61	190118A	DUST CONTROL PLAN	LS	LUMP SUM

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
62	190185	SHOULDER BACKING	TON	85
63	192003	STRUCTURE EXCAVATION (BRIDGE) (F)	CY	1,319
64	869001A	ELECTRIC SERVICE EXTENSION	LS	LUMP SUM
65	192026	STRUCTURE EXCAVATION (PUMPING PLANT) (F)	CY	4,124
66	192027	STRUCTURE BACKFILL (PUMPING PLANT) (F)	CY	1,775
67	192037	STRUCTURE EXCAVATION (RETAINING WALL) (F)	CY	5,795
68	193003	STRUCTURE BACKFILL (BRIDGE) (F)	CY	1,036
69	193013	STRUCTURE BACKFILL (RETAINING WALL) (F)	CY	4,169
70	193114	SAND BACKFILL	CY	130
71	200052	PRUNE EXISTING PLANTS	LS	LUMP SUM
72	200102	IMPORTED TOPSOIL	CY	26
73	200110	PREPARE HOLES	EA	44
74	200120	CULTIVATE - GROUND COVER	SQYD	32,800
75	200122	WEED GERMINATION	SQYD	32,800
76	202006	SOIL AMENDMENT - (40 TREES)	CY	26
77	202034	FERTILIZER (TABLET)	EA	40
78	202037	ORGANIC FERTILIZER - GROUND COVER	SQYD	32,800
79	203021	FIBER ROLLS	LF	3,300
80	204008	PLANT (GROUP H) (UNROOTED CUTTING)	EA	158,000
81	204038	PLANT (GROUP U) (NO. 15)	EA	40

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
82	204096	MAINTAIN EXISTING PLANTED AREAS	LS	LUMP SUM
83	204099	PLANT ESTABLISHMENT WORK	LS	LUMP SUM
84	206560	CONTROL & NEUTRAL CONDUCTORS (ARMOR-CLAD)	LS	LUMP SUM
85	206602	1" ELECTRIC REMOTE CONTROL VALVE	EA	8
86	206604	1 1/2" ELECTRIC REMOTE CONTROL VALVE	EA	78
87	206605	2" ELECTRIC REMOTE CONTROL VALVE	EA	18
88	206607	3" ELECTRIC REMOTE CONTROL VALVE	EA	1
89	206615A	3" FLOW SENSOR ELECTRIC TRANSMITTER	EA	1
90	206755A	IRRIGATION CONTROLLER (WALL MOUNT) 48 STATION	EA	1
91	206755B	IRRIGATION CONTROLLER (WALL MOUNT) 32 STATION	EA	1
92	206755C	IRRIGATION CONTROLLER (WALL MOUNT) 40 STATION	EA	1
93	206755D	LOCAL RADIO HUB	EA	1
94	208262	3/4" PLASTIC PIPE (PR 200) (SUPPLY LINE)	LF	5,110
95	208263	1" PLASTIC PIPE (PR 200) (SUPPLY LINE)	LF	7,700
96	208264	1 1/4" PLASTIC PIPE (PR 200) (SUPPLY LINE)	LF	10,500
97	208265	1 1/2" PLASTIC PIPE (PR 200) (SUPPLY LINE)	LF	7,060
98	208266	2" PLASTIC PIPE (PR 200) (SUPPLY LINE)	LF	8,710
99	208267	2 1/2" PLASTIC PIPE (PR 200) (SUPPLY LINE)	LF	1,320
100	208270	4" PLASTIC PIPE (PR 200) (SUPPLY LINE)(MAIN R/T)	LF	8,440
101	208279	4" PLASTIC PIPE (PR 315) (SUPPLY LINE)	LF	530

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
102	208280	6" PLASTIC PIPE (PR 315) (SUPPLY LINE)	LF	230
103	208281	6" PLASTIC PIPE (PR 200) (SUPPLY LINE)(MAIN R/T)	LF	410
104	208301	IRRIGATION CONTROLLER ENCLOSURE CABINET	EA	4
105	208304	3" WATER METER	EA	1
106	208421	BACKFLOW PREVENTER ASSEMBLY ENCLOSURE	EA	1
107	208428	3" BACKFLOW PREVENTER ASSEMBLY	EA	1
108	208465	SPRINKLER (TYPE A-5) GEAR DRIVEN	EA	660
109	208466	SPRINKLER (TYPE A-6) GEAR DRIVEN	EA	290
110	208482	SPRINKLER (TYPE C-2) BUBBLER	EA	45
111	208589	4" GATE VALVE	EA	10
112	208590	6" GATE VALVE	EA	4
113	208630	2" WYE STRAINER	EA	28
114	208633A	3" PRESSURE REGULATING VALVE	EA	1
115	208683	2" BALL VALVE	EA	28
116	208706A	4" DIA (CHARTER COMMUNICATION) CONDUIT (BRIDGE)	LF	310
117	208740	12" CORRUGATED HIGH DENSITY POLYETHYLENE PIPE CONDUIT (F)	LF	700
118	209503	BOOSTER PUMP SYSTEM	EA	1
119	210430	HYDROSEED	SQFT	66,100
120	210600	COMPOST	SQFT	22,500
121	260203	CLASS 2 AGGREGATE BASE	CY	18,500

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
122	390132	HOT MIX ASPHALT (TYPE A)	TON	24,200
123	390137	RUBBERIZED HOT MIX ASPHALT (GAP GRADED)	TON	4,000
124	394053	SHOULDER RUMBLE STRIP (HMA, GROUND-IN INDENTATIONS)	STA	19
125	394060	DATA CORE	LS	LUMP SUM
126	394073	PLACE HOT MIX ASPHALT DIKE (TYPE A)	LF	1,670
127	394074	PLACE HOT MIX ASPHALT DIKE (TYPE C)	LF	190
128	394076	PLACE HOT MIX ASPHALT DIKE (TYPE E)	LF	3,840
129	394077	PLACE HOT MIX ASPHALT DIKE (TYPE F)	LF	75
130	490603	24" CAST-IN-DRILLED-HOLE CONCRETE PILING	LF	4,510
131	490604	30" CAST-IN-DRILLED-HOLE CONCRETE PILING	LF	4,060
132	498016	16" CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL)	LF	860
133	510051	STRUCTURAL CONCRETE, BRIDGE FOOTING (F)	CY	596
134	510053	STRUCTURAL CONCRETE, BRIDGE (F)	CY	1,652
135	510060	STRUCTURAL CONCRETE (RETAINING WALL) (F)	CY	1,360
136	510069	STRUCTURAL CONCRETE (PUMPING PLANT) (F)	CY	854
137	510086	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N) (F)	CY	307
138	510502	MINOR CONCRETE (MINOR STRUCTURE) (F)	CY	180
139	511035	ARCHITECTURAL TREATMENT (RETAINING WALL) (F)	SQFT	4,620
140	511055A	ARCHITECTURAL TEXTURE (BENT CAP AND COLUMN)	SQFT	950
141	511064	FRACTURED RIB TEXTURE (F)	SQFT	1,104

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
142	511106	DRILL AND BOND DOWEL	LF	1,150
143	512278A	FURNISH PRECAST PRESTRESSED CONCRETE WIDE FLANGE GIRDER (100' - 110')	EA	32
144	512500A	ERECT PRECAST PRESTRESSED CONCRETE GIRDER (F)	EA	32
145	518002	SOUNDWALL (MASONARY BLOCK) (F)	SQFT	2,030
146	519088	JOINT SEAL (MR 1")	LF	280
147	520102	BAR REINFORCING STEEL (BRIDGE) (F)	LB	849,258
148	520103	BAR REINFORCING STEEL (RETAINING WALL) (F)	LB	131,195
149	520113	BAR REINFORCING STEEL (PUMPING PLANT) (F)	LB	226,099
150	550101	STRUCTURAL STEEL (PUMPING PLANT) (F)	LB	8,479
151	560203	FURNISH SIGN STRUCTURE (BRIDGE MOUNTED WITH WALKWAY) (F)	LB	3,681
152	560204	INSTALL SIGN STRUCTURE (BRIDGE MOUNTED WITH WALKWAY) (F)	LB	3,681
153	560218	FURNISH SIGN STRUCTURE (TRUSS) (F)	LB	91,318
154	560219	INSTALL SIGN STRUCTURE (TRUSS) (F)	LB	91,318
155	560244	FURNISH LAMINATED PANEL SIGN (TYPE A) (OVERHEAD)	SQFT	820
156	560248	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063"-UNFRAMED)	SQFT	460
157	560249	FURNISH SINGLE SHEET ALUMINUM SIGN (0.080"-UNFRAMED)	SQFT	300
158	560251	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063"-FRAMED)	SQFT	310
159	561016	60" CAST-IN-DRILLED-HOLE CONCRETE PILE (SIGN FOUNDATION)	LF	190
160	566011	ROADSIDE SIGN - ONE POST	EA	84
161	566012	ROADSIDE SIGN - TWO POST	EA	6

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
162	568001	INSTALL SIGN (STRAP AND SADDLE BRACKET METHOD)	EA	19
163	641105A	16" WATER LINE	LF	590
164	650014	18" REINFORCED CONCRETE PIPE	LF	1,280
165	650018	24" REINFORCED CONCRETE PIPE	LF	8,420
166	650026	36" REINFORCED CONCRETE PIPE	LF	140
167	650065	96" REINFORCED CONCRETE PIPE	LF	180
168	655416	JACKED 24" REINFORCED CONCRETE PIPE (CLASS IV)	LF	430
169	680905	8" PERFORATED PLASTIC PIPE UNDERDRAIN	LF	990
170	705206	24" CONCRETE FLARED END SECTION	EA	4
171	707118A	36" GCP INLET	LF	71
172	721028	ROCK SLOPE PROTECTION (No. 2, METHOD B) (F)	CY	24
173	721810	SLOPE PAVING (PATTERNED CONCRETE)	CY	130
174	731502	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	CY	850
175	731531A	MINOR CONCRETE (TEXTURED PAVING) CONTRASTED GORE	SQFT	9,000
176	740550	PUMPING PLANT EQUIPMENT	LS	LUMP SUM
177	741001	PUMPING PLANT ELECTRICAL EQUIPMENT	LS	LUMP SUM
178	750001	MISCELLANEOUS IRON AND STEEL (F)	LB	29,414
179	750501	MISCELLANEOUS METAL (BRIDGE) (F)	LB	72,000
180	800007	FENCE (TYPE BW, 5 STRAND, METAL POST)	LF	360
181	800321	CHAIN LINK FENCE (TYPE CL-4, BLACK VINYL-CLAD)	LF	1,430

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
182	800365	CHAIN LINK FENCE (TYPE CL-6, SLATTED)	LF	300
183	802520	6' CHAIN LINK GATE (TYPE CL-6)	EA	3
184	820107	DELINEATOR (CLASS 1)	EA	58
185	820118	GUARD RAILING DELINEATOR (TYPE F)	EA	11
186	820132	OBJECT MARKER (TYPE L)	EA	7
187	832001	METAL BEAM GUARD RAILING	LF	430
188	832015A	BOLLARD	EA	13
189	833033	CHAIN LINK RAILING (TYPE 7 MODIFIED)	LF	490
190	833142	CONCRETE BARRIER (TYPE 26 MODIFIED) (F)	LF	528
191	839301	SINGLE THRIE BEAM BARRIER	LF	1,370
192	839514	HANDRAILING	LF	50
193	839541	TRANSITION RAILING (TYPE WB)	EA	2
194	839581	END ANCHOR ASSEMBLY (TYPE SFT)	EA	6
195	839582	END ANCHOR ASSEMBLY (TYPE CA)	EA	10
196	839585	ALTERNATIVE FLARED TERMINAL SYSTEM	EA	6
197	839704	CONCRETE BARRIER (TYPE 60D)	LF	1,050
198	839724	CONCRETE BARRIER (TYPE 736S) (F)	LF	191
199	839734	CONCRETE BARRIER (TYPE 736SV) (F)	LF	277
200	840504	4" THERMOPLASTIC TRAFFIC STRIPE	LF	37,400
201	840506	8" THERMOPLASTIC TRAFFIC STRIPE	LF	8,010

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
202	840515	THERMOPLASTIC PAVEMENT MARKING	SQFT	9,160
203	840560	THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE)	LF	43,300
204	840656	PAINT TRAFFIC STRIPE (2-COAT)	LF	112,000
205	840666	PAINT PAVEMENT MARKING (2-COAT)	SQFT	7,210
206	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	330
207	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	4,950
208	860090	MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION	LS	LUMP SUM
209	860150	SIGNAL AND LIGHTING (STAGE CONSTRUCTION)	LS	LUMP SUM
210	860251	SIGNAL AND LIGHTING (LOCATION 1)	LS	LUMP SUM
211	860252	SIGNAL AND LIGHTING (LOCATION 2)	LS	LUMP SUM
212	860253	SIGNAL AND LIGHTING (LOCATION 3)	LS	LUMP SUM
213	860299A	SIGNAL AND LIGHTING (COUNTY)	LS	LUMP SUM
214	860403A	LIGHTING (COUNTY)	LS	LUMP SUM
215	860415A	LIGHTING AND SIGN ILLUMINATION (STAGE CONSTRUCTION)	LS	LUMP SUM
216	860460	LIGHTING AND SIGN ILLUMINATION	LS	LUMP SUM
217	860522	HIGHWAY ADVISORY RADIO SYSTEM	LS	LUMP SUM
218	860532	CHANGEABLE MESSAGE SIGN SYSTEM	LS	LUMP SUM
219	860750	INTERCONNECT SYSTEM	LS	LUMP SUM
220	860797	ELECTRIC SERVICE (IRRIGATION)	LS	LUMP SUM
221	860930	VEHICLE CLASSIFICATION STATION	LS	LUMP SUM

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
222	860990	CLOSED CIRCUIT TELEVISION SYSTEM	LS	LUMP SUM
223	860999A	HIGH SPEED WIRELESS MODEM	EA	1
224	861101	RAMP METERING SYSTEM (LOCATION 1)	LS	LUMP SUM
225	861102	RAMP METERING SYSTEM (LOCATION 2)	LS	LUMP SUM
226	869015A	ELECTRICAL SYSTEMS EQUIPMENT (CONTRACTOR FURNISHED – PURCHASED FROM DEPARTMENT)	LS	LUMP SUM
227	995500	BUILDING MISCELLANEOUS METAL (F)	LB	13,800
228	66105	RESIDENT ENGINEER'S OFFICE	LS	LUMP SUM
229	66872A	TELEPHONE CONNECTIONS	LS	LUMP SUM
230	20434A	PULVERIZE PAVEMENT	SQYD	11,300
231	157549A	BUILDING DEMOLITION	LS	LUMP SUM
232	731532A	MINOR CONCRETE (TEXTURED PAVING) ISLAND PAVING	SQFT	5,790
233	999990	MOBILIZATION (10.0%)	LS	LUMP SUM

Standard Plans List

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

ABBREVIATIONS, LINES, SYMBOLS AND LEGEND

- A10A Abbreviations (Sheet 1 of 2)
- A10B Abbreviations (Sheet 2 of 2)
- A10C Lines and Symbols (Sheet 1 of 3)
- A10D Lines and Symbols (Sheet 2 of 3)
- A10E Lines and Symbols (Sheet 3 of 3)

PAVEMENT MARKERS, TRAFFIC LINES, AND PAVEMENT MARKINGS

- A20A Pavement Markers and Traffic Lines, Typical Details
- A20B Pavement Markers and Traffic Lines, Typical Details
- A20C Pavement Markers and Traffic Lines, Typical Details
- A20D Pavement Markers and Traffic Lines, Typical Details
- RSP A24A Pavement Markings - Arrows
- A24B Pavement Markings - Arrows and Symbols
- A24C Pavement Markings - Symbols and Numerals
- A24D Pavement Markings - Words
- A24E Pavement Markings - Words and Crosswalks

RUMBLE STRIP

- A40A Shoulder Rumble Strip Details - Rolled-In Indentations
- A40B Shoulder Rumble Strip Details - Ground-In Indentations

EXCAVATION AND BACKFILL

- A62A Excavation and Backfill - Miscellaneous Details
- A62B Limits of Payment for Excavation and Backfill - Bridge Surcharge and Wall
- A62C Limits of Payment for Excavation and Backfill - Bridge
- A62D Excavation and Backfill - Concrete Pipe Culverts

OBJECT MARKERS, DELINEATORS, CHANNELIZERS AND BARRICADES

- A73A Object Markers
- A73B Markers
- A73C Delineators, Channelizers and Barricades

CONCRETE BARRIER TYPE 60 SERIES

- A76A Concrete Barrier Type 60
- A76B Concrete Barrier Type 60

METAL BEAM GUARD RAILING - STANDARD RAILING SECTIONS

- A77A1 Metal Beam Guard Railing - Standard Railing Section (Wood Post with Wood Block)
- A77A2 Metal Beam Guard Railing - Standard Railing Section (Steel Post with Notched Wood or Notched Recycled Plastic Block)
- A77B1 Metal Beam Guard Railing - Standard Hardware
- A77C1 Metal Beam Guard Railing - Wood Post and Wood Block Details
- A77C2 Metal Beam Guard Railing - Steel Post and Notched Wood Block Details
- A77C3 Metal Beam Guard Railing - Typical Line Post Embedment and Hinge Point Offset Details
- A77C4 Metal Beam Guard Railing - Typical Railing Delineation and Dike Positioning

Details

METAL BEAM GUARD RAILING - TYPICAL LAYOUTS FOR EMBANKMENTS

- A77E1 Metal Beam Guard Railing - Typical Layouts for Embankments
- A77E2 Metal Beam Guard Railing - Typical Layouts for Embankments
- A77E3 Metal Beam Guard Railing - Typical Layouts for Embankments
- A77E4 Metal Beam Guard Railing - Typical Layouts for Embankments
- A77E5 Metal Beam Guard Railing - Typical Layouts for Embankments
- A77E6 Metal Beam Guard Railing - Typical Layouts for Embankments

METAL BEAM GUARD RAILING - TYPICAL LAYOUTS FOR STRUCTURES

- A77F1 Metal Beam Guard Railing - Typical Layouts for Structure Approach
- A77F2 Metal Beam Guard Railing - Typical Layouts for Structure Approach and Between Structures
- A77F3 Metal Beam Guard Railing - Typical Layouts for Structure Approach
- A77F4 Metal Beam Guard Railing - Typical Layouts for Structure Departure
- A77F5 Metal Beam Guard Railing - Typical Layouts for Structure Departure

METAL BEAM GUARD RAILING - TYPICAL LAYOUTS FOR FIXED OBJECTS

- A77G1 Metal Beam Guard Railing - Typical Layouts for Fixed Objects between Separate Roadbeds (Two-Way Traffic)
- A77G2 Metal Beam Guard Railing - Typical Layouts for Fixed Objects between Separate Roadbeds (One-Way Traffic)
- A77G3 Metal Beam Guard Railing - Typical Layouts for Roadside Fixed Objects
- A77G4 Metal Beam Guard Railing - Typical Layouts for Roadside Fixed Objects
- A77G5 Metal Beam Guard Railing - Typical Layouts for Roadside Fixed Objects
- A77G6 Metal Beam Guard Railing - Typical Layouts for Roadside Fixed Objects
- A77G7 Metal Beam Guard Railing - Typical Layouts for Roadside Fixed Objects
- A77G8 Metal Beam Guard Railing - Typical Layouts for Roadside Fixed Objects

METAL BEAM GUARD RAILING - END ANCHORAGE AND RAIL TENSIONING ASSEMBLY

- A77H1 Metal Railing - End Anchor Assembly (Type SFT)
- A77H2 Metal Railing - Rail Tensioning Assembly
- A77H3 Metal Railing - Anchor Cable and Anchor Plate Details
- A77I1 Metal Railing - End Anchor Assembly (Type CA)
- A77I2 Metal Beam Guard Railing - Buried Post End Anchor

METAL BEAM GUARD RAILING - CONNECTIONS DETAILS AND TRANSITION RAILING TO BRIDGE RAILINGS, ABUTMENTS AND WALLS

- A77J3 Metal Beam Guard Railing - Connections to Abutments and Walls
- A77J4 Metal Beam Guard Railing - Transition Railing (Type WB)

THRIE BEAM BARRIER - STANDARD BARRIER SECTIONS

- A78A Thrie Beam Barrier - Standard Barrier Railing Section (Wood Post with Wood Block)
- A78B Thrie Beam Barrier - Standard Barrier Railing Section (Steel Post with Notched Wood Block or Notched Recycled Plastic Block)
- A78C1 Thrie Beam Barrier - Standard Hardware Details
- A78C2 Thrie Beam Barrier - Post and Block Details

THRIE BEAM BARRIER AT FIXED OBJECTS AND ON BRIDGE

- A78D1 Thrie Beam Barrier - at Fixed Objects in Median

**THRIE BEAM BARRIER - END ANCHORAGE END TREATMENT AND
EMERGENCY PASSEAGEWAY**

- A78E1 Single Thrie Beam Barrier - End Anchor Assembly and Terminal System End Treatment
- THRIE BEAM BARRIER - CONNECTIONS TO BRIDGE RAILINGS, ABUTMENTS,
WALLS AND BARRIER**
- A78I Double Thrie Beam Barrier - Connection to Concrete Barrier
- FENCES**
- A85 Chain Link Fence
- A85A Chain Link Fence Details
- A85B Chain Link Fence Details
- A86 Barbed Wire and Wire Mesh Fences
- A86B Barbed Wire and Wire Mesh Fence Details
- CURBS, DRIVEWAYS, DIKES, CURB RAMPS AND ACCESSIBLE PARKING**
- A87A Curbs and Driveways
- A87B Hot Mix Asphalt Dikes
- A88A Curb Ramp Details
- A88B Curb Ramp and Island Passageway Details

DRAINAGE INLETS, PIPE INLETS AND GRATES

- D71 Drainage Inlet Markers
- D72 Drainage Inlets
- D73 Drainage Inlets
- D73A Drainage Inlets (Precast)
- D74A Drainage Inlets
- D74B Drainage Inlets
- D74C Drainage Inlet Details
- D75A Steel Pipe Inlets
- D75B Concrete Pipe Inlets
- D75C Pipe Inlets - Ladder and Trash Rack Details
- D77A Grate Details
- D77B Bicycle Proof Grate Details

GUTTER AND INLET DEPRESSIONS

- D78A Gutter Depressions
- D78B Inlet Depressions - Concrete Shoulders
- D78C Inlet Depressions - Hot Mix Asphalt Shoulders

CONCRETE PIPE - DIRECT DESIGN METHOD

- D79 Precast Reinforced Concrete Pipe - Direct Design Method
- D79A Precast Reinforced Concrete Pipe - Direct Design Method

BOX CULVERTS

- D80 Cast-In-Place Reinforced Concrete - Single Box Culvert
- D82 Cast-In-Place Reinforced Concrete Box Culvert - Miscellaneous Details

PIPE DOWNDRAINS, ANCHORAGE SYSTEMS AND OVERSIDE DRAINS

- D87A Corrugated Metal Pipe Downdrain Details
- D87B Plastic Pipe Downdrain Details

PIPE RISER AND DRAINAGE INLET RISER CONNECTIONS

- D93A Pipe Riser Connections

FLARED END SECTIONS

D94B Concrete Flared End Sections

PIPE COUPLING AND JOINT DETAILS

D97H Reinforced Concrete Pipe or Non-Reinforced Concrete Pipe - Standard and Positive Joints

STRUCTURAL SECTION DRAINS

D99A Structural Section Drainage System Details

LANDSCAPE AND EROSION CONTROL

H1 Landscape and Erosion Control - Abbreviations

H2 Landscape - Symbols

H3 Landscape Details

H4 Landscape Details

H5 Landscape Details

H6 Landscape Details

H7 Landscape Details

H8 Landscape Details

H9 Landscape Details

H10 Irrigation Controller Enclosure Cabinet

H51 Erosion Control Details - Fiber Roll and Compost Sock

H52 Rolled Erosion Control Product

TEMPORARY CRASH CUSHIONS, RAILING AND TRAFFIC SCREEN

T1A Temporary Crash Cushion, Sand Filled (Unidirectional)

T1B Temporary Crash Cushion, Sand Filled (Bidirectional)

T2 Temporary Crash Cushion, Sand Filled (Shoulder Installations)

T3A Temporary Railing (Type K)

T3B Temporary Railing (Type K)

T4 Temporary Traffic Screen

TEMPORARY TRAFFIC CONTROL SYSTEMS

T10 Traffic Control System for Lane Closure On Freeways and Expressways

T10A Traffic Control System for Lane and Complete Closures on Freeways and Expressways

T11 Traffic Control System for Lane Closure on Multilane Conventional Highways

T12 Traffic Control System for Half Road Closure on Multilane Conventional Highways and Expressways

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

T14 Traffic Control System for Ramp Closure

T15 Traffic Control System for Moving Lane Closure on Multilane Highways

T16 Traffic Control System for Moving Lane Closure on Multilane Highways

T17 Traffic Control System for Moving Lane Closure on Two Lane Highways

TEMPORARY WATER POLLUTION CONTROL

T51 Temporary Water Pollution Control Details (Temporary Silt Fence)

T53 Temporary Water Pollution Control Details (Temporary Cover)

T54 Temporary Water Pollution Control Details (Temporary Erosion Control Blanket)

T55 Temporary Water Pollution Control Details (Temporary Erosion Control Blanket)

T56 Temporary Water Pollution Control Details (Temporary Fiber Roll)

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)
T61	Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)
T62	Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)
T63	Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)
T64	Temporary Water Pollution Control Details (Temporary Drainage Inlet Protection)
T65	Temporary Water Pollution Control Details [Temporary Fence (Type ESA)]
T67	Temporary Water Pollution Control Details (Temporary Construction Roadway)

BRIDGE DETAILS

B0-1	Bridge Details
B0-3	Bridge Details
B0-5	Bridge Details
B0-13	Bridge Details

PILES

B2-3	16" and 24" Cast-In-Drilled-Hole Concrete Pile
------	--

RETAINING WALLS

RSP B3-1B	Retaining Wall Type 1 (Case 2)
RSP B3-5	Retaining Wall Details No. 1
B3-6	Retaining Wall Details No. 2

T-BEAM DETAILS

B6-10	Utility Openings, T-Beam
-------	--------------------------

JOINT SEALS

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

DECK DRAINS

B7-6	Deck Drains - Types D-1 and D-2
B7-8	Deck Drainage Details

UTILITY OPENING

B7-10	Utility Opening - Box Girder
B7-11	Utility Details

CHAIN LINK RAILING, CABLE RAILING AND TUBULAR HAND RAILING

B11-51	Tubular Hand Railing
B11-52	Chain Link Railing Type 7

BRIDGE CONCRETE BARRIERS

B11-54	Concrete Barrier Type 26
--------	--------------------------

SOUND WALLS

B15-6	Sound Wall Masonry Block on Type 736S/SV Barrier Details (1)
B15-7	Sound Wall Masonry Block on Type 736S/SV Barrier Details (2)
B15-8	Sound Wall Masonry Block on Type 736S/SV Barrier Details (3)
B15-9	Sound Wall Masonry Block Miscellaneous Details

ROADSIDE SIGNS

RS1	Roadside Signs, Typical Installation Details No. 1
RS2	Roadside Signs - Wood Post, Typical Installation Details No. 2
RS3	Roadside Signs - Laminated Wood Box Post Typical Installation Details No. 3

RS4	Roadside Signs, Typical Installation Details No. 4
	OVERHEAD SIGNS (TRUSS)
S1	Overhead Signs - Truss, Instructions and Examples
S2	Overhead Signs - Truss, Single Post Type - Post Types II thru IX
S3	Overhead Signs - Truss, Single Post Type - Base Plate and Anchorage Details
S4	Overhead Signs - Truss, Single Post Type - Structural Frame Members Details No. 1
S5	Overhead Signs - Truss, Single Post Type - Structural Frame Members Details No. 2
S6	Overhead Signs - Truss, Gusset Plate Details
S8	Overhead Signs - Truss, Single Post Type - Round Pedestal Pile Foundation
S12	Overhead Signs - Truss, Structural Frame Details
S13	Overhead Signs - Truss, Frame Juncture Details
S16	Overhead Signs - Walkway Details No. 1
S17	Overhead Signs - Walkway Details No. 2
S17A	Overhead Signs - Walkway Details No. 3
S18	Overhead Signs - Walkway Safety Railing Details
S19	Overhead Signs - Truss, Sign Mounting Details - Laminated Panel - Type A
	OVERHEAD AND ROADSIDE SIGNS PANELS
S81	Overhead Laminated Sign - Single or Multiple Panel, Type A (1" Thick)
S82	Roadside Laminated Sign - Single or Multiple Panel, Type B (1" Thick)
S83	Roadside Laminated Sign - Single or Multiple Panel, Type B (2-1/2" Thick)
S84	Roadside Laminated Sign - Single or Multiple Panel, Type H (2-1/2" Thick)
S88	Type A-2 Mounting Hardware - Overhead Laminated Type A Panel, Bridge Mounted and Tubular Sign Structures
S93	Framing Details for Framed Single Sheet Aluminum Signs, Rectangular Shape
S94	Roadside Framed Single Sheet Aluminum Signs, Rectangular Shape
S95	Roadside Single Sheet Aluminum Signs, Diamond Shape
	OVERHEAD SIGN - CHANGEABLE MESSAGE SIGN (MODEL 500)
S101	Overhead Sign - Truss, Single Post Type, Layout, Unbalanced Butterfly Changeable Message Signs, Model 500
S109	Overhead Sign - Truss, Single Post Type, Layout, Full Cantilever Changeable Message Signs, Model 500
S110	Overhead Sign - Truss, Single Post Type, Structural Frame Details, Full Cantilever Changeable Message Signs, Model 500
S111	Overhead Sign - Truss, Single Post Type, Plan and Upper Bolt Details, Full Cantilever Changeable Message Signs, Model 500
S112	Overhead Sign - Truss, Single Post Type, Frame Juncture Details, Full Cantilever Changeable Message Signs, Model 500
S113	Overhead Sign - Truss, Single Post Type, Mounting Details, Changeable Message Signs, Model 500
S114	Overhead Sign - Truss, Single Post Type, Walkway Details, Changeable Message Signs, Model 500
S115	Overhead Sign - Truss, Single Post Type, Anchorage and Base Plate Details, Changeable Message Signs, Model 500
S116	Overhead Sign - Truss, Single Post Type, Foundation And Miscellaneous Details, Changeable Message Signs, Model 500

	OVERHEAD SIGN - CHANGEABLE MESSAGE SIGN (MODEL 500 AND 510)
	WALKWAY SAFETY RAILING AND GUSSET PLATE DETAILS
S140	Overhead Sign - Truss, Single Post Type, Walkway Safety Railing Details, Changeable Message Signs, Model 500 and 510
S141	Overhead Sign - Truss, Single Post Type, Safety Cable Anchorage Details, Changeable Message Signs, Model 500 and 510
S142	Overhead Sign - Truss, Single Post Type, Gusset Plate Details, Changeable Message Signs, Model 500 and 510
	ELECTRICAL SYSTEMS - LEGEND, NOTES AND ABBREVIATIONS
ES-1A	Electrical Systems (Legend, Notes and Abbreviations)
ES-1B	Electrical Systems (Legend, Notes and Abbreviations)
ES-1C	Electrical Systems (Legend, Notes and Abbreviations)
	ELECTRICAL SYSTEMS - SERVICE EQUIPMENT AND WIRING DIAGRAMS
ES-2A	Electrical Systems (Service Equipment)
ES-2C	Electrical Systems (Service Equipment Notes, Type III Series)
ES-2D	Electrical Systems (Service Equipment Enclosure and Typical Wiring Diagram, Type III - A Series)
ES-2E	Electrical Systems (Service Equipment Enclosure and Typical Wiring Diagram, Type III - B Series)
ES-2F	Electrical Systems (Service Equipment Enclosure and Typical Wiring Diagram Type III - C Series)
	ELECTRICAL SYSTEMS - CONTROLLER CABINETS
ES-3A	Electrical Systems (Controller Cabinet Details)
ES-3C	Electrical Systems (Controller Cabinet Foundation Details)
	ELECTRICAL SYSTEMS - TELEPHONE DEMARCATION CABINETS
ES-3F	Electrical Systems (Telephone Demarcation Cabinet, Type C)
	ELECTRICAL SYSTEMS - SIGNAL HEADS, SIGNAL FACES AND MOUNTINGS
ES-4A	Electrical Systems (Signal Heads and Mountings)
ES-4B	Electrical Systems (Pedestrian Signal and Ramp Metering)
ES-4C	Electrical Systems (Vehicular Signal Heads and Mountings)
ES-4D	Electrical Systems (Signal Mounting)
ES-4E	Electrical Systems (Signal Faces and Emergency Vehicle Detector Mountings)
	ELECTRICAL SYSTEMS - DETECTORS
ES-5A	Electrical Systems (Detectors)
ES-5B	Electrical Systems (Detectors)
ES-5C	Electrical Systems (Detector, Pedestrian Push Button and Signs)
ES-5D	Electrical Systems (Curb Termination and Handhole)
	ELECTRICAL SYSTEMS - LIGHTING STANDARDS
ES-6A	Electrical Systems (Lighting Standard, Types 15 and 21)
ES-6B	Electrical Systems (Electrolier Anchorage and Grouting for Types 15 and 21, Barrier Rail Mounted)
ES-6E	Electrical Systems (Lighting Standard, Types 30 and 31)
ES-6F	Electrical Systems (Lighting Standard, Slip Base Plate)
	PEDESTRIAN PUSH BUTTON POST
ES-7A	Electrical Systems (Signal and Lighting Standard, Type TS, and Pedestrian Push Button Post)
	ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING STANDARDS
ES-7B	Electrical Systems (Signal and Lighting Standard - Type 1 and Equipment Numbering)
ES-7F	Electrical Systems (Signal and Lighting Standard - Case 4 Signal Mast Arm)

	Loading, Wind Velocity = 100 mph and Signal Mast Arm Lengths 25' to 45')
ES-7G	Electrical Systems (Signal And Lighting Standard - Case 5 Signal Mast Arm Loading, Wind Velocity = 100 mph and Signal Mast Arm Lengths 50' to 55')
ES-7H	Electrical Systems (Signal and Lighting Standard - Case 5 Signal Mast Arm Loading, Wind Velocity = 100 mph and Signal Mast Arm Lengths 60' to 65')
ES-7I	Electrical Systems (Signal and Sign Standard - Type 33, Left Turn)
	ELECTRICAL SYSTEMS - FLASHING BEACONS
	ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING STANDARD DETAILS
ES-7M	Electrical Systems (Signal and Lighting Standard - Detail No. 1)
ES-7N	Electrical Systems (Signal and Lighting Standard - Detail No. 2)
ES-7O	Electrical Systems (Signal and Lighting Standard - Detail No. 3)
	ELECTRICAL SYSTEMS - INTERNALLY ILLUMINATION STREET NAME SIGN
ES-7P	Electrical Systems (Internally Illuminated Street Name Sign)
	ELECTRICAL SYSTEMS - PULL BOX
RSP ES-8A	Electrical Systems (Pull Box)
RSP ES-8B	Electrical Systems (Traffic Rated Pull Box)
	ELECTRICAL SYSTEMS - STRUCTURE INSTALLATIONS
ES-9A	Electrical Systems (Structure Pull Box Installations)
ES-9B	Electrical Systems (Conduit Riser and Expansion Fitting, Structure Installations)
ES-9C	Electrical Systems (Structure Pull Box)
ES-9D	Electrical Systems (Structure Pull Box Installations)
	ELECTRICAL SYSTEMS - ISOFOOTCANDLE DIAGRAMS AND FOUNDATION DETAILS
ES-10	Electrical Systems (Isofootcandle Diagrams)
ES-11	Electrical Systems (Foundation Installations)
	ELECTRICAL SYSTEMS - PEDESTRIAN OVERHEAD LIGHTING
	ELECTRICAL SYSTEMS - SPLICING, FUSE RATING, KINKING AND BANDING DETAILS
ES-13A	Electrical Systems (Splicing Details)
ES-13B	Electrical Systems (Fuse Rating, Kinking and Banding Detail)
	ELECTRICAL SYSTEMS - SIGN ILLUMINATION EQUIPMENT AND CONTROLS
ES-15A	Electrical Systems (Sign Illumination Equipment)
ES-15C	Electrical Systems (Sign Illumination Equipment)
ES-15D	Electrical Systems (Lighting and Sign Illumination Control)
	ELECTRICAL SYSTEMS - CLOSED CIRCUIT TELEVISION POLE AND FOUNDATION DETAILS
ES-16A	Electrical Systems (Closed Circuit Television, 5' to 15' Overhead Sign Mounted Pole)

SPECIAL PROVISIONS

COUNTY OF STANISLAUS DEPARTMENT OF PUBLIC WORKS

PART VI – SPECIAL PROVISIONS

DIVISION I GENERAL PROVISIONS

1 GENERAL

Add to section 1-1.01:

Bid Items and Applicable Sections

Item code	Item description	Applicable section
066105	RESIDENT ENGINEER'S OFFICE	5
070012	PROGRESS SCHEDULE (CRITICAL PATH METHOD)	8
071301	TEMPORARY FENCE	80
071325	TEMPORARY FENCE (TYPE ESA)	14
073006	18" TEMPORARY CULVERT	62
074017	PREPARE WATER POLLUTION CONTROL PROGRAM	13
074019	PREPARE STORM WATER POLLUTION PREVENTION PLAN	13
074027	TEMPORARY EROSION CONTROL BLANKET	13
074028	TEMPORARY FIBER ROLL	13
074029	TEMPORARY SILT FENCE	13
074033	TEMPORARY CONSTRUCTION ENTRANCE	13
074037	MOVE-IN/MOVE-OUT (TEMPORARY EROSION CONTROL)	13
074038	TEMPORARY DRAINAGE INLET PROTECTION	13
074041	STREET SWEEPING	13
074042	TEMPORARY CONCRETE WASHOUT (PORTABLE)	13
074051	TEMPORARY HYDRAULIC MULCH (BONDED FIBER MATRIX)	13
074056	RAIN EVENT ACTION PLAN	13
074057	STORM WATER ANNUAL REPORT	13
074058	STORM WATER SAMPLING AND ANALYSIS DAY	13
190110	LEAD COMPLIANCE PLAN	7
193114	SAND BACKFILL	15
203021	FIBER ROLLS	21
203026	MOVE-IN/MOVE-OUT (TEMPORARY EROSION CONTROL)	21
518002	SOUND WALL (MASONRY BLOCK)	58

^^

2 BIDDING

Add to section 2-1.06B:

The Department makes the following supplemental project information available:

Supplemental Project Information	
Means	Description
Available as specified in the <i>Standard Specifications</i>	Cross sections Bridge as-built drawings
Available for inspection at the Transportation Laboratory	
Available for inspection at the District Office Telephone no.: <u>(209) 984-7934</u>	<u>Foundation Report</u>

^^

~~3 CONTRACT AWARD AND EXECUTION~~

Replace the 2nd paragraph of section 3-1.04 with:

~~If the Department awards the contract, the award is made to the lowest responsible bidder within 60 days after bid opening.~~

~~If the Department awards the contract, the award is made to the lowest responsible bidder within 10 days after bid opening.~~

~~Bidders and listed DVBEs must be available by phone the day after bid opening to answer questions.~~

~~If the Department awards the contract, the award is made to the lowest responsible bidder the same day as bid opening.~~

~~Bidders and listed DVBEs must be available by phone the day after bid opening to answer questions.~~

~~Have a representative available the day and location of the bid opening to accept the contract award.~~

~~If the lowest responsible bidder does not have a representative available to accept the contract award, the Department may award the contract to the next lowest responsible bidder who has a representative available to accept the contract award.~~

^^

5 CONTROL OF WORK

Add to section 5-1.09A:

The Department encourages the project team to exhaust the use of partnering in dispute resolution before engagement of an objective third party.

For certain disputes, a facilitated partnering session or facilitated dispute resolution session may be appropriate and effective in clarifying issues and resolving all or part of a dispute.

To afford the project team enough time to plan and hold the session, a maximum of 20 days may be added to the DRB referral time following the Engineer's response to a *Supplemental Potential Claim Record*.

To allow this additional referral time, the project team must document its agreement and intention in the dispute resolution plan of the partnering charter. The team may further document agreement of any associated criteria to be met for use of the additional referral time.

If the session is not held, the DRB referral time remains in effect as specified in section 5-1.43.

Replace "Reserved" in section 5-1.18-5-1.19 with:

5-1.19 RESIDENT ENGINEER'S OFFICE

The Contractor shall supply a field office for the Resident Engineer as described below.

5-1.19A General

Location for field offices will be on Salida Fire Department property located on the corner of Broadway Ave. and Salida Blvd.

The Contractor shall supply a field office with the following minimum requirements:

- Adequate electrical service (120/240 volt, 60 cycle,)
- Telephone and Internet Services
- Adequate potable water supply
- All-weather parking area for at least 10-12 vehicles.

The Contractor shall provide: (5) desks capable of being locked; (1) drafting tables; (8) 3 by 6 foot tables; (12) standard folding chairs; (5) desk chairs with arms; (1) drafting stool; (1) four drawer legal size filing cabinets; one fire extinguisher; one first-aid kit (bandages, gauze, etc.);

In addition to the office, the Contractor shall provide the following as well:

1. (1) dry paper copying machine with automatic feed and collator capable of making letter size (8 1/2" x 11"), and ledger size (11" x 17") copies including service agreement, together with sufficient paper and materials and supplies for 1,000 copies per month.
2. (4) HP Office Jet 6110 (or equivalent) multifunction machine with supplies for 2,000 pages per month.

A proposed floor plan of the Resident Engineers Office shall be provided to the Resident Engineer for review at the Pre-Construction Conference.

The Contractor shall also provide payment for insurance as directed by the Engineer.

All facilities shall conform to the applicable codes, ordinances and regulations of the local jurisdiction and the State of California, and shall conform to current practice. The interior shall be paneled or suitably lined to provide a facility of good appearance.

The Contractor shall provide janitorial and other maintenance services in all types of facilities provided. Such services shall include the supply of the appropriate paper products and dispensers. Trash receptacles shall be provided and emptied by the Contractor at weekly intervals or sooner as required. The trash shall be removed from the project site.

5-1.19B Field Office Facilities

This office shall have a minimum floor space of 1,440 square feet, at least two entry doors and All doors and windows shall be provided with screens.

The office shall have a minimum of (4) private offices (minimum size of 11' x 11'), a large common area for weekly meetings, and a half bathroom. Sanitary facilities shall include a toilet and wash basin with hot and cold running water. Each private office and the common area shall have power, phone, internet connectivity (minimum three (3) outlets per office).

Heating and air conditioning of sufficient capacity shall be provided (minimum of 3 ton HVAC per floor) with ducted returns. The Contractor shall provide drinking water within the office.

Extended area, non-coin-operated telephone service shall be provided within the office area. The installation shall include sufficient communication cable for proper connection. Office should include a coffee bar with sink (minimum 6 ft in length).

5-1.19C Removal of Facilities

Field offices, laboratories, and bathhouse facilities at the project site shall be removed upon completion of the work. Buildings and equipment furnished by the Contractor at the project site under the provisions of this section are the property of the Contractor.

5-1.19D Payment

The contract lump sum price paid for Resident Engineer's Office shall include full compensation for furnishing, maintaining, servicing and removing the specified facilities and no additional compensation will be allowed therefor.

Payment for Resident Engineer's office will be made as follows:

At such time as installation and setup is complete (functional and ready to use), a payment equal to 25 percent of the contract item for Resident Engineer's Office will be made.

At such time as fifty percent of the work is completed, a payment equal to 50 percent of the contract item (total of 75 percent) for Resident Engineer's Office will be made.

At such time as one hundred percent of the work is accepted, a payment equal to 25 percent of the contract item (total of 100 percent) for Resident Engineer's Office will be made.

Add to section 5-1.20A:

During the progress of the work under this Contract, work under the following contracts may be in progress at or near the job site of this Contract:

Coincident or Adjacent Contracts

Contract no.	County–Route–Post Mile	County	Type of work
10-472104	Sta - 99 - 21.0/22.4	Stanislaus County	Highway Construction
10-0M8004	Sta - 99 - R0.0/R24.7	Stanislaus County	Highway Construction
10-0A8724	Sta - 219 - 2.9/4.9	Stanislaus County	Highway Construction

Add to section 5-1.36C

Contractor shall conform to Section 5-1.36, "Property And Facility Preservation" of the Standard Specifications. Although Union Pacific Railroad Company (UPRR) is within the vicinity of the project, there is no railroad involvement. Railroad Protective Liability Insurance is not required. It is Contractor liability should they enter railroad right of way or foul the track area.

Add to section 5-1.36D:

The utility owner will relocate a utility shown in the following table before the corresponding date shown:

Utility Relocation and Date of the Relocation		
Utility	Location	Date
PG&E - 4" Gas Pipeline (to be abandoned)	SR 219/Kiernan Ave bridge over SR 99	12/31/2012
MDI - 12kV overhead power lines	Broadway Ave, SR 219/Kiernan Ave., Sisks Rd.	12/31/2012
Charter - Overhead Fiber Optic Cables	SR 219/Kiernan Ave. at Sisk Rd.	12/31/2012
AT&T - Overhead and underground cables	Salida Blvd.	12/31/2012
AT&T - 3' x 5' Box	Sisk Road	12/31/2012

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
AT&T - 12-4" Conduits and 6 cables	Sharon Dinnell (209) 549-5847 1116 M St, Modesto	SR219/Kiernan Ave Bridge over SR99	84 working days
City of Modesto - 8" steel water pipeline	Rob Christensen (209) 571-5869 501 N Jefferson, Modesto	SR219/Kiernan Ave Bridge over SR99	Included in contract

6 CONTROL OF MATERIALS

Add to section 6-2.03:

The Contractor shall purchase the following equipment from the Department (Caltrans) as described elsewhere in these Special Provisions:

- Loop detector sensor units for count stations, traffic monitoring stations and vehicle classification stations
- Model 2070 controller assemblies, including controller units, completely wired 332 controller cabinet, and detector sensor units for traffic signals
- Model 2070 controller assemblies, including controller units, completely wired 334L controller cabinets and loop detector sensor units for ramp meter signals
- Model 500 LED changeable message sign, wiring harness, and Model 170E controller assembly including controller unit and completely wired cabinet without anchor bolts
- Components of battery backup system as follows:
 - Inverter/charger unit

- Power transfer relay
- Manually-operated bypass switch
- Battery harness
- Utility interconnect wires
- Battery temperature probe
- Relay contact wires

- Padlocks for backflow preventer assembly enclosures, backflow preventer assembly blankets, booster pump enclosures, walk gates, irrigation controller enclosure cabinets, and external cabinet for battery backup system
- Recycled water signs, labels, decals, and tags

~~The Department furnishes you with completely wired controller cabinets with auxiliary equipment but without controller unit at 1604 South B Street, Stockton, CA 95205. At least 48 hours before you pick up the materials, inform the Engineer of what you will pick up and when you will pick it up.~~

~~The Department furnishes you with a Model 500 changeable message sign, wiring harness, and controller assembly, including the controller unit and completely wired cabinet, at 1604 South B Street, Stockton, CA 95205. At least 48 hours before you pick up the materials, inform the Engineer of what you will pick up and when you will pick it up.~~

You must furnish replacement plants. The Department does not pay you for the replacement plants.

AA

~~7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC~~

Replace section 7-1.02K(6)(j)(iii) with:

~~7-1.02K(6)(j)(iii) Earth Material Containing Lead~~

~~Section 7-1.02K(6)(j)(iii) includes specifications for handling, removing, and disposing of earth material containing lead.~~

~~Submit a lead compliance plan.~~

~~Lead is present in earth material on the job site. The average lead concentrations are below 1,000 mg/kg total lead and below 5 mg/L soluble lead. Earth material on the job site:~~

- ~~1. Is not a hazardous waste~~
- ~~2. Does not require disposal at a permitted landfill or solid waste disposal facility~~

~~Lead has been detected in earth material to a depth of 1.0 ft in unpaved areas of the highway. Levels of lead found on the job site range from 3.0 to 23.0 mg/kg total lead with an average concentration of 6.4 mg/kg total lead as analyzed by EPA test method 6010 or EPA test method 7000 series and based upon a 95 percent upper confidence limit. Levels of lead found within the project limits have a predicted average soluble concentration of 23.8 mg/L as analyzed by the California Waste Extraction Test and based upon a 95 percent upper confidence limit.~~

~~Handle earth material containing lead under all applicable laws, rules, and regulations, including those of the following agencies:~~

- ~~1. Cal/OSHA~~
- ~~2. CA RWQCB, Region (5) Central Valley~~
- ~~3. CA Department of Toxic Substances Control~~

~~Manage earth material as shown in the following table.~~

~~If earth material is disposed of:~~

- ~~1. Disclose the lead concentration of the earth material to the receiving property owner when obtaining authorization for disposal on the property~~
- ~~2. Obtain the receiving property owner's acknowledgment of lead concentration disclosure in the written authorization for disposal~~
- ~~3. You are responsible for any additional sampling and analysis required by the receiving property owner~~

If you choose to dispose of earth material at a commercial landfill:

- ~~1. Transport it to a Class III or Class II landfill appropriately permitted to receive the material~~
- ~~2. You are responsible for identifying the appropriately permitted landfill to receive the earth material and for all associated trucking and disposal costs, including any additional sampling and analysis required by the receiving landfill.~~

AA

8 PROSECUTION AND PROGRESS

Replace "Reserved" in section 8-1.04C with:

Section 8-1.04B does not apply.

Start job site activities within 55 days after receiving notice that the Contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department.

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

1. CPM baseline schedule
 2. WPCP or SWPPP, whichever applies
 3. Notification DRA or DRB nominee and disclosure statement
- 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.*
2. Contingency plan for reopening closures to public traffic.
3. Written statement from the vendor that the order for the sign panels has been received and accepted by the vendor. The statement must show the dates that the materials will be shipped.
4. Written statement from the vendor that the order for electrical material has been received and accepted by the vendor. The statement must show the dates that the materials will be shipped.
5. Written statement from the vendor that the order for structural steel has been received and accepted by the vendor. The statement must show the dates that the materials will be shipped.

You may start job site activities before the 55th day after Contract approval if you:

1. Obtain specified authorization or acceptance for each submittal before the 55th day
2. Receive authorization to start

Submit a notice 72 hours before starting job site activities. If the project has more than 1 location of work, submit a separate notice for each location.

If the Contract is approved, work already performed that complies with the Contract is authorized.

If the Contract is not approved, leave the job site in a neat condition. If a facility has been changed, restore it to its former condition or an equivalent condition. The Department does not pay for the restoration.

The Department grants a time extension if a delay is beyond your control and prevents you from starting work at the job site on the 1st working day.

DIVISION II GENERAL CONSTRUCTION

10 GENERAL

Add to section 10-1.02 of the RSS for section 10-1:

Order Of Work

Order of work shall conform to the provisions in Section 5 "Control of Work," of the Standard Specification.

Attention is directed to section 7-1.04 "Public Safety," of the Standard Specification.

Attention is directed to "Water Pollution Control" of the Standard Specifications and these special provisions regarding submittal of Storm Water Pollution Prevention Plan (SWPPP) and installing soil stabilization and sediment control measures during rainy season.

Contractor must prepare and submit the Dust Control Plan to the SJVAPCD for their approval before construction activities begin.

The Temporary Fence (Type ESA) shall be constructed around the existing tree to be remained and protected as shown on the Plant Removal Plans, or elsewhere specified in these special provisions.

Attention is directed to Section 14-6.03 "Bird Protection," of the Standard Specifications and these special provisions regarding removing tree. Tree shall not be removed from February 15 to September 1.

Temporary crash cushion modules shall be secured in place prior to commencing work for which the temporary crash cushion modules are required.

The first order of work shall be the construction of pumping plant as shown on Pumping Plant plans and per "Pumping Equipment and Controls," of these special provisions. The existing pumping plant, and the drainage systems on Route 99 will remain in service during the construction of pumping plant. The new pumping plant must be in service prior to the demolition of existing pumping plant.

The Contractor is responsible for full drainage maintenance during the construction.

The Engineer or the Contractor shall notify business owners, in writing, of those business establishments that will be impacted at least 5 days prior to actual construction activity which will cause the impact.

The Contractor shall conduct his operations so that pedestrian traffic has reasonable access to all businesses at all times.

No work shall be performed without maintaining convenient access to driveways, residents, businesses, and buildings along the line of work. Delivery trucks must be able to deliver and pick up for all businesses. The Contractor shall conduct his operations so that public traffic on Route 219 have access to all side roads, and public and private driveways when work is not actively in progress. Residents and business owners would be notified in advance about potential access or parking problems before construction activities begin.

The Contractor shall not store equipments in the parking lot of the businesses, without the property owner's permission.

The Engineer or the Contractor shall notify the grantor 10 days prior commencement of the usage of the Temporary Construction Easement areas.

The Contractor is required to construct the temporary fence along Temporary Construction Easement (TCE) prior to removing the existing fence. Except at Lowry's property, when the temporary fence is no longer necessary, the new fence and gates need to be constructed prior the commencement of the removal of the temporary fence.

At Lowry's property, the temporary fence shall be barbed wire and wire mesh fence. This fence will remain in place after the project completion.

Attention is directed to Section 14-11.03 "Material Containing Hazardous Waste Concentrations of Aerially Deposited Lead," of these special provisions.

Attention is directed to "Cold Plane Asphalt Concrete Pavement" and "Earthwork" of the Standard Specifications and these special provisions.

The excavated or cold planed area shall be replaced with new asphalt concrete as shown on the plans except the top surface of the uppermost layer at the end of each work period.

Public traffic shall not be allowed to travel on gravel, earthwork, native soil, or base material during construction.

The Contractor shall schedule his operations so that once work has begun it shall be carried out expeditiously. No delay in construction longer than 12 hours will be allowed, unless restricted by a holiday or inclement weather.

The Contractor shall conduct all minor concrete (miscellaneous construction) works on one side of the roadway only and no more than 2 (two) successive blocks at anytime.

Attention is directed to "Maintaining Traffic" of the Standard Specifications and these special provisions and to the stage construction, and traffic handling sheets of the plans.

Attention is directed to "Progress Schedule" (Critical Path Method)" of the Standard Specifications and these special provisions regarding the submittal of a general time-scale logic diagram within 10 days after approval of the contract. The diagram shall be submitted prior to performing any work that maybe affected by any proposed deviations to the construction staging of the project.

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

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

Do not place the uppermost layer of new pavement until all underlying conduits and loop detectors are installed. The uppermost layer of new pavement on Route 219 (Kiernan Ave), and ramps shall be placed after all stage constructions are completed.

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

Construction of the new pavement adjacent to the existing traveled way must be performed in successive and once all operations are under way concurrent operations of excavating, preparing subgrade, placing base materials, and paving. Excavation within 8 feet of the existing traveled way must not precede the paving operation by more than 3 working days unless:

1. Authorized
2. Material is placed and compacted against the vertical cuts within 8 feet of the existing traveled way. During excavation operations, native material may be used for this purpose except once the placing of the structural section starts, structural material must be used. Place the material up to the top of the existing pavement and taper at a slope of 4:1 (horizontal:vertical) or flatter to the bottom of the excavation. Do not use treated base for the taper.

At the end of each working day if a difference in excess of 0.15 feet exists between the elevation of the existing pavement and the elevation of an excavation within 8 feet of the traveled way, place and compact material against the vertical cut adjacent to the traveled way. During the excavation operation, you may use native material for this purpose except once the placing of the structural section starts, structural material must be used. Place the material up to the top of the existing pavement and taper at a slope of 4:1 (horizontal:vertical) or flatter to the bottom of the excavation. Do not use treated base for the taper.

Permanent erosion control, Irrigation, and revegetation works to be implemented on slopes that are substantially complete.

At least 60 days before applying seeds, furnish the Engineer a statement from the vendor that the order for the seed required for this contract has been received and accepted by the vendor. The statement from the vendor must include the names and quantity of seed ordered and the anticipated date of delivery.

^^

12 TEMPORARY TRAFFIC CONTROL

Add to Section 12-1.01

The project would require that emergency service providers (i.e., law enforcement, fire protection, and ambulance services) be given adequate advance notice of any street closures during the construction phases of the proposed project.

The traffic management plan would be prepared to address short-term disruptions in existing circulation patterns during construction; for example, the traffic management plan would identify the locations of temporary detours or temporary roads to facilitate local traffic circulation and through-traffic requirements.

**Replace section 12-2 with:
12-2 CONSTRUCTION PROJECT FUNDING SIGNS**

12-2.01 GENERAL

Section 12-2 includes specifications for installing construction project funding signs. Details for construction project funding signs are shown. Keep construction project funding signs clean and in good repair at all times.

12-2.02 MATERIALS

Construction project funding signs must be wood post signs complying with section 56-4. Sign panels for construction project funding signs must be framed, single sheet aluminum panels complying with section 56-2. The background on construction project funding signs must be Type II retroreflective sheeting on the Authorized Material List for signing and delineation materials.

The legend must be retroreflective, except for nonreflective black letters and numerals. The colors blue and orange must comply with PR Color no. 3 and no. 6, respectively, as specified in the Federal Highway Administration's *Color Tolerance Chart*.

The legend for the type of project on construction project funding signs must read as follows:

HIGHWAY CONSTRUCTION

The legend for the types of funding on construction project funding signs must read as follows and in the following order:

- STATE TRANSPORTATION FUNDS
- YOUR TAX DOLLAR AT WORK
- ROUTE 99/219 INTERCHANGE

The Engineer will provide the year of completion for the legend on construction project funding signs. Furnish and install a sign overlay for the year of completion within 10 working days of notification.

The legend for the year of completion on construction project funding signs must read as follows:

YEAR OF COMPLETION 2015

The size of the legend on construction project funding signs must be as described. Do not add any additional information unless authorized.

12-2.03 CONSTRUCTION

Install 2 Type 2 construction project funding signs at the locations designated by the Engineer before starting major work activities visible to highway users.

When authorized, remove and dispose of construction project funding signs upon completion of the project.

12-2.04 PAYMENT

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

Add to section 12-3.06D:

Construction area signs will be paid for on a lump sum basis in the manner specified in Section 12, "Temporary Traffic Control", of the Standard Specifications.

Temporary roadside signs shall be considered as included in the contract lump sum price paid for "Construction Area Signs" and no additional compensation will be allowed therefor.

Replace section 12-3.07D with:

12-3.07D PAYMENT

The contract price per each paid for channelizers (surface mounted) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in installing channelizers, complete in place, including removal and clean up as shown on the plans.

Replace section 12-3.08D with:

12-3.08D PAYMENT

The contract price paid per linear foot for temporary railing (Type K) shall include full compensation for furnishing all labor, material, tools, equipment, and incidentals, and for doing all the work involved in installing temporary railing (Type K), including drilling holes and bonding threaded rods or dowels when required, removing threaded rods or dowels and filling the drilled holes with mortar, complete in place, and maintenance, repair, replacing, repositioning, moving as required and as directed by the Engineer, and removal as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Full compensation for the reflector and adhesive used on the temporary railing (Type K) shall be considered as included in the contract price paid per meter for temporary railing (Type K) and no separate payment will be made therefor.

Add to section 12-3.12C:

Start displaying the message on the portable changeable message sign 15 minutes before closing the lane.

Place two portable changeable message signs in advance of the first warning sign for each lane closures and one for each ramp closure at locations designated by the Engineer:

Replace section 12-3.12D with:

12-3.12D PAYMENT

The contract lump sum price paid for portable changeable message signs includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing, placing, operating, modifying messages, maintaining portable changeable message signs, complete in place, including transporting from location to location, removing, and repairing or replacing defective or damaged portable changeable message signs, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Replace section 12-3.14 with:

12-3.14 TEMPORARY TRAFFIC SCREEN

12-3.14A General

Section 12-3.14 includes specifications for constructing temporary traffic screen at the locations shown.

12-3.14B Materials

Temporary traffic screen panels must be new or used, CDX grade or better, plywood or weather-resistant strandboard mounted and anchored on Type K temporary railing.

Wale boards must be new or used Douglas fir, rough sawn, construction grade or better.

Pipe screen supports must be new or used schedule 40, galvanized steel pipe.

Nuts, bolts, and washers must be cadmium plated.

Screws must be black or cadmium-plated flat head, cross-slotted screws with full thread length.

12-3.14C Construction

Mount and anchor temporary traffic screen on top of Type K temporary railing.

Remove the traffic screen from the highway when the Engineer determines it is no longer required. The traffic screen that is removed becomes your property.

A lateral move of Type K temporary railing with attached temporary traffic screen is change order work if ordered and the repositioning is not shown.

12-3.14D Payment

Temporary traffic screen is measured along the line of the completed screen.

Replace section 12-3.16 with:

12-3.16 TEMPORARY SIGNAL SYSTEM

12-3.16A General

Installing temporary signal system (TSS) consists of installing and maintaining temporary traffic signal, and lighting, for traffic control.

Material and equipment used in the TSS may be new or used but must be suitable for the intended use.

Orient each signal face to be clearly visible to traffic approaching from the direction that the signal is intended to control.

12-3.16B Operation

TSS must operate at nominal 120 V(ac). Lighting must operate at 120 V(ac) or 240 V(ac).

Unless otherwise directed, the system must operate on a continuous, 24-hour basis except when it is necessary that traffic be controlled by flaggers.

The Department will perform timing for the TSS.

12-3.16C Maintaining Temporary Signal System

Except for the controller assembly, you are responsible for maintaining the TSS.

If components in the TSS are damaged, displaced, or cease to operate or function as specified from any cause during the progress of the work, immediately repair or replace the components, then restore to the original condition. Components include signs, generator, flashing beacons, and signal equipment.

If the TSS is out of operation, provide flaggers, at your expense, to maintain traffic control until the traffic signals are returned to service.

12-3.16D Conduit

At locations where conduit is required to be installed under pavement and if a delay to vehicles will not exceed 5 minutes, conduit may be installed by the trenching in pavement method as specified in section 86-2.05C.

12-3.16E Conductors and Wiring

Conductors must be the types specified in section 86-2.08 or Type UF cable of the size and number of conductors shown. The minimum conductor size must be no. 12.

If conductors are placed across paved areas, placement must comply with one of the following:

1. Place in a conduit
2. Suspend at least 25 feet above the roadway

Conductors placed outside of paved areas must be placed by one of the following methods:

1. Direct burial method with Type UF cable installed at a minimum depth of 24 inches below grade.
2. Placed in conduit. If Type 1 or 2 conduit is used, the minimum depth must be 12 inches. If Type 3 conduit is used, the minimum depth must be 18 inches.
3. Suspended from wood poles with a minimum clearance of 25 feet from grade at any point. Place the portions of the conductor installed on the face of wood poles in either Type 3 or Type 4 conduit.

Conductors placed across structures must be placed in a Type 1, 2, or 3 conduit. Install the conduit on the outside face of the railing and secure by a method determined by the Engineer.

Conductors to a terminal compartment or signal head on a pole may be spliced to through conductors of the same phase in a pull box adjacent to the pole. Do not splice conductors or cables except in pull boxes or in NEMA Type 3R enclosures.

12-3.16F Bonding and Grounding

Comply with section 86-2.10.

Provide effective grounding for the generator.

12-3.16G Service

12-3.16G(1) General

Use one of the following methods to provide power for the TSS:

1. Commercial power from an existing utility company
2. Commercial power with a generator backup
3. Generator system with an additional generator as a backup

12-3.16G(2) Commercial Power

Commercial power must be 120 V(ac) or 120/240 V(ac). Protect the power source in a locked enclosure. Provide keys to all locks.

Do not use power from private parties.

Do not use electrical power from existing highway facilities unless authorized.

Make the arrangements with the utility company for providing service.

Commercial electrical power is available at the job site.

12-3.16G(3) Generator

Generators must be 120 V(ac) or 120/240 V(ac), 60 Hz, 2.5 kW minimum, continuous duty type. Generators may be powered by gasoline, LPG, or diesel engines operating at approximately 1,800 rpm. Engines must have automatic oil feed. Generator systems must be equipped to provide automatic start-stop operation, with a 12 V starting system. Generator output circuits must have overcurrent protection with a maximum setting of 15 A or as shown.

Fuel storage must be sufficient for times when the generator system operates unattended.

Engines must be equipped with approved spark arrestors.

12-3.16G(4) Generator Operation

Provide 2 generators. A single generator must operate the system. In the event of a failure to supply voltage for the system, the 2nd generator must start automatically and transfer the system load upon reaching operating voltage.

12-3.16G(4) Generator Operation

A generator must be provided to back up the commercial power.

An automatic transfer switch must provide the following functions:

1. Line voltage monitoring and in the event of a power outage signal the generator to start.
2. Engine start delay, adjustable from 0 to 6 seconds, to prevent starting if the power outage is only momentary and an engine stop delay, adjustable from 0 to 8 minutes, to allow the generator set to run unloaded to cool before shut down.
3. Transfer delay of 0 to 120 seconds to allow the generator to stabilize before connecting to the load and retransfer delay of 0 to 32 minutes to allow the line voltage to stabilize.
4. "Load-No Load" switch to allow a test with or without load.
5. "Normal-Test" switch that will start and run the generator in the "Test" position. "Normal" position must return the generator to automatic operation.
6. Battery charger powered by the normal line voltage.
7. Generator voltage sensor that signals for a transfer if the generator output is ready.

Provide a mechanical interlock to prevent application of power to the load from both sources and to prevent backfeeding from the generator to the line.

The automatic transfer switch must be rated at 100 A, 120/240 V(ac), 3 wire, single phase and be compatible with the generator furnished.

12-3.16H Controller Assembly

Construct the controller cabinet foundation as shown for Model 332, 334, or 336 cabinets, including furnishing and installing anchor bolts. Install the controller cabinet on the foundation and make field wiring connections to the terminal blocks in the controller cabinet.

The Department or local forces will maintain all controller assemblies.

12-3.16I Detectors

Loop detector sensor units are purchased from Department as part of the controller assembly.

Loop detector lead-in cable must be Type B or Type C.

Comply with section 86-5.01A.

12-3.16J Completion and Restoration

Backfill pole holes.

The following materials may be abandoned in place when no longer required:

1. Conductors placed in slots across paved areas
2. Direct buried cables, installed 24 inches or more below the ground surface

Add to section 12-4.02A:

If work including installing, maintaining, and removing Type K temporary railing is to be performed within 6 feet of the adjacent traffic lane, close the adjacent traffic lane.

Except as listed above, closure of the adjacent traffic lane is not required for installing, maintaining, and removing traffic control devices.

For grinding and grooving operations, sawcutting concrete slabs, and installing loop detectors with an impact attenuator vehicle as a shadow vehicle, closure of the adjacent traffic lane is not required.

Designated holidays are as 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.

Special days are: Mother's Day and Easter Weekend, including Friday.

Under a 1-way reversing traffic control operation, traffic may be stopped in 1 direction for periods not to exceed 10 minutes. After each stoppage, all accumulated traffic for that direction must pass through the work zone before another stoppage is made.

The maximum length of a single stationary lane closure is 1 mile.

Not more than 1 stationary lane closures will be allowed in each direction of travel at one time. Freeway closure charts are for the erection, placement and removal of overhead sign structures, and other authorized work.

Personal vehicles of your employees must not be parked on the traveled way or shoulders, including sections closed to traffic.

If work vehicles or equipment are parked within 6 feet of a traffic lane, close the shoulder area as shown.

If a connector closure is required within the limits of a freeway lane closure, complete the work on the connector first. Then, complete the work on the freeway traveled way necessary to ensure safe passage of traffic between the connector and open freeway lanes. Complete the remaining work only after reopening the connector.

Precast concrete members must not be cast within the right-of-way of Route 99.

Erect PC/PS wide flange girder over Route 991 span at a time. During girder erection, traffic in the lanes over which girders are being placed must be detoured or stopped as specified in section 12-4.02A.

Have the necessary materials and equipment on site to erect or remove the girders in any 1 span before detouring traffic.

If a lane is closed for construction activities and opening the lane becomes necessary for use by traffic, immediately stop active Contract activities and start clearing the lane.

Your vehicles are subject to the provisions under chapter 13, "Vehicular Crossings," of the Vehicle Code.

Do not make lane closures if the atmospheric visibility is less than 1,000 feet.

Delete the 4th paragraph of section 12-4.03.

Delete the 5th through 11th paragraphs of section 12-4.03.

Add to section 12-4.03:

For each 10-minute interval or fraction thereof past the time specified to reopen the closure, the Department will deduct the amount per interval shown below from moneys due or that may become due the Contractor under the

Contract. Damages are limited to 5 percent of the project cost per occurrence. Damages will not be assessed if the Engineer orders that the closure remain in place beyond the scheduled pickup time.

Type of facility	Route or segment	Period	Damages/interval (\$)
Mainline (Regular Closure)	Northbound	1st half hour 2nd half hour 2nd hour and beyond	\$1,000 / 10 minutes \$1,500 / 10 minutes \$2,000 / 10 minutes
Mainline(Regular Closure)	Southbound	1st half hour 2nd half hour 2nd hour and beyond	\$1,300 / 10 minutes \$2,000 / 10 minutes \$2,600 / 10 minutes
Freeway Full Closure (Demolition)	Northbound /Southbound	1st half hour 2nd half hour 2nd hour and beyond	\$2,100 / 10 minutes \$3,200 / 10 minutes \$4,200 / 10 minutes
Freeway Full Closure (Falsework & Erection of Girders)	Northbound/Southbound	1st half hour 2nd half hour 2nd hour and beyond	\$2,400 / 10 minutes \$3,500 / 10 minutes \$4,700 / 10 minutes

Replace "Reserved" in section 12-4.04 with:

Lane Closure Restriction for Designated Holidays and Special Days										
Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
x	H xx	xx	xx							
	SD xx									
x	xx	H xx	xx							
		SD xx								
	x	xx	H xx	xx						
			SD xx							
	x	xx	xx	H xx	xxx					
	x	xx	xx	SD xx	xxx					
				x	H xx	xxx				
				x	SD xx		xxx			
					x	H xx				
						SD xx				
						x	H xx	xx	xx	xx
							SD xx			
Legend:										
	Refer to lane requirement charts									
x	The full width of the traveled way must be open for use by traffic after 6:00 am.									
xx	The full width of the traveled way must be open for use by traffic.									
xxx	The full width of the traveled way must be open for use by traffic until 9:00 am.									
H	Designated holiday									
SD	Special day									

Replace "Reserved" in section 12-4.05B with:

Chart no. 1 Freeway/Expressway Lane Requirements																										
County: STA					Route/Direction: 99/NB										PM: R22.0/R23.0											
Closure limits: from 1.7 mile south of Hammett interchange to 0.83 mile north of Pelandale interchange																										
From hour to hour		24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays		1	1	1	1	2																	2	2	2	1
Fridays		1	1	1	1	2																				
Saturdays																										
Sundays																									2	2
Legend:																										
1		Provide at least 1 through freeway lane open in direction of travel																								
2		Provide at least 2 adjacent through freeway lanes open in direction of travel																								
		Work allowed within the highway where shoulder or lane closure is not required																								
REMARKS:																										
1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.																										
2. Closures of local roads will require City/County concurrence.																										

**Chart no. 2
Freeway/Expressway Lane Requirements**

County: STA	Route/Direction: 99/SB										PM: R22.0/R23.0															
Closure limits: from 1.7 mile south of Hammett interchange to 0.83 mile north of Pelandale interchange																										
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays	1	1	1	1	2	2																		2	2	1
Fridays	1	1	1	1	2	2																				
Saturdays																										
Sundays																								2	2	1

Legend:

- 1 Provide at least 1 through freeway lane open in direction of travel
- 2 Provide at least 2 adjacent through freeway lanes open in direction of travel
- Work allowed within the highway where shoulder or lane closure is not required

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. Closures of local roads will require City/County concurrence.

**Chart no. 3
Complete Ramp Closure Hours/Ramp Lane Requirements**

County: STA	Route/Direction: 99/NB											PM: R22.0/R23.0													
Closure limits: Route 219 Separation (Broadway) On-ramp																									
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	C	C	C	C	C																	C	C	C	C
Fridays	C	C	C	C	C																				
Saturdays																									
Sundays																								C	C

Legend:

C Ramp may be closed completely

Work allowed within the highway where shoulder or lane closure is not required

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing ramps may be closed at the same time.
4. Detour required..
5. Closures of local roads will require City/County concurrence.

**Chart no. 4
Complete Ramp Closure Hours/Ramp Lane Requirements**

County: STA	Route/Direction: 99/NB											PM: R22.0/R23.0													
Closure limits: Route 219 Separation (Broadway) Off-ramp																									
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	C	C	C	C	C																	C	C	C	C
Fridays	C	C	C	C	C																				
Saturdays																									
Sundays																								C	C

Legend:

C Ramp may be closed completely

Work allowed within the highway where shoulder or lane closure is not required

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing ramps may be closed at the same time.
4. Detour required..
5. Closures of local roads will require City/County concurrence.

**Chart no. 5
Complete Ramp Closure Hours/Ramp Lane Requirements**

County: STA	Route/Direction: 99/SB											PM: R22.0/R23.0															
Closure limits: Route 219 Separation (Broadway) On-ramp																											
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
Mondays through Thursdays	C	C	C	C	C																			C	C	C	
Fridays	C	C	C	C	C																						
Saturdays																											
Sundays																									C	C	C

Legend:

- C Ramp may be closed completely
- Work allowed within the highway where shoulder or lane closure is not required

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing ramps may be closed at the same time.
4. Detour required..
5. Closures of local roads will require City/County concurrence.

**Chart no. 6
Complete Ramp Closure Hours/Ramp Lane Requirements**

County: STA	Route/Direction: 99/SB														PM: R22.0/R23.0														
Closure limits: Route 219 Separation (Broadway) Off-ramp																													
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
Mondays through Thursdays	C	C	C	C	C	C																				C	C	C	
Fridays	C	C	C	C	C	C																							
Saturdays																													
Sundays																											C	C	C

Legend:

- C Ramp may be closed completely
- Work allowed within the highway where shoulder or lane closure is not required

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing ramps may be closed at the same time.
4. Detour required..
5. Closures of local roads will require City/County concurrence.

**Chart no. 7
Complete Freeway/Expressway Closure Hours
(For Falsework & Erection of Girders)**

County: STA	Route/Direction: 99/NB & SB												PM: R22.0/R23.0													
Closure limits: from 1.7 mile south of Hammett interchange to 0.83 mile north of Pelandale interchange																										
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays	C	C	C	C																						C
Fridays	C	C	C	C																						
Saturdays																										
Sundays																										

Legend:

- C Freeway or expressway may be closed completely
- No complete freeway or expressway closure is allowed

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required with PCMS.
3. Detour required.
4. One direction at a time.
5. Route 219/Kiernan OC to be closed at the same time.

**Chart no. 8
Freeway/Expressway Lane Requirements**

County: STA	Route/Direction: 219/EB&WB	PM: 0.0/1.7																								
Closure limits: Route 99/219 Separation Overcrossing																										
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays	1	1	1	1	1																			1	1	1
Fridays	1	1	1	1	1																					
Saturdays																										
Sundays																								1	1	1

Legend:

- 1 Provide at least 1 through freeway lane open in direction of travel
-
-
-
- Work allowed within the highway where shoulder or lane closure is not required

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. Closures of local roads will require City/County concurrence.

**Chart no. 9
Complete Expressway Closure Hours
(For Falsework & Erection of Girders)**

County: STA	Route/Direction: 219/EB & WB	PM: 0.0/1.7																								
Closure limits: Route 99/219 Separation Overcrossing																										
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays	C	C	C	C	C																				C	C
Fridays	C	C	C	C	C																					
Saturdays																										
Sundays																										

Legend:
 C Freeway or expressway may be closed completely
 No complete freeway or expressway closure is allowed

REMARKS:
 1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
 2. 7-day advance notice required with PCMS.
 3. Detour required.
 4. Closures of local roads will require City/County concurrence.

**Chart no. 10
Complete Ramp Closure Hours/Ramp Lane Requirements**

County: STA	Route/Direction: 99/NB											PM: R22.0/R23.0														
Closure limits: Pelandale Ave NB On-ramp																										
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays	C	C	C	C	C																		C	C	C	C
Fridays	C	C	C	C	C																					
Saturdays																										
Sundays																									C	C

Legend:

- C Ramp may be closed completely
- Work allowed within the highway where shoulder or lane closure is not required

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing ramps may be closed at the same time.
4. Detour required..
5. Closures of local roads will require City/County concurrence.

**Chart no. 11
Complete Ramp Closure Hours/Ramp Lane Requirements**

County: STA	Route/Direction: 99/SB		PM: 22.0/23.0																									
Closure limits: Pelandale Ave SB Off-ramp																												
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
Mondays through Thursdays	C	C	C	C	C	C																			C	C	C	
Fridays	C	C	C	C	C	C																						
Saturdays																												
Sundays																										C	C	C

Legend:

C Ramp may be closed completely

Work allowed within the highway where shoulder or lane closure is not required

- REMARKS:**
1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
 2. 7-day advance notice required.
 3. No two consecutive or opposing ramps may be closed at the same time.
 4. Detour required..
 5. Closures of local roads will require City/County concurrence.

**Chart no. 12
Complete Expressway Closure Hours
(For Separation/Overcrossing Demolition)**

County: STA	Route/Direction: 219/EB & WB	PM: 0.0/1.7																								
Closure limits: Route 99/ 219 Separation Overcrossing																										
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays																										
Fridays																										
Saturdays																									C	C
Sundays	C	C	C	C	C	C	C	C																		

Legend:

- C Freeway or expressway may be closed completely
- No complete freeway or expressway closure is allowed

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required with PCMS.
3. Closures of local roads will require City/County concurrence.
4. Detours required.
5. Flaggers required at intersection of off-ramp/Kiernan 219 OC NB and SB.

**Chart no. 13
Complete Freeway Closure Hours
(For Separation/Overcrossing Demolition)**

County: STA	Route/Direction: 99/NB & SB	PM: R22.0/R23.0																								
Closure limits: from 1.7 mile south of Hammett interchange to 0.83 mile north of Pelandale interchange																										
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays																										
Fridays																										
Saturdays																										C
Sundays	C	C	C	C	C	C	C																			

Legend:

- C Freeway or expressway may be closed completely
- No complete freeway or expressway closure is allowed

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required with PCMS.
3. May close both directions at the same time.
4. Route 219/Kiernan OC to be closed at the same time.
5. Detours required.
6. Flaggers required at intersection of off-ramp/Kiernan OC NB and SB

**Chart no. 14
Freeway Lane Requirements
(For Cast-in-Drilled-Hole Concrete Pile)**

County: STA	Route/Direction: 99/NB-SB	PM: R22.0/R23.0																								
Closure limits: from 1.7 mile south of Hammett interchange to 0.83 mile north of Pelandale interchange																										
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Mondays through Thursdays																										
Fridays																										
Saturdays					S	2	2	2	2	2	S	S	S	S	S											
Sundays					S	2	2	2	2	2	S	S	S	S	S											

Legend:

- 2 Provide at least 2 adjacent ramp lanes open in direction of travel
- S Shoulder closure allowed
- Work allowed within the highway where shoulder or lane closure is not required

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. Closures of local roads will require City/County concurrence.

Pedestrian access facilities shall be provided through construction areas within the right of way as specified in Section 12-7, "Temporary Pedestrian Walkways" of the Standard Specifications.

**Chart no. 15
Complete Ramp Closure Hours/Ramp Lane Requirements**

County: STA	Route/Direction: 99/NB-SB, 219/WB-EB	PM: R22.0/R23.0																								
Closure limits: Southbound 99 (to Broadway) Off-ramp, Southbound 99 (from Broadway) On-ramp, Northbound 99 Off-ramp (to Kiernan Ave), Northbound 99 On-ramp (from Kiernan Ave)																										
From hour to hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Monday through Thursdays																										
Fridays																										
Saturdays																						C	C	C	C	C
Sundays	C	C	C	C	C	C	C	C	C	C	C	C														

Legend:

- C Ramp may be closed completely
- Work permitted within project right of way where shoulder or lane closure is not required.

REMARKS:

1. See Lane Closure Restriction for Designated Legal Holidays and Special Days table in Maintain Traffic of these special provisions for additional closure restrictions.
2. 7-day advance notice required.
3. No two consecutive or opposing ramps may be closed at the same time.
4. Detours required.
5. Closures of local roads will require City/County concurrence.
6. Window is applicable for one time closure per ramp only.
7. One ramp per weekend only.

Replace section 12-5 with:

12-5 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

12-5.01 GENERAL

Section 12-5.02 includes specifications for closing traffic lanes, ramps, or a combination, with stationary and moving lane closures on multilane highways and 2-lane, 2-way highways. The traffic control system for a lane closure or a ramp closure must comply with the details shown.

Traffic control system includes signs.

12-5.02 MATERIALS

An attenuator must be a brand on the Authorized Material List for highway safety features.

Each attenuator must be individually identified with the manufacturer's name, address, attenuator model number, and a specific serial number. The name and number must be a minimum 1/2 inch high and located on the left, street side, lower front corner. The attenuator must have a message adjacent to the name and model number in 1/2-inch high letters with the blanks filled in by the attenuator manufacturer stating, "The bottom of this attenuator must be ___ ± ___ inches above the ground at all points for proper impact performance." Do not use an attenuator that is damaged or appears to be in poor condition until it is recertified by the manufacturer. The Engineer determines if a used attenuator supplied under this Contract needs to be recertified. Each unit must be certified by the manufacturer to comply with the requirements for an attenuator under the standards established by METS.

A new attenuator design that is proposed as equal to the authorized attenuators must comply with the procedures established by METS, including crash testing. Contact METS for information regarding submittal of new designs for evaluation.

A new attenuator that is proposed as equal to the authorized attenuators or attenuators ordered for recertification must not be used until authorized by METS.

12-5.03 CONSTRUCTION

12-5.03A General

During traffic striping and pavement marker placement using bituminous adhesive, control traffic with a stationary or a moving lane closure. During other activities, control traffic with stationary lane closures.

Whenever components of the traffic control system are displaced or cease to operate or function as specified from any cause, immediately repair the components to the original condition or replace the components and restore the components to the original location.

12-5.03B Stationary Lane Closures

For a stationary lane closure, ramp closure, or a combination, made only for the work period, remove the components of the traffic control system from the traveled way and shoulder, except for portable delineators placed along open trenches or excavation adjacent to the traveled way at the end of each work period. You may store the components at selected central locations designated by the Engineer within the limits of the highway.

Each vehicle used to place, maintain, and remove components of a traffic control system on a multilane highway must be equipped with a Type II flashing arrow sign that must be in operation whenever the vehicle is being used for placing, maintaining, or removing the components. Vehicles equipped with a Type II flashing arrow sign not involved in placing, maintaining, or removing the components if operated within a stationary-type lane closure must display only the caution display mode. The sign must be controllable by the operator of the vehicle while the vehicle is in motion. If a flashing arrow sign is required for a lane closure, the flashing arrow sign must be operational before the lane closure is in place.

For multilane freeways and expressways, do not place the traffic cones shown to be placed transversely across closed traffic lanes and shoulders.

12-5.03C Moving Lane Closures

A changeable message sign used in a moving lane closure must comply with section 12-3.12 except the sign must be truck-mounted. The full operational height to the bottom of the sign may be less than 7 feet above the ground but must be as high as practicable.

A flashing arrow sign used in a moving lane closure must be truck-mounted. Operate the flashing arrow sign in the caution display mode whenever it is being used on a 2-lane, 2-way highway.

12-5.04 PAYMENT

The contract lump sum price paid for traffic control system for lane closure shall include full compensation for furnishing all labor (including flagging costs), materials (including signs, barricades), tools, equipment, and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing and disposing of the components of the traffic control system shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Traffic control system for lane closure is paid for as traffic control system.

The requirements in section 4-1.05 for payment adjustment do not apply to traffic control system. Adjustments in compensation for traffic control system will be made for an increase or decrease in traffic control work if ordered and will be made on the basis of the cost of the necessary increased or decreased traffic control. The adjustment will be made on a force account basis for increased work and estimated on the same basis in the case of decreased work.

A traffic control system required by change order work is paid for as a part of the change order work.

^^

13 WATER POLLUTION CONTROL

Add to section 13-1.01A:

The following RWQCBs will review the authorized SWPPP:

1. Central Valley Region (5)

Add to section 13-3.01A:

The project is risk level 2.

Comply with the permit issued by the Central Valley Region (5)_ RWQCB for *National Pollutant Discharge Elimination System (NPDES) Permit General Construction Permit, Permit No. CAS000002.*" The Central Valley Region (5) RWQCB permit governs stormwater and nonstormwater discharges resulting from construction activities in the project area. The Central Valley Region (5) RWQCB permit may be viewed at District 10 Office.

Replace section 13-4.04 with:

13-4.04 PAYMENT

The contract lump sum price paid for job site management includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in spill prevention and control, material management, waste management, non-stormwater management, and dewatering and identifying, sampling, testing, handling, and disposing of hazardous waste resulting from your activities, as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

Add to section 13-5.04 with:

Move-in/move-out (temporary erosion control) is measured as units from actual count. A move-in followed by a move-out is considered one unit.

The contract unit price paid for move-in/move-out (temporary erosion control) includes full compensation for furnishing all labor, materials (excluding temporary erosion control materials), tools, equipment, and incidentals and for doing all the work involved in moving in and removing from the project all personnel and equipment necessary for application of temporary erosion control, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

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

Provide temporary drainage inlet protection around drainage inlets as changing conditions require.

Add to section 13-6.04:

Quantities of temporary drainage inlet protection will be determined from actual count in place. The protection will be measured one time only and no additional measurement will be recognized.

The contract unit price paid for temporary drainage inlet protection includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the temporary drainage inlet protection, complete in place, including removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

No additional compensation will be made if the temporary drainage inlet protection is relocated during the course of construction.

Add to section 13-7.03D:

Sweep paved roads at job site entrance and exit locations, and paved areas within the job site that flows to storm drains.

1. During clearing and grubbing, earthwork, trenching, and roadway structural sections activities
2. When vehicles are entering and leaving the job site
3. After soil disturbing activities

Monitor paved areas and roadways within the project. Sweep within:

1. Within 1 hour if sediment or debris is observed during activities that require sweeping
2. Within 24 hours if sediment or debris is observed during activities that do not require sweeping

Replace 3rd paragraph of section 13-7.03D with:

At least 1 street sweeper must be kept at the job site at all times when street sweeping work is required. Each street sweeper must be in good working order.

Add to section 13-7.04:

Temporary construction entrance is determined from actual count in place. Temporary construction entrance is measured one time only and no additional measurement will be recognized.

The contract price paid for temporary construction entrance includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing temporary construction entrance, complete in place, including removal of temporary construction entrance, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

No additional compensation will be made if the temporary construction entrance is relocated during the course of construction.

The Contractor must be fully informed of the requirements of the Dust Control Plan and Rule 8021 and all rules, regulations, plans and conditions that may govern the Contractor's operations in these areas and will conduct the work accordingly.

Attention is directed to Sections 7-1.02, "Laws", "14-9.02", "Air Pollution Control," 7-1.05, "Indemnification," and 14-9.03, "Dust Control," of the Standard Specifications.

Completed Dust Control Plan approved by the SJVAPCD and accepted by the Department will be fully binding on the Contractor.

The provisions of this section and SJVAPCD approved Dust Control Plan will be made a part of every subcontract executed pursuant to this contract.

Additional information on satisfying Rule 8021 "Construction, Demolition, Excavation, and Other Earthmoving Activities" may also be obtained at:

<http://www.valleyair.org>

The contract lump sum price paid for prepare Dust Control Plan shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing, obtaining approval of, and amending the Dust Control Plan, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

No separate payment will be made for work performed or material used to control dust resulting from the Contractor's performance of the work, either inside or outside the right of way. Full compensation for this dust control will be considered as included in the prices paid for the various items of work involved.

Replace section 14-11.03 with:

14-11.03 MATERIAL CONTAINING HAZARDOUS WASTE CONCENTRATIONS OF AERIALY DEPOSITED LEAD

14-11.03A General

14-11.03A(1) Summary

Section 14-11.03 includes specifications for hazardous waste management while excavating, stockpiling, transporting, placing, and disposing of material containing hazardous waste concentrations of Aerially Deposited Lead (ADL).

ADL is present within the project limits.

14-11.03A(2) Definitions

Type Y-1: Material that contains ADL in average concentrations (using the 90 percent Upper Confidence Limit) of 1.5 mg/L or less extractable lead (based on a modified waste extraction test using deionized water as the extractant) and 1,411 mg/kg or less total lead. This material is a California hazardous waste that may be reused as permitted under the variance of the DTSC provided that the lead contaminated soil is placed a minimum of 5 feet above the maximum historic water table elevation and covered with at least 1 foot of non-hazardous soil.

Type Y-2: Material that contains ADL in average concentrations (using the 90 percent Upper Confidence Limit) that exceed either 1.5 mg/L extractable lead (based on a modified waste extraction test using deionized water as the extractant) or 1,411 mg/kg total lead but are less than 150 mg/L extractable lead (based on a modified waste extraction test using deionized water as the extractant) and less than 3,397 mg/kg of total lead. This material is a California hazardous waste that may be reused as permitted under the variance of DTSC provided that the lead contaminated soil is placed a minimum of 5 feet above the maximum historic water table elevation and protected from infiltration by a pavement structure which will be maintained by the Department.

Type Z-2: Material that contains ADL in average concentrations (using the 95 percent Upper Confidence Limit) greater than or equal to 1,000 mg/kg total lead, greater than or equal to 5.0 mg/L soluble lead (as tested using the California Waste Extraction Test), and the material is surplus; or material that contains ADL in average concentrations greater than 150 mg/L extractable lead (based on a modified waste extraction test using deionized water as the extractant) or greater than 3,397 mg/kg total lead. This material is a Department-generated CA hazardous waste and must be transported to and disposed of at a CA Class I disposal site.

Type Z-3: Material that contains ADL in average concentrations (using the 95 percent Upper Confidence Limit) greater than 5.0 mg/L soluble lead, (as tested using the Toxicity Characteristic Leaching Procedure). This material is a Department-generated federal hazardous waste and must be transported to and disposed of at a CA Class I disposal site.

14-11.03A(3) Site Conditions

Portions of the site investigation report are included in the "Material Information" handout. The complete report, entitled "Site Investigation Report, Kiernan Avenue at State Route 99, Salida, Stanislaus County, California (dated March 20, 2012)," is available for inspection at the Department of Transportation, District 10.

Type Z-2 material exists along the southbound mainline shoulder between 0 and 15 feet, measured horizontally from the edges of existing pavement, from 270+00 to 290+00 station, and from a depth of 0 to 1.0 feet below existing grade, as shown.

14-11.03A(4) Submittals

14-11.03A(4)(a) Lead Compliance Plan

Submit a lead compliance plan under section 7-1.02K(6)(j)(ii).

14-11.03A(4)(b) Excavation and Transportation Plan

Within 15 days after approval of the Contract, submit 3 copies of an Excavation and Transportation Plan. Minor changes to or clarifications of the initial submittal may be made and attached as amendments to the Excavation and Transportation Plan. In order to allow construction to proceed, the Engineer may conditionally approve the plan while minor revisions or amendments are being completed.

Prepare the written, project specific Excavation and Transportation Plan establishing the procedures you will use to comply with requirements for excavating, stockpiling, transporting, and placing or disposing of material containing ADL. The plan must comply with the regulations of the DTSC and Cal/OSHA and the requirements of the variance. The sampling and analysis portions of the Excavation and Transportation Plan must meet the requirements for the design and development of the sampling plan, statistical analysis, and reporting of test results contained in US EPA, SW 846, "Test Methods for Evaluating Solid Waste," Volume II: Field Manual Physical/Chemical, Chapter Nine, Section 9.1. The plan must include the following elements:

1. Excavation schedule by location and date
2. Temporary locations of stockpiled material
3. Site for disposal of hazardous waste

14-11.03A(5) Quality Control and Assurance

Excavation, reuse, and disposal of material with ADL must comply with rules and regulations of the following agencies:

1. US DOT
2. US EPA
3. California Environmental Protection Agency
4. CDPH
5. DTSC
6. Cal/OSHA
7. California Department of Resources Recycling and Recovery
8. RWQCB, Region 5, Central Valley Region
9. State Air Resources Control Board
10. San Joaquin Valley Air Pollution Control District

Transport and dispose of material containing hazardous levels of lead under Federal and State laws and regulations and county and municipal ordinances and regulations. Laws and regulations that govern this work include:

1. Health & Safety Code, Division 20, Chp 6.5 (California Hazardous Waste Control Act)
2. 22 CA Code of Regs, Div. 4.5 (Environmental Health Standards for the Management of Hazardous Waste)
3. 8 CA Code of Regs

14-11.03B Materials

Not Used

14-11.03C Construction

14-11.03C(1) General

Not Used

14-11.03C(2) Material Management

Transport excavated Type Z-2 material using:

1. Hazardous waste manifest
2. Hazardous waste transporter with a current DTSC registration certificate and CA Highway Patrol (CHP) Biennial Inspection of Terminals (BIT) Program compliance documentation.

14-11.03C(3) Dust Control

Excavation, transportation, placement, and handling of material containing ADL must result in no visible dust migration. Have a water truck or tank on the job site at all times while clearing and grubbing and performing earthwork operations in work areas containing ADL. Apply water to prevent visible dust.

14-11.03C(5) Material Transportation

Before traveling on public roads, remove loose and extraneous material from surfaces outside the cargo areas of the transporting vehicles and cover the cargo with tarpaulins or other cover, as outlined in the approved Excavation and Transportation Plan. You are responsible for costs due to spillage of material containing lead during transport.

14-11.03C(6) Disposal

Analyze surplus material for which the lead content is not known for lead before removing the material from within the project limits. Submit a sampling and analysis plan and the name of the analytical laboratory at least 15 days before beginning sampling and analysis. Use a CDPH ELAP certified laboratory. Sample at a minimum rate of 1 sample for each 200 cubic yards of surplus material and test for lead using US EPA Method 6010B or 7000 series.

14-11.03D Payment

Payment for a lead compliance plan is not included in the payment for environmental stewardship work.

No payment for stockpiling of material containing ADL will be made, unless the stockpiling is ordered. No payment for sampling and analysis will be made unless it is ordered. You are responsible for all additional sampling and analysis costs required by the receiving landfill.

Sampling, analyses, and reporting of results for surplus material not previously sampled is change order work.

Replace section 14-11.07 with:

14-11.07 REMOVE YELLOW TRAFFIC STRIPE AND PAVEMENT MARKING WITH HAZARDOUS WASTE RESIDUE

14-11.07A General

14-11.07A(1) Summary

Section 14-11.07 includes specifications for removing existing yellow thermoplastic and yellow painted traffic stripe and pavement marking. The residue from the removal of this material is a Department-generated hazardous waste.

Residue from removal of yellow thermoplastic and yellow painted traffic stripe and pavement marking contains lead chromate. The average lead concentration is at least 1,000 mg/kg total lead or 5 mg/l soluble lead. When applied to the roadway, the yellow thermoplastic and yellow painted traffic stripe and pavement marking contained as much as 2.6 percent lead. Residue produced from the removal of this yellow thermoplastic and yellow painted traffic stripe and pavement marking contains heavy metals in concentrations that exceed thresholds established by the Health & Safety Code and 22 CA Code of Regs. For bidding purposes, assume the residue is not regulated under the Federal Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 et seq.

Yellow thermoplastic and yellow paint may produce toxic fumes when heated.

14-11.07A(2) Submittals

14-11.07A(2)(a) General

Reserved

14-11.07A(2)(b) Lead Compliance Plan

Submit a lead compliance plan under section 7-1.02K(6)(j)(ii).

14-11.07A(2)(c) Work Plan

Submit a work plan for the removal, containment, storage, and disposal of yellow thermoplastic and yellow painted traffic stripe and pavement marking. The work plan must include:

1. Objective of the operation
2. Removal equipment
3. Type of hazardous waste storage containers
4. Container storage location and how it will be secured
5. Hazardous waste sampling protocol and QA/QC requirements and procedures
6. Qualifications of sampling personnel
7. Analytical lab that will perform the analyses
8. DTSC registration certificate and CA Highway Patrol (CHP) Biennial Inspection of Terminals (BIT) Program compliance documentation of the hazardous waste hauler that will transport the hazardous waste
9. Disposal site that will accept the hazardous waste residue

The Engineer will review the work plan within 5 business days of receipt.

Do not perform work that generates hazardous waste residue until the work plan has been authorized by the Engineer.

Correct any rejected work plan and resubmit a corrected work plan within 5 business days of notification by the Engineer. A new review period of 5 business days will begin from date of resubmittal.

14-11.07A(2)(d) Analytical Test Results

Submit analytical test results of the residue from removal of yellow thermoplastic and yellow painted traffic stripe and pavement marking, including chain of custody documentation, for review and acceptance before:

1. Requesting the Engineer's signature on the waste profile requested by the disposal facility
2. Requesting the Engineer obtain an US EPA Generator Identification Number for disposal
3. Removing the residue from the site

14-11.07A(2)(e) U.S. Environmental Protection Agency Identification Number Request

Submit a request for the US EPA Generator Identification Number when the Engineer accepts analytical test results documenting that residue from removal of yellow thermoplastic and yellow painted traffic stripe and pavement marking is a hazardous waste.

14-11.07A(2)(f) Disposal Documentation

Submit documentation of proper disposal from the receiving landfill within 5 business days of residue transport from the project.

14-11.07B Materials

Not Used

14-11.07C Construction

Remove yellow traffic stripe and pavement marking with hazardous waste residue would be conducted in compliance with all applicable laws and regulations such as the guidelines by the California Occupational Office of Safety and Health, San Joaquin Valley Unified Air Pollution Control District, and applicable best-management practices. Standard special provisions would be used for removal of the traffic stripe.

Where grinding or other authorized methods are used to remove yellow thermoplastic and yellow painted traffic stripe and pavement marking that will produce a hazardous waste residue, immediately contain and collect the removed residue, including dust. Use a HEPA filter-equipped vacuum attachment operated concurrently with the removal operations or other equally effective approved methods for collection of the residue.

Make necessary arrangements to test the yellow thermoplastic and yellow paint hazardous waste residue as required by the disposal facility and these special provisions. Testing must include:

1. Total lead by US EPA Method 6010B
2. Total chromium by US EPA Method 6010B
3. Soluble lead by California Waste Extraction Test (CA WET)
4. Soluble chromium by CA WET
5. Soluble lead by Toxicity Characteristic Leaching Procedure (TCLP)
6. Soluble chromium by TCLP

From the first 220 gal of hazardous waste or portion thereof if less than 220 gal of hazardous waste are produced, a minimum of 4 randomly selected samples must be taken and analyzed individually. Samples must not be composited. From each additional 880 gal of hazardous waste or portion thereof if less than 880 gal are produced, a minimum of 1 additional random sample must be taken and analyzed. Use chain of custody procedures consistent with chapter 9 of US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) while transporting samples from the project to the laboratory. Each sample must be homogenized before analysis by the laboratory performing the analyses. A sample aliquot sufficient to cover the amount necessary for the total and the soluble analyses must then be taken. This aliquot must be homogenized a 2nd time and the total and soluble analyses run on this aliquot. The homogenization process must not include grinding of the samples. Submit the name and location of the disposal facility that will be accepting the hazardous waste and the analytical laboratory along with the testing requirements not less than 5 business days before the start of removal of yellow thermoplastic and yellow painted traffic stripe and pavement marking. The analytical laboratory must be certified by the California Department of Public Health (CDPH) Environmental Laboratory Accreditation Program (ELAP) for all analyses to be performed.

After the Engineer accepts the analytical test results, dispose of yellow thermoplastic and yellow paint hazardous waste residue at a Class 1 disposal facility located in California under the requirements of the disposal facility operator within 30 days after accumulating 220 pounds of residue and dust.

If less than 220 pounds of hazardous waste residue and dust is generated in total, dispose of it within 30 days after the start of accumulation of the residue and dust.

The Engineer will sign all manifests as the generator within 2 business days of receiving and accepting the analytical test results and receiving your request for the US EPA Generator Identification Number. Use a transporter with a current DTSC registration certificate and that is in compliance with the CHP BIT Program when transporting hazardous waste.

14-11.07D Payment

Payment for a lead compliance plan is not included in the payment for environmental stewardship work.

If analytical test results demonstrate that the residue is a non-hazardous waste and the Engineer agrees, dispose of the residue at an appropriately permitted CA Class II or CA Class III facility. The Department does not adjust payment for this disposal.

Replace section 14-11.09 with:

14-11.09 TREATED WOOD WASTE

14-11.09A General

14-11.09A(1) Summary

Section 14-11.09 includes specifications for handling, storing, transporting, and disposing of treated wood waste (TWW).

Wood removed from thrie beam barrier, or roadside sign is TWW. Manage TWW under 22 CA Code of Regs, Div. 4.5, Chp. 34.

14-11.09A(2) Submittals

For disposal of TWW, submit as an informational submittal a copy of each completed shipping record and weight receipt within 5 business days.

14-11.09B Materials

Not Used

14-11.09C Construction

14-11.09C(1) General

14-11.09C(2) Training

Provide training to personnel who handle TWW or may come in contact with TWW. Training must include:

1. All applicable requirements of 8 CA Code of Regs
2. Procedures for identifying and segregating TWW
3. Safe handling practices
4. Requirements of 22 CA Code of Regs, Div. 4.5, Chp. 34
5. Proper disposal methods

Maintain records of personnel training for 3 years.

14-11.09C(3) Storage

Store TWW before disposal using the following methods:

1. Elevate on blocks above a foreseeable run-on elevation and protect from precipitation for no more than 90 days.
2. Place on a containment surface or pad protected from run-on and precipitation for no more than 180 days.
3. Place in water-resistant containers designed for shipping or solid waste collection for no more than 1 year.
4. Place in a storage building as defined in 22 CA Code of Regs, Div. 4.5, Chp. 34, § 67386.6(a)(2)(C).

Prevent unauthorized access to TWW using a secured enclosure such as a locked chain link fenced area or a lockable shipping container located within the job site.

Resize and segregate TWW at a location where debris from the operation including sawdust and chips can be contained. Collect and manage the debris as TWW.

Provide water-resistant labels that comply with 22 CA Code of Regs, Div. 4.5, Chp. 34, §67386.5, to clearly mark and identify TWW and accumulation areas. Labels must include:

1. Caltrans, District number, Construction, Construction Contract number
2. District office address
3. Engineer's name, address, and telephone number

3. Kiernan Ave and Salida Blvd intersection

For locations not listed above, schedule cold planing activities so that not more than 48 hours elapses between the time the pavement is cold planed and the HMA is placed.

At the locations listed above, if you do not complete HMA placement before opening the area to traffic, you must:

1. Construct a temporary HMA taper to the level of the existing pavement
2. Place HMA during the next work shift
3. Submit a corrective action plan that shows you will complete cold planing and placement of HMA in the same work shift. Do not restart cold planing activities until the Engineer approves the corrective action plan.

15-2.02B(3)(b) Materials

Use the same quality of HMA for temporary tapers that is used for the HMA overlay or comply with the specifications for minor HMA in section 39.

15-2.02B(3)(c) Construction

15-2.02B(3)(c)(i) General

Do not use a heating device to soften the pavement.

The cold planing machine must be:

1. Equipped with a cutter head width that matches the planing width. If the cutter head width is wider than the cold plane area shown, submit to the Engineer a request for using a wider cutter head. Do not cold plane unless the Engineer approves your request.
2. Equipped with automatic controls for the longitudinal grade and transverse slope of the cutter head and:
 - 2.1. If a ski device is used, it must be at least 30 feet long, rigid, and a 1-piece unit. The entire length must be used in activating the sensor.
 - 2.2. If referencing from existing pavement, the cold planing machine must be controlled by a self-contained grade reference system. The system must be used at or near the centerline of the roadway. On the adjacent pass with the cold planing machine, a joint-matching shoe may be used.
3. Equipped to effectively control dust generated by the planing operation
4. Operated so that no fumes or smoke is produced.

Replace broken, missing, or worn machine teeth.

15-2.02B(3)(c)(ii) Grade Control and Surface Smoothness

Furnish, install, and maintain grade and transverse slope references.

The depth, length, width, and shape of the cut must be as shown or as ordered. The final cut must result in a neat and uniform surface. Do not damage the remaining surface.

The completed surface of the planed asphalt concrete pavement must not vary more than 0.02 foot when measured with a 12-foot straightedge parallel with the centerline. With the straightedge at right angles to the centerline, the transverse slope of the planed surface must not vary more than 0.03 foot.

Where lanes are open to traffic, the drop-off of between adjacent lanes must not be more than 0.15 foot.

15-2.02B(3)(c)(iii) Temporary HMA Tapers

If a drop-off between the existing pavement and the planed area at transverse joints cannot be avoided before opening to traffic, construct a temporary HMA taper. The HMA temporary taper must be:

1. Placed to the level of the existing pavement and tapered on a slope of 30:1 (horizontal:vertical) or flatter to the level of the planed area
2. Compacted by any method that will produce a smooth riding surface

Completely remove temporary tapers before placing permanent surfacing.

15-2.02B(3)(c)(iv) Remove Planed Material

Remove cold planed material concurrent with planing activities so that removal does not lag more than 50 feet behind the planer.

15-2.02B(3)(d) Payment

Cold plane asphalt concrete pavement is measured by the square yard.

The contract price paid per square yard for cold plane asphalt concrete pavement includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in cold planing asphalt concrete surfacing and disposing of planed material, including constructing, maintaining, removing temporary HMA tapers if applicable, as specified in the Standard Specifications and these special provisions and as directed by the Engineer.

Payment for removal of pavement markers, thermoplastic traffic stripe, painted traffic stripe, and pavement marking within the area of cold planing is included in the payment for cold plane asphalt concrete pavement of the types shown in the Bid Item List.

Replace section 15-2.02F with:

15-2.02F Remove Asphalt Concrete Dikes

Before removing the dike, cut the outside edge of the asphalt concrete on a neat line and to a minimum depth of 0.17 foot.

You may dispose of the dike by burial in an embankment in the same manner as specified for burying concrete in an embankment in section 15-3.01.

Replace Section 15-2.02K with:

15-2.02K Remove Drainage Facilities

Existing culverts, inlets, flared end sections, and manholes, must be completely removed if any portion of these structures is (1) within 3 feet of the grading plane in excavation areas, (2) within one foot of original ground in embankment areas, or (3) shown to be removed

Except for concrete pipe, removing PCC components of drainage facilities must comply with section 15-3.

Remove drainage facilities will be measured for payment as follow:

- 1) Remove culvert by linear foot.
- 2) Remove inlet by each
- 3) Remove flared end section by each
- 4) Remove manhole by each

Add to Section 15-2.02:

15-2.02S Remove Thrie Beam Barrier

Existing thrie beam barrier, where shown on the plans to be removed, shall be removed and disposed of.

Existing concrete anchors or steel foundation tubes shall be completely removed and disposed of.

Full compensation for removing concrete anchors shall be considered as included in the contract price paid per linear foot for remove thrie beam barrier and no separate payment will be made therefor.

Add to Section 15-2.02:

15-2.02T Remove Chain Link Fence

Removing chain link fence shall conform to the provisions in Section 15, "Existing Facilities," of the Standard Specifications and these special provisions.

The above ground portions of the fence shall be removed in accordance with Section 15-2.02 of the Standard Specifications. Below ground portion of the fence that does not interfere with construction shall be removed to a depth of 18".

Removed fence materials shall become the property of the contractor and shall be disposed of outside of the highway right of way.

The contract unit price paid per linear foot for Remove Chain Link Fence shall include full compensation for furnishing all labor, materials tools equipment, and incidentals, and for doing all the work involved in completing the operations to remove fencing, including removing and disposing of the materials removed, backfilling and re-grading the site, complete in place, as shown on the plans, as specified in the Standard Specifications, these special provisions, and as directed by the Engineer, and no additional compensation will be allowed therefor.

Add to Section 15-2.02:

15-2.02U Remove Sound Wall

Existing sound wall, where shown on the plans to be removed, shall be removed. The Contractor shall remove the soundwall and soundwall foundation to a minimum depth of 3 feet below finished grade and to the nearest expansions joint as shown on the plans and as determined by the Engineer.

Material removed shall be disposed of outside the highway right of way.

Soundwall to be removed will be measured by the linear foot along the length of the soundwall, slope measured along the existing ground surfaced before removal. The contract price paid per linear foot for remove soundwall shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in removing soundwall and foundation, as shown on the plans, as specified in these special provisions, and as directed by the Engineer.

Add to Section 15-2.02:

15-2.02V Remove Pedestrian Barricade

Existing pedestrian barricade, where shown on the plans to be removed, shall be removed

Removing pedestrian barricade shall conform to the provisions in Section 15, "Existing Facilities," of the Standard Specifications and these special provisions.

Removed fence materials shall become the property of the contractor and shall be disposed of outside of the highway right of way.

The contract unit price paid per each for Remove Pedestrian Barricade shall include full compensation for furnishing all labor, materials tools equipment, and incidentals, and for doing all the work involved in completing the operations to remove pedestrian barricade, including removing and disposing of the materials removed, as shown on the plans, as specified in the Standard Specifications, these special provisions, and as directed by the Engineer, and no additional compensation will be allowed therefor.

Replace section 15-2.03A(2)(b) with:

15-2.03A(2)(b) Department Salvage Location

A minimum of 2 business days before hauling salvaged material to the Department salvage storage location, notify:

1. Engineer
2. Earl Larkin, Maintenance Superintendence at telephone number (209) 948-7822 in order to get the side gate open and specific storage location in the office..

For bridge rails, the Department salvage storage location are:

Between Washington Street and East Lafayette Street, Stockton, California, and between South Stanislaus Street and Aurora Street, Stockton, California. For electroliers and Type III-AF Service equipment enclosure, the

Department salvage storage location is:

1604 South B Street,
Stockton, CA, 95205.

15-2.03D Salvage Bridge Metal Railing

Salvaging bridge metal railing includes removing concrete anchors, steel posts, horizontal railing and all connection assemblies.

Replace section 15-2.05C with:

15-2.05C Abandon Culverts

15-2.05C(1) General

Abandon culverts by removing portions of the culverts or pipelines, filling the inside, and backfilling the depressions and trenches to grade. As an alternative to abandoning a culvert or pipeline, you may remove the culvert or pipeline, dispose of it, and backfill.

Notify the Engineer before abandoning a culvert or pipeline.

15-2.05C(2) Materials

Openings into existing structures that are to remain in place must be plugged with minor concrete under section 90.

15-2.05C(3) Construction

Wherever culverts intersect side slopes, remove them to a depth of at least 3 feet. Measure the depth normal to the plane of the finished side slope. Abandon the remaining portion of the culvert .

Culverts that are 12 inches or more in diameter must be completely filled by authorized methods. Backfill with sand that is clean, free draining, and free from roots and other deleterious substances. As an alternative to sand, you may backfill with one of the following:

1. Controlled low-strength material under section 19-3.02F
2. Slurry cement backfill under section 19-3.02D

Ends of culverts must be securely closed by a 6-inch-thick, tight-fitting plug or wall of commercial-quality concrete.

15-2.05C(4) Payment

If backfilling inside the culvert is required, payment for backfilling inside the culvert or pipeline is paid for as sand backfill. Payment for backfilling outside the culvert or pipeline is included in the payment for abandon culvert or abandon pipeline.

Replace section 15-2.06B with:

15-2.06B Destroy Wells

15-2.06B(1) General

15-2.06B(1)(a) Summary

Destroying wells must comply with:

1. Regulations of Stanislaus County
2. Water Well Standards, Bulletin 74-81
3. Water Well Standards, Bulletin 74-90

4. Water Code, §§ 13750.5–13753

Destroy wells after clearing and grubbing and before starting earthwork.

Where pumping equipment is present, remove the pump, motor, discharge piping, well cap, and appurtenances. Remove concrete at the wellhead.

15-2.06B(1)(b) Submittals

Obtain a well permit from Stanislaus County. Before starting the affected work, submit the permit under section 5-1.23C.

Per the instructions from the California Department of Water Resources, submit the *Well Completion Report* form. After completion of the work and before Contract acceptance, submit a copy of your well completion report under section 5-1.23C.

15-2.06B(2) Materials

Unless otherwise required by Stanislaus County, sealing materials must be either of the following:

1. Neat cement consisting of:
 - 1.1. 94 lb of cement
 - 1.2. Not more than 6 gal of clean water
 - 1.3. Up to 6 percent by weight of bentonite
 - 1.4. 2 percent by weight of calcium chloride
2. Bentonite clay

Do not use drilling mud.

15-2.06B(3) Construction

If the Engineer orders the removal of surface obstructions or materials that would interfere with destroying the well, this work is change order work. After completion of this work, do not allow material to enter the well that will obstruct or interfere with destroying the well.

Remove casing to 5 feet below grade.

Remove Standpipe

Place sealing material such that it is placed in one continuous operation. Use methods that prevent jamming, bridging, free fall, or dilution. Do not allow separation of the aggregate and cement.

Completely fill the well with sealing material such that the sealing material spills over the casing.

At the time of placement, verify that the combined volume of sealing material is at least equal to the volume of the empty well.

Do not disturb the well for 48 hours after placing the sealing material.

Fill depressions around the well with native material and compact to finish grade. Native material must not contain organic matter.

15-2.06B(4) Payment

The contract price paid per each for destroy wells includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in destroying the well, removing pumping equipments, and removing standpipe, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Add to section 15-4.01A(2):

The Department's review time for work plans for removing specific structures or portions of structures is shown in the following table:

Structure or portion of structure	Review time
Route 219/99 Separation	35 days

At each stage of bridge removal as shown, removal of both spans of existing bridge shall be completed before highway is open to traffic. Alternatively, if one span or partial span is removed, temporary support shall be installed for remaining portion of the structure such that the vertical clearance between highway and soffit of bridge remains same as before partial removal of bridge.

Removal of any Asbestos and Lead Containing Paint shall be paid for as included in lump sum price for Bridge Removal.

Add to Section 15

15-7 BUILDING DEMOLITION

The work shall consist of demolition and clearing of the office building within the Salida Fire Protection District property at the corner of Salida Blvd and Kiernan Ave, which conflicts with the proposed sidewalk. The demolition work shall include complete removal of the existing structure to grade, including underground foundation, plumbing, etc. All landscaping vegetation, above ground sprinklers, valves, mow strips, patios, decks, and all misc. structures shall be cleared from the building site. The existing utilities shall be removed and terminated in a manner conforming to the nationally recognized code covering the specific utility, local standards and approved by the Engineers. The contractor shall coordinate with the respective utility companies to complete all utility work. The County will help coordinate the disconnection of utilities by the respective utility companies.

Materials that are to be removed shall become the property of the Contractor and shall be disposed of at an appropriate disposal facility. There is no asbestos present in the existing building.

The Contractor shall notify the Engineers 5 days prior to the start of demolition work.

The contract lump sum price paid for the demolition and clearing work described above shall include all labor, tools, equipment, incidentals to complete the work and any applicable disposal fees and applicable permits and clearances necessary to complete the work.

AA

DIVISION III GRADING

16 CLEARING AND GRUBBING

Replace the 4th paragraph in section 16-1.03A with:

Clear and grub vegetation only within the excavation and embankment slope lines.

AA

19 EARTHWORK

Add to section 19-2.03A:

Excavated material along northbound on-ramp and northbound mainline shoulder within 15 feet measured horizontally from the edges of existing pavement will be managed as a whole.

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

Dispose of surplus material. Ensure enough material is available to complete the embankments before disposing of it.

Add to section 19-2.03G:

Roughen embankment slopes to receive erosion control materials by either track-walking or rolling with a sheepsfoot roller. Track-walk slopes by running track-mounted equipment perpendicular to slope contours.

Roughen excavation slopes and flat surfaces to receive erosion control materials by scarifying to a depth of 6 inches.

Replace "Reserved" in section 19-3.03B(3) with:

Excavate for pier columns such that concrete is placed against firm, undisturbed material on the bottom and sides of the excavation, at or outside neat lines of the pier columns.

Adequately support the excavation using shoring, lagging, casings, liners, or other bracing.

Rock bolts and wire mesh may remain in place.

Steel shoring, steel and timber lagging, steel casings, steel liners, and other steel bracing may remain in place, subject to the following requirements:

1. Bracing remaining in place must be the minimum necessary to safely support the excavation
2. Place bracing in an open arrangement with enough clearance between braces to permit concrete to flow around the bracing and provide required clearance to reinforcement
3. Steel casings, liners, and lagging must be outside the neat lines of pier columns
4. Perforate steel casings and liners with holes of 6-inch minimum diameter or place in an open arrangement so that at least 50 percent of the area of the casings and liners permits the ready flow of concrete through and around openings
5. Steel and timber lagging must be in an open arrangement, with the area of lagging at most 50 percent of the area of the sides of the excavation. Lagging must permit ready flow of concrete through and around openings.
6. Distribute open areas in casings, liners, and lagging uniformly over the sides of the excavation for the full depth of pier column

Remove timber bracing extending across pier columns within neat lines of the columns before or during concrete placement.

Structure excavation (pier column) is measured from the bottom of the completed foundation excavation to the upper and horizontal limits shown.

Pervious backfill material placed within the limits of payment for bridges is paid for as structure backfill (bridge). Pervious backfill material placed within the limits of payment for retaining walls is paid for as structure backfill (retaining wall).

Replace the 2nd sentence in the 8th paragraph of section 19-3.04 with:

If the structure excavation depth is more than 1 foot from the depth shown, the Department makes a payment adjustment under section 4-1.05B if you request an adjustment or the Engineer orders an adjustment.

Replace the 3rd paragraph of section 19-6.03A with:

When constructing an embankment for new pavement over an existing roadway, pulverize, water, and roll the existing roadbed before placing new material.

PCC under existing pavement shall be removed before constructing new pavement.

AA

20 LANDSCAPE

Replace section 20-1.02B with:

20-1.02B Pesticides

Add to section 20-1.02B:

Pesticides used to control weeds must be limited to the following materials:

- Aminopyralid
- Diquat
- Dithiopyr
- Clopyralid MEA
- Fluazifop-P-Butyl
- Flumioxazin
- Glyphosate
- Imazapyr
- Isoxaben (preemergent)
- Oryzalin (preemergent)
- Oxyfluorfen (non-odor type)
- Pendimethalin (preemergent)
- Prodiamine (preemergent)
- Sethoxydim
- Mefluidide (growth regulator)

Add to section 20-1.03B:

Before the application of preemergents, ground cover plants must have been planted a minimum of 3 days and must have been thoroughly watered.

A minimum of 100 days must elapse between applications of preemergents.

Except for ground cover plants, preemergents must not be applied within 18 inches of plants or within wildflower seeding areas.

Growth regulators must not be used.

Add to section 20-2.01B:

3. A work plan for maintain existing planted areas.

Replace section 20-2.02A with:

Packet fertilizer is not required.

Replace section 20-2.02B with:

20-2.02B Root Stimulant for Transplant Tree and Transplant Palm Tree

Root stimulant is not required.

Add to section 20-2.03D:

After deficiencies are corrected, perform work to maintain existing planted areas in a neat and presentable condition and to promote healthy plant growth. Submit a work plan that includes weeding, weed control, fertilization, watering, and controlling rodents and pests. The work plan must include the following requirements:

1. Weeds must be killed in existing planted areas as shown. Weeds in existing plant basins, including basin walls, must be killed by hand pulling.
2. Where pesticides are used to kill weeds, weeds must be killed before they reach the seed stage of growth or exceed 4 inches in length, whichever occurs first.
3. Where weeds are to be killed by hand pulling, weeds must be hand pulled before they reach the seed stage of growth or exceed 4 inches in length, whichever occurs 1st, except for tumbleweeds. Dispose of weeds the same day they are pulled.
4. Tumbleweeds must be killed by hand pulling before they reach the seed stage of growth or exceed 6 inches in length, whichever occurs 1st. Dispose of tumbleweeds the same day they are pulled.
5. Weeds killed in existing planted areas must extend beyond the outer limits of the existing planted areas to the adjacent edges of paving, fences, proposed plants and planting areas, and the clearing limits as described in section 20-7.03B.
6. Weeds must be killed within a 6 foot diameter area centered at each existing tree and shrub located outside of the existing planted areas.
7. Pesticides used for maintaining existing planted areas must comply with section 20-1.02B.
8. Water plants automatically if the new irrigation system for that area is operational.
9. Existing plant basins, if still required as determined by the Engineer, must be kept well-formed and free of silt. If the existing plant basins need repairs, and the basins contain mulch, replace the mulch after the repairs are done.

Replace section 20-3.02H with:

20-3.02H(1) Irrigation Controller System

The Remote Irrigation Control System (RICS) shall consist of an existing Base Station, Local Radio Hub (HUB), field units and personnel training. The RICS shall be manufactured by CALSENSE.

The equipment and software, made by the same manufacturer and bearing the same model number, proposed for this project shall have been in use as a complete unit for a minimum of 6 months by a private sector company or a government agency located in the State of California.

20-3.02H(2) Base Station

The remote satellite irrigation controllers shall communicate with the central computer base station. The base station is existing and is located at the Department of Transportation's District 10 Maintenance Station at 908 N. Emerald Avenue, Modesto, California 9535.
 Contact: Russ Lake (209) 610-7203.

20-3.02H(3) Base Station Equipment

Communication Equipment – Base Station to Local Radio Hub

The communication equipment from the existing Base Station to the Local Radio Hub shall have a 2 way data communications link with the following method:

- A. Standard telephone lines.

Auxiliary items

Auxiliary items shall consist of cables, antennas and other additional items necessary for a functional RICS base station.

Set Up

The Contractor shall be responsible for configuring the existing Base Station to communicate with the new field units, provide station description input, and demonstrate that the base station is in operating condition and performs the functions specified. The Contractor shall contact Russ Lake (209) 610-7203 to coordinate with Maintenance for access to the existing base station.

Field Units

The field units shall be manufactured by CALSENSE. Field units shall consist of ET2000e irrigation controllers, communication and auxiliary equipment installed in CALSENSE individual irrigation controller enclosure cabinets. The irrigation controller enclosure cabinet and all CALSENSE irrigation components and equipment shall conform to the equipment as shown on the Hardware List below and in these special provisions.

The quoted prices and equipment are as follows:

CALSENSE Water Management System

Field Unit A (ICC-A)				
Model	Description	Qty.	Unit Cost	Ext. Cost
ET2000e-48-LR-M-FL- RRe	48 station ET and moisture driven irrigation controller, with Local Radio, with Calsense enhanced integrated radio remote receiver board	1	\$6,953.00	\$ 6,953.00
SSE-R	Heavy-duty stainless-steel enclosure w/installed TP-1, TP-110 and ANT-1	1	\$ 2,185.00	\$ 2,185.00
FM-3	3" PVC tee mounted Flow Sensor	1	\$ 550.00	\$ 550.00
Sub Total, Field Unit A				\$ 9,688.00

Note: Controller ICC-B shall be hardwired to controller ICC-C w/ Paige Cable, P-7171-D in conduit

Field Unit B (ICC-B)

Model	Description	Qty.	Unit Cost	Ext. Cost
ET2000e-32-M-FL-RRe	32 station ET and moisture driven irrigation controller, with Flow-On-A-Loop software only, required communication option when one or more than one controller is using this option, with Calsense integrated radio remote receiver board	1	\$ 4,513.00	\$ 4,513.00
SSE-R	Heavy-duty stainless-steel enclosure w/installed TP-1, TP-110 and ANT-1	1	\$ 2,185.00	\$ 2,185.00

**Field Unit
C
(ICC-C)**

Note: Controller ICC-C shall be hardwired to controller ICC-B w/ Paige Cable, P-7171-D in conduit				
Model	Description	Qty.	Unit Cost	Ext. Cost
ET2000e-40-M-FL-RRe	40 station ET and moisture driven irrigation controller, with ability to chain to controller with MFL option and share one Radio line, with Flow-On-A-Loop software only, required communication option when one or more than one controller is using this option, with Calsense integrated radio remote receiver board	1	\$ 4,928.00	\$4,928.00
SSE-R	Heavy-duty stainless-steel enclosure w/installed TP-1, TP-110 and ANT-1	1	\$ 2,185.00	\$ 2,185.00
Sub Total, Field Unit B and Field Unit C				\$ 13,811.00

**Local
Radio Hub
(HUB)**

Local Radio Hardware				
Model	Description	Qty.	Unit Cost	Ext. Cost
LR-R-HUB-SSE	Local Radio Hub, requires phone communication to central computer, with Heavy-Duty stainless steel enclosure	1	\$6,235.00	\$6,235.00
ANT-PROT	Antenna cable surge protection device	1	\$210.00	\$210.00
LR-FILTER	Local Radio frequency filter	1	\$460.00	\$460.00
LR-STICK	Calsense stick antenna for Local Radio	1	\$295.00	\$295.00
LMR-400DB	Antenna cable, custom length includes end connectors, cost per foot (100 feet estimated)	100 ft	\$5.80	\$580.00
DL-2	Data logger with phone modem	1	\$3,150.00	\$3,150.00
RRe-TRAN	Calsense enhanced handheld radio remote	1	\$880.00	\$880.00
Sub Total, Field Local Radio Hub				\$11,810.00

Specified equipment may be purchased at one of the suppliers listed below: Ewing Irrigation, 1023 South Pershing Avenue, Stockton, California 95206, (209) 948-6933 or John Deere Landscapes, 701 Kearney Avenue, #8, Modesto, California 95350, (209) 521-6011 FYI: Horizon also carries Calsense equipment

Prices quoted are guaranteed until August 30, 2012. Quoted prices do not include shipping or sales tax.

Field units shall monitor the main line flows when operating with, or independently of, the base station. Field units grouped together shall share a common communication unit with the base station.

Communication Equipment – Local Radio Hub to Field Units

The communication equipment from Local Radio Hub to the Field Units shall have a 2 way data communications link with the field units by the following methods:

- A. Point to point local radio.

The contractor and the Irrigation Controller vendor shall coordinate with the Caltrans-Office of Radio Communications and the project Resident Engineer prior to securing or modifying and FCC license when using the local radio communication option. When the FCC license is secured a copy of the license and the vendor contact person shall be forwarded to Caltrans-Office of Radio Communication at the following address:

Reference current FCC License for Modesto, California

Call Sign: WQKZ960
Frequency: 458.9150MHz

Steven Styduhar
Associate Telecommunications Engineer
Caltrans Maintenance/Office of Radio Communications
916-654-5482
1120 N St, MS 77
Sacramento, CA. 95814

The FCC license will be filed, maintained and renewed as required by the Caltrans-Office of Radio Communications. One copy of the same information shall be delivered to the project Resident Engineer.

The Contractor shall make application and arrangements for telephone service and assign the services to the State upon the date of acceptance of the contract.

Fees for the applications, licenses and leases will be reimbursed by the State.

Inputs and outputs of the communication system shall be lighting, transient and surge protected, including the power, antenna and control connections.

20-3.02H(4) Training

Personnel training shall consist of a minimum 60 hours of classroom and field training for 4 personnel on the use and adjustment of the base station equipment (including software) and field units. The training shall be conducted over 8 consecutive working days, unless otherwise permitted by the Engineer. One complete set of training documentation and training aids shall be provided to each trainee and 2 sets to the Engineer (if videos are included in the training sessions, only one video tape copy will be required) and the training material shall become the property of the State.

The State will provide space for the training, including chairs and tables. Other required training aids will be the responsibility of the Contractor. At the option of the Contractor, the training facility may be provided at a facility of the Contractor's choice, that is, within 30 miles of the project location or of the Office of the District Director of the District in which the project is located.

Add to section 20-3.02R(1):

Ball valves must be brass.

Add to section 20-3.02R(3)(b):

Remote control valves must be glass filled nylon.

Replace section 20-3.02V with:

20-3.02V Water Meters

Water meters for the irrigation systems are furnished and installed by the servicing utility at the locations shown.

Make the arrangements and pay the costs and fees required by the servicing utility for furnishing and installing each water meter. Fees and costs include:

1. Water meter
2. Connection to servicing utility water line
3. Pipe extension from the serving utility water line to Department's property line or water meter
4. All labor, materials and equipment necessary

The City of Modesto Water Department has established a fee of \$30,000 for furnishing and installing a water meter. If, at the time of installation, this fee has changed, the Department takes a credit for the reduction in the fee, or the Department pays the difference for the increase in the fee. The credit or payment is taken or paid on the 1st monthly progress payment made after the meter is installed. Submit a copy of the invoice for the installation fee.

Make arrangements for furnishing and applying water until the water meters have been installed by the servicing utility.

Replace the 2nd paragraph of section 20-7.01B(1) with:

At least 10 days before planting the plants, submit a statement from the vendor that the order for the plants required for this Contract, including sample plants used for inspection, has been received and accepted by the vendor. The statement from the vendor must include the names, sizes, and quantities of plants ordered and the anticipated delivery date.

Replace section 20-7.02D(1)(d) with:

Organic fertilizer must be one of the following and comply with the requirements of the following table:

Organic Fertilizer

Product	Guaranteed chemical analysis (N-P-K) (%)	Company
Biosol Mix®	7-2-3	Rocky Mountain Bio-Products Denver, CO
Fertil-Fibers™	6-4-1	Quattro Environmental, Inc. Coronado, CA
Sustane®	5-2-4	Sustane Natural Fertilizer, Inc. Cannon Falls, MN
Or equal ^a	(N) 5 to 7 (P) 1 to 5 (K) 1 to 10	--

^aOr equal must be pelleted or granular and be within the ranges shown for N-P-K. The cumulative (N) release rate must be no more than 70 percent the first 70 days after incubation (86 degrees F) with 100 percent at 350 days or more.

Delete item 1 of the 3rd paragraph of section 20-7.02D(3).

Add to section 20-7.03B(2):

Weeds must be killed within ground cover areas and within the area extending beyond the outer limits of the ground cover areas to the adjacent edges of shoulders, dikes, curbs, sidewalks, walls, existing planting, and fences. At those locations where ground cover areas are 12 feet or more from the adjacent edges of shoulders, dikes, curbs, sidewalks, walls, and fences, the clearing limit must be 6 feet beyond the outer limits of the ground cover areas.

Seed must contain at most 1.0 percent total weed seed by weight

Deliver seed to the job site in unopened separate containers with the seed tag attached. Containers without a seed tag attached are not accepted. The Engineer takes a sample of approximately one ounce or 0.25 cup of seed for each seed lot greater than 2 pounds.

Seed must comply with the following:

<i>Seed</i>		
Botanical Name (Common Name)	Percent Germination (Minimum)	Pounds Pure Live Seed Per Acre (Slope Measurement)
Lotus Purshianus (Purshings Lotus)	45	2.5
Lupinus Bi-Color (Pigmy Leared Lupine)	72	9
Bromus Carinatus ¹ (California Brome)	72	7
Eschscholzia California (California Poppy)	68	4.5
Festuca Idahoensis ¹ (Idaho Fescue)	63	2.5
Hordeum Brachantherum ¹ (Meadow Barley)	63	12.5
Nemophila Menziesii (Baby Blue Eyes)	72	9
Elymus Glaucus (Blue Wildrye)	72	9
Gilia tricolor (Birds Eyes)	68	1
Melica Californica ¹ (California Melic)	54	2
Nassella Pulchra (Purple Needle grass)	63	5.5
	Total	64.5

¹Seed produced in California only.

Apply Hydroseed materials in separate applications in the following sequence:

1. Apply the following mixture with hydroseeding equipment at the rates indicated within 60 minutes after the seed has been added to the mixture:

Material	Pounds Per Acre (Slope Measurement)
Seed	64.5
Fiber	530
Commercial Fertilizer	133

2. Apply straw at the rate of 2 tons per acre based on slope measurements. Incorporation of straw will not be required. Distribute straw evenly without clumping or piling.
3. Apply the following mixture with hydro-seeding equipment at the corresponding rates:

Material	Pounds Per Acre (Slope Measurement)
Fiber	530
Commercial Fertilizer	133
Tackifier	125

The ratio of total water to total tackifier in the mixture must be as recommended by the manufacturer.

- 1.2.2. Choose an antistrip treatment based on the table titled "Antistrip Treatment Laboratory Procedures for Mix Design" and treat RHMA-G.
- 1.2.3. Determine the tensile strength ratio under California Test 371 on treated RHMA-G.
2. If the tensile strength ratio testing for treated RHMA-G is greater than or equal to 70, use that antistrip treatment in the mix design.
3. If the tensile strength ratio testing for treated RHMA-G is less than 70, the minimum tensile strength specification is waived, but you must use any of the following:
 - 3.1. HMA aggregate lime treatment – slurry method
 - 3.2. HMA aggregate lime treatment – dry hydrated lime method, with or without marination
 - 3.3. Liquid antistrip treatment using 0.5 percent liquid antistrip

Determine the quantity of asphalt rubber binder to be mixed with the aggregate for RHMA-G under California Test 367 except:

1. Specific gravity used in California Test 367, Section B, "Void Content of Specimen," must be determined under California Test 308, Method A.
2. California Test 367, section C, "Optimum Bitumen Content," is revised as follows:
 - 2.1. Base the calculations on the average of 3 briquettes produced at each asphalt rubber binder content.
 - 2.2. Use California Test 309 to determine theoretical maximum specific gravity and density of the RHMA-G.
 - 2.3. Plot asphalt rubber binder content versus average air voids content based on California Test 309 for each set of three specimens on Form TL-306 (Figure 3), and connect adjacent points with a best-fit curve.
 - 2.4. Plot asphalt rubber binder content versus average Hveem stability for each set of three specimens and connect adjacent points with a best-fit curve.
 - 2.5. Calculate voids in mineral aggregate (VMA) and voids filled with asphalt (VFA) for each specimen, average each set, and plot the average versus asphalt rubber binder content.
 - 2.6. Calculate the dust proportion and plot versus asphalt rubber binder content.
 - 2.7. From the curve plotted in Step 2.3, select the theoretical asphalt rubber binder content that has 5% percent air voids.
 - 2.8. At the selected asphalt rubber binder content, evaluate corresponding voids in mineral aggregate, voids filled with asphalt, and dust proportion to verify compliance with requirements. If necessary, develop an alternate composite aggregate gradation to conform to the RHMA-G requirements.
 - 2.9. Record the asphalt rubber binder content in Step 2.7 as the Optimum Bitumen Content (OBC).
 - 2.10. To establish a recommended range, use the OBC as the high value and 0.3 percent less as the low value. Notwithstanding, the recommended range must not extend below 7.0 percent. If the OBC is 7.0 percent, then there is no recommended range, and 7.0 percent is the recommended value.
3. Laboratory mixing and compaction must comply with California Test 304, except the mixing temperature of the aggregate must be from 300 to 325 degrees F. The mixing temperature of the asphalt-rubber binder must be from 375 to 425 degrees F. The compaction temperature of the combined mixture must be from 290 to 300 degrees F.

Add to section 39-1.11:

Before opening a lane to traffic, pave shoulders and median borders adjacent to the lane.

Do not leave a vertical joint more than 0.15 foot high between adjacent lanes open to traffic or within lanes open to traffic.

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.

If widening existing pavement, construct new pavement structure on both sides of the existing pavement to match the elevation of the existing pavement's edge for the project's entire length before placing HMA over the existing pavement.

If widening existing pavement, construct new pavement structure on both sides of the existing pavement to match the elevation of the existing pavement's edge at each location before placing HMA over the existing pavement.

If widening existing pavement, construct new pavement structure on both sides of the existing pavement to match the elevation of the existing pavement's edge in increments of at least _____ feet before placing HMA over the existing pavement.

Place shoulder conform tapers concurrently with the adjacent lane's paving.

Place additional HMA along the pavement's edge to conform to road connections and driveways. Hand rake, if necessary, and compact the additional HMA to form a smooth conform taper.

Replace section 39-1.16 with:

39-1.16 RUMBLE STRIPS

39-1.16A General

Construct rumble strips in the top layer of HMA surfacing by ground-in method.

39-1.16B Materials

Not Used

39-1.16C Construction

Select the method and equipment for constructing ground-in indentations.

Do not construct rumble strips on structures or approach slabs.

Construct rumble strips within 2 inches of the specified alignment. The grinding equipment must be equipped with a sighting device enabling the operator to maintain the rumble strip alignment.

Indentations must comply with the specified dimensions within 0.06 inch in depth and 10 percent in length and width.

The Engineer orders grinding or removal and replacement of noncompliant rumble strips to bring them within specified tolerances. Ground surface areas must be neat and uniform in appearance.

The grinding equipment must be equipped with a vacuum attachment to remove residue from the roadbed.

Dispose of removed material.

On ground areas, apply fog seal coat under section 37-2.

39-1.16D Payment

Rumble strips are measured by the station along the length of the rumble strips without deductions for gaps between indentations.

Replace section 39-1.17 with:

39-1.17 DATA CORES

39-1.17A General

39-1.17A(1) Summary

This work includes taking data cores and submitting the information.

Three business days before starting coring, submit proposed methods and materials for backfilling data core holes.

39-1.17A(2) Submittals

Submit the following to the Engineer and to Coring@dot.ca.gov:

1. Summary of data cores taken
2. Photograph of each data core

For each data core, the summary must include:

1. Project identification number

2. Date cored
3. Core identification number
4. Type of materials recovered
5. Type and approximate thickness of unstabilized material not recovered
6. Total core thickness
7. Thickness of each individual material to within:
 - 7.1 1/2 inch for recovered material
 - 7.2 1.0 inch for unstabilized material
8. Location including:
 - 8.1. County
 - 8.2. Route
 - 8.3. Post mile
 - 8.4. Lane number
 - 8.5. Lane direction
 - 8.6. Station

Each data core digital photograph must include a ruler laid next to the data core. Each photograph must include:

1. Core
2. Project identification number
3. Core identification number
4. Date cored
5. County
6. Route
7. Post mile
8. Lane number
9. Lane direction

39-1.17B Materials

Not Used

39-1.17C Construction

Take data cores that include the completed HMA pavement, underlying base, and subbase material. Protect data cores and surrounding pavement from damage.

Take 4- or 6-inch-diameter data cores:

1. At the beginning, end, and every 1/2 mile within the paving limits of each route on the project
2. After all paving is complete
3. From the center of the specified lane

On a 2-lane roadway, take data cores from either lane. On a 4-lane roadway, take data cores from each direction in the outermost lane. On a roadway with more than 4 lanes, take data cores from the median lane and the outermost lane in each direction.

Each core must include the stabilized materials encountered. You may choose not to recover unstabilized material, but you must identify the material. Unstabilized material includes:

1. Granular material
2. Crumbled or cracked stabilized material
3. Sandy or clayey soil

After submitting the data core summary and photograph, dispose of cores.

The contract lump sum price paid for data core includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in data coring, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Replace section 39-1.30 with:

39-1.30 EDGE TREATMENT, HOT MIX ASPHALT PAVEMENT

39-1.30A General

Section 39-1.30 includes specifications for constructing the edges of HMA pavement as shown.

39-1.30B Materials

For the safety edge, use the same type of HMA used for the adjacent lane or shoulder.

39-1.30C Construction

The edge of roadway where the safety edge treatment is to be placed must have a solid base, free of debris such as loose material, grass, weeds, or mud. Grade areas to receive the safety edge as required.

The safety edge treatment must be placed monolithic with the adjacent lane or shoulder and shaped and compacted with a device attached to the paver.

The device must be capable of shaping and compacting HMA to the required cross section as shown. Compaction must be by constraining the HMA to reduce the cross sectional area by 10 to 15 percent. The device must produce a uniform surface texture without tearing, shoving, or gouging and must not leave marks such as ridges and indentations. The device must be capable of transition to cross roads, driveways, and obstructions.

For safety edge treatment, the angle of the slope must not deviate by more than ± 5 degrees from the angle shown. Measure the angle from the plane of the adjacent finished pavement surface.

If paving is done in multiple lifts, the safety edge treatment can be placed either with each lift or with the final lift.

Short sections of hand work are allowed to construct transitions for safety edge treatment.

For more information on the safety edge treatment, go to:

http://safety.fhwa.dot.gov/roadway_dept/pavement/safedge/

You can find a list of commercially available devices at the above Web site under "Frequently Asked Questions" and "Construction Questions."

39-1.30D Payment

Not Used

AA

DIVISION VI STRUCTURES

49 PILING

Add to section 49-1.03:

Expect difficult pile installation due to the conditions shown in the following table:

Pile location		Conditions
Bridge no.	Support location	
38-0163	Bent No. 2	Limited working space, soil type silty sand (SM), high ground water table

Replace "Reserved" in section 49-3.02A(4)(b) with:

Schedule and hold a preconstruction meeting for CIDH concrete pile construction (1) at least 5 business days after submitting the pile installation plan and (2) at least 10 days before the start of CIDH concrete pile construction. You must provide a facility for the meeting.

The meeting must include the Engineer, your representatives, and any subcontractors involved in CIDH concrete pile construction.

The purpose of this meeting is to:

1. Establish contacts and communication protocol between you and your representatives, any subcontractors, and the Engineer
2. Review the construction process, acceptance testing, and anomaly mitigation of CIDH concrete piles

The Engineer will conduct the meeting. Be prepared to discuss the following:

1. Pile placement plan, dry and wet
2. Acceptance testing, including gamma-gamma logging, cross-hole sonic logging, and coring
3. *Pile Design Data Form*
4. Mitigation process
5. Timeline and critical path activities
6. Structural, geotechnical, and corrosion design requirements
7. Future meetings, if necessary, for pile mitigation and pile mitigation plan review
8. Safety requirements, including Cal/OSHA and Tunnel Safety Orders

Add to section 49-3.02B(6)(c):

The synthetic slurry must be one of the materials shown in the following table:

Material	Manufacturer
SlurryPro CDP	KB Technologies Ltd. 3648 FM 1960 West, Suite 107 Houston, TX 77068 (800) 525-5237
Super Mud	PDS Company c/o Champion Equipment Company 8140 East Rosecrans Ave. Paramount, CA 90723 (562) 634-8180
Shore Pac GCV	CETCO Drilling Products Group 1350 West Shure Drive Arlington Heights, IL 60004 (847) 392-5800
Terragel or Novagel Polymer	Geo-Tech Drilling Fluids 220 N. Zapata Hwy, Suite 11A Laredo, TX 78043 (210) 587-4758

Use synthetic slurries in compliance with the manufacturer's instructions. Synthetic slurries shown in the above table may not be appropriate for a given job site.

Synthetic slurries must comply with the Department's requirements for synthetic slurries to be included in the above table. The requirements are available from the Offices of Structure Design, P.O. Box 168041, MS# 9-4/11G, Sacramento, CA 95816-8041.

SlurryPro CDP synthetic slurry must comply with the requirements shown in the following table:

SLURRYPRO CDP

Property	Test	Value
Density During drilling	Mud Weight (density), API 13B-1, section 1	≤ 67.0 pcf ^a
Before final cleaning and immediately before placing concrete		≤ 64.0 pcf ^a
Viscosity During drilling	Marsh Funnel and Cup. API 13B-1, section 2.2	50–120 sec/qt
Before final cleaning and immediately before placing concrete		≤ 70 sec/qt
pH	Glass electrode pH meter or pH paper	6.0–11.5
Sand content, percent by volume Before final cleaning and immediately before placing concrete	Sand, API 13B-1, section 5	≤ 0.5 percent

^aIf authorized, you may use slurry in salt water. The allowable density of slurry in salt water may be increased by 2 pcf.

Slurry temperature must be at least 40 degrees F when tested.

Super Mud synthetic slurry must comply with the requirements shown in the following table:

SUPER MUD

Property	Test	Value
Density During drilling	Mud Weight (Density), API 13B-1, section 1	≤ 64.0 pcf ^a
Before final cleaning and immediately before placing concrete		≤ 64.0 pcf ^a
Viscosity During drilling	Marsh Funnel and Cup. API 13B-1, section 2.2	32–60 sec/qt
Before final cleaning and immediately before placing concrete		≤ 60 sec/qt
pH	Glass electrode pH meter or pH paper	8.0–10.0
Sand content, percent by volume Before final cleaning and immediately before placing concrete	Sand, API 13B-1, section 5	≤ 0.5 percent

^aIf authorized, you may use slurry in salt water. The allowable density of slurry in salt water may be increased by 2 pcf.

Slurry temperature must be at least 40 degrees F when tested.

Shore Pac GCV synthetic slurry must comply with the requirements shown in the following table:

SHORE PAC GCV

Property	Test	Value
Density During drilling	Mud Weight (Density), API 13B-1, section 1	≤ 64.0 pcf ^a
Before final cleaning and immediately before placing concrete		≤ 64.0 pcf ^a
Viscosity During drilling	Marsh Funnel and Cup. API 13B-1, section 2.2	33–74 sec/qt
Before final cleaning and immediately before placing concrete		≤ 57 sec/qt
pH	Glass electrode pH meter or pH paper	8.0–11.0
Sand content, percent by volume Before final cleaning and immediately before placing concrete	Sand, API 13B-1, section 5	≤ 0.5 percent

^aIf authorized, you may use slurry in salt water. The allowable density of slurry in salt water may be increased by 2 pcf.

Slurry temperature must be at least 40 degrees F when tested.

Terragel or Novagel Polymer synthetic slurry must comply with the requirements shown in the following table:

TERRAGEL OR NOVAGEL POLYMER		
Property	Test	Value
Density During drilling	Mud Weight (Density), API 13B-1, section 1	$\leq 67.0 \text{ pcf}^a$
Before final cleaning and immediately before placing concrete		$\leq 64.0 \text{ pcf}^a$
Viscosity During drilling	Marsh Funnel and Cup. API 13B-1, section 2.2	45–104 sec/qt
Before final cleaning and immediately before placing concrete		$\leq 104 \text{ sec/qt}$
pH	Glass electrode pH meter or pH paper	6.0–11.5
Sand content, percent by volume Before final cleaning and immediately before placing concrete	Sand, API 13B-1, section 5	$\leq 0.5 \text{ percent}$

^aIf authorized, you may use slurry in salt water. The allowable density of slurry in salt water may be increased by 2 pcf.
Slurry temperature must be at least 40 degrees F when tested.

Add to section 49-3.02C(1):

Construction of piles shall be sequenced in a manner that CIDH pile will be constructed complete in place before drilling of any new CIDH piles within a center to center distance of 3 times diameter of the pile is started.

Construction of each pile must be completed before opening to traffic; or install steel shell to protect from traffic loads.

51 CONCRETE STRUCTURES

Add to section 51-1.03C(2)(c)(i):

You may use permanent steel forms for the deck slabs .

Replace "Reserved" in section 51-1.03F(5)(b) with:

51-1.03F(5)(b)(i) General

Texture the bridge deck surfaces longitudinally by grinding and grooving.

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.

Replace item 3 in the list in the 4th paragraph of section 51-4.03B with:

3. Except for box girders, a minimum of 1inch of deck slab concrete is maintained between deck slab reinforcement and the top of PC I and double T girders

Add to section 51-4.03B:

Except for box girders and double T girders, provide temporary lateral bracing for girders over Route 99. Install bracing at each end of the girder segments and at the midspan. Bracing must be in place before releasing erection equipment and must remain in place until 48 hours after concrete diaphragms are placed.

Design temporary bracing to prevent overturning and resist the lateral pressures shown in the following table.

Structure height, H (feet above ground)	Lateral pressure ^a (psf)
$0 < H \leq 30$	15
$30 < H \leq 50$	20
$50 < H \leq 100$	25
$H > 100$	30

^aApply the lateral pressure at the top of the girder in either direction.

^^

56 SIGNS

Add to section 56-4.04:

The installing of roadside signs by the strap and saddle bracket method on electroliers, sign structure posts and traffic signal standards, and by the mast arm hanger method on traffic signal mast arms will be measured as units determined from actual count of the sign panels in place.

AA

DIVISION VII DRAINAGE

64 PLASTIC PIPE

Replace "Reserved" in Section 64-1.02F-64-1.02H with:

64-1.02F Water Pipe

General

This work consists of furnishing and placing 16" water pipe, steel pipe casing, air release valves, gate vales, valve boxes, and restrained joints through the Route 99/219 overcrossing, as shown on the plans or as directed by the Engineer, and as specified in these special provisions and as directed by the Engineer.

Construction of water pipe must conform to the City of Modesto Standard Specifications, and City of Modesto Standard Details. In all case, water pipe construction shall conform to the current City of Modesto's Engineer's Report, the Public Health Agency and California Fire Code.

Contractor shall submit shop drawings to Modesto Irrigation District (MID) for approval prior constructing water pipe.

Materials

All materials and components used for improvement to the City of Modesto Water System shall comply with the latest American Water Works association (AWWA) Standards including amendments, the National Sanitation Foundation International (NSF International) listings for Water Treatment and Distribution systems including annexations, and be constructed from "No Lead" materials.

I. WATER MAIN PIPE

Polyvinyl Chloride Pipe (PVC)

- a. PVC pipe 16-inch diameter shall be either Fusible C905 PVC DR 18, or C906 PE 3408 DR 11 or equal.
- b. The color of the pipe shall be blue to match Under Ground Service Alert color code.
- c. PVC pipe joints shall have elastomeric-gasket bell ends or couplings. The bell ends shall be an integral thickened bell end or integral sleeve-reinforced bell end.
- d. Deflection in pipe joints shall not exceed 80 percent of the manufacturer's published allowable deflection.
- g. Acceptable PVC pipe manufacturers are be Pacific Western, John Mansville, Certainteed or equal.

II. RESTRAINED JOINTS

- a. Restrained flange adapters and mechanical joint restraint shall be made of ductile iron conforming to ASTM A536 and have flange bolt circles compatible with ANSI/AWWA C110/A21.10.
- b. The restrained flange adapter or mechanical joint restraint shall consist of a plurality of individual actuated gripping wedges to maximize restrain capability. Torque limiting actuating screws shall be used to ensure proper initial set of gripping wedges.
- c. The restrained flange adapter shall be capable of deflection during assembly, or allow lengths of pipe to be field cut and a minimum of 0.6 inch gap between the end of the pipe and the mating flange without affecting the integrity of the seal.

- d. The restrained flange adapter and mechanical joint restraint coating shall consist of a minimum of two coats of liquid thermoset epoxy coating with heat cure to follow each coat.
- e. Restrained flange adapter manufacturer and model: EBAA, Inc. Series 2100 Megaflange, or equal.
- f. Mechanical joint restraint manufacturer and model: EBAA, Inc. Force Balanced FLEX-TEND

III. WATER MAIN VALVES AND VALVE BOXES

- a. All valves shown adjacent to fittings shall have one mechanical joint and one flange joint. The flange joint will bolt to the fitting.
- b. All gate valves shall be the rubber-seated, tight-closing type conforming to AWWA Standard C509. Valves shall open left and be equipped with a 2-inch AWWA operating nut.
 - 1) Clow Model 2639,
 - 2) AVK Series 45,
 - 3) Mueller Series 2300,
 - 4) Kennedy Model KS-FW, or equal
- c. All butterfly valves shall conform to AWWA Standard C504. Butterfly valves may be installed on main runs only. Valves shall open left and be equipped with a 2-inch AWWA operating nut.
- d. Valve boxes shall be a traffic valve box and lid rated for H-20 traffic loads. The minimum inside diameter of the concrete box shall be 10- 3/8 inches. The overall depth of the concrete box shall be a minimum of 12 inches. The valve box lid shall be cast iron.
 - 1) Valve cover lids must be labeled "WATER."
 - 2) An acceptable valve box manufacturer and product is Christy Concrete Products - G05TBOX "Traffic Valve Box" and G05CT "Cast Iron" lid, or equal.
 - 3) Materials to be used for extensions below valve box to valve operating nut shall be 8-inch PVC pipe.

Regardless of pipe material selected, the pipe must be encased by a steel carrier pipe. The carrier pipe must be seismically braced transversely every forty feet, and longitudinally every eighty feet. The carrier pipe must terminate with a minimum distance clear for movement at each abutment wall. This space must include a flexible expansion joint. Each abutment should have a casing extending through the abutment.

Prior to ordering any materials, the Contractor shall supply the Engineer with copies of all specifications from the above associations used in acquiring the materials needed for this work. Installation of pipe shall conform to manufacturer installation guide unless otherwise stated by these specifications.

Installation

The Contractor shall, unless specified otherwise, furnish all material, equipment, tools and labor necessary to do the work required.

Pipes shall be laid accurately in conformity with the prescribed lines and grades. Each length shall be joined to the preceding section has been completed, there shall be no movement of the pipe whatsoever in subsequent operations.

Pipe Testing

Each section of the pipe to be tested shall be slowly filled with water from the existing system through an accepted temporary backflow prevention assembly and all air shall be expelled from the pipe. Any temporary

pipe, fittings, valves, couplings and other materials needed to fill the pipes with water shall be supplied and installed by the Contractor.

Payment

Water line is measured along the centerline of the pipe and parallel with the slope line. The payment quantity is the length designated by the Engineer.

The contract prices paid per linear foot for 16" PVC water pipe shall include full compensation for furnishing all labor, materials (including valves, valve boxes, and restrained joints), tools, equipment, and incidentals, and for doing all the work involved in laying the water main, complete in place, including excavation, trench from existing water pipe to end of new pipe, backfill, temporary pipe, fittings, valves, couplings, and other material needed for pipe testing, as shown on the plans, as specified in the City of Modesto Standard Specifications and these special provisions, and as directed by the Engineer.

Steel pipe casing will be paid as a portion of miscellaneous metal (bridge).

^^

65 CONCRETE PIPE

Add to section 65-2:

65-2.02B(4) BORE AND JACK (Open Shield Tunneling)

The work shall be performed to the requirements in Section 623.1, "Bore and Jack" of the Encroachment Permit Manual and in accordance with the applicable federal and state codes and laws which pertain to such work and supplemental regulations which are contained in these special provisions. In case of conflict between these specifications and any federal or state codes or laws, the most stringent requirements shall govern. The Contractor shall have sole responsibility for the safety of the tunnel and shafts and all personnel engaged in the work. The Contractor's attention is directed to the latest edition of the Construction Industry OSHA Safety and Health Standards (29 CFR 1926.800) as published by the U.S. Department of Labor.

Tunneling operations shall be performed by a qualified Contractor with at least five (5) years recent experience on similar projects using the methods that will be employed for this project. At all times, perform the work under the direction of an experienced project superintendent with at least three (3) years of recent on-the-job supervision experience on similar projects involving tunnels of similar size constructed by similar methods. Contractor shall submit evidence of the required qualifications and demonstrate recent experience installing similar pipelines in tunnels.

Design Requirements

The Contractor shall be fully responsible for the selection and design of open face tunnel boring machine or open shield and of the tunnel construction means and methods. The open face tunneling method and machine selected by the Contractor shall be compatible with the equipment, procedures and personnel to produce a safe tunnel excavation. The finished tunnel shall meet the full intent of the Drawings and Specifications.

Contractor shall be responsible for design of the open face tunnel boring machine or open shield, main jacking system, annular space lubrication system, and other related items necessary to install the pipe as described in the Contract Documents.

Contractor shall be responsible for the design of the jacking pipe to withstand all installation loads created by jacking or other construction activities and to accommodate the carrier pipe.

The Contractor shall be responsible for the design of the ventilation and lighting system. The ventilation system shall conform with OSHA requirements and the lighting system shall allow safe entry into the pipe.

Tolerances

Variations from line shall not exceed 3 inches at any point along the alignment between the origin and terminal ends. Variations from grade shall not exceed 1 inch at any point.

Submittals

Tunneling and Pipe Jacking Plan:

1. Tunneling system plan shall include, but not be limited to:
 - a. Tunnel machine manufacturer's literature describing in detail the equipment and the proposed tunneling system including the machine's dimensions, weight, power, torque capabilities, rotational capabilities, configuration of cutting head, articulation, and steering capabilities if a tunnel machine is used.
 - b. Open shield dimensions and excavation equipment if an open shield is used.
 - c. Grade and alignment control system
 - d. Spoils removal system, including material transport equipment
 - e. Method of face stabilization
 - f. Method of groundwater control
 - g. Description of proposed ventilation system
 - h. Description and details of any temporary underground facility proposed for operation including lights, sump pits, and mud slabs
 - i. Jacking mechanism including ultimate jacking capacity.
 - j. Safe jacking capacity of jacking pipe
 - k. Anticipated jacking forces for each drive
 - l. Jacking force monitoring and recording details
 - m. Thrust block design calculations and safe capacity
 - n. Provisions for injecting pipe lubricants
 - o. Intermediate jacking station design, including maximum stroke, ultimate and safe capacity of jacking pipe, jacking force monitoring and recording details
 - p. Pipe jacking lubricant mix design, including lubricant type, injection volume and measurement procedures, pumps, piping, valve arrangements, and pressure gages.
 - q. Calibration table correlating jacking pressure gage readings and applied load in tons.

Shop Drawings:

1. Layout drawings showing general tunneling and pipe jacking operation set-up, including locations of all equipment, staging and storage areas, and emergency access around the tunnel operations.
2. Hydraulic Jacking System, including hydraulic jack configuration and frame dimensions
3. Thrust Block design and configuration
4. Intermediate Jacking Station Detail
5. Detailed drawings of pipe seals, pipe joints, collars, cushioning materials, and reinforcing details.

Progress Reports and Records: The Contractor shall submit to the Project Representative daily tunnel progress logs in Microsoft Excel spreadsheet electronic format and hard copy by the beginning of each following work day. Reporting of all information does not relieve the Contractor of its responsibility for control and protection of the work. The information on the progress report shall include but not be limited to:

1. Time and stationing for each push of the machine and jacked pipe.
2. Description and volume of soils excavated per jacked pipe section.
3. Line and grade measurements taken and recorded a minimum of 3 times per pipe segment.
4. Jacking pressures recorded a minimum of 3 times per pipe segment
5. Quantity of lubrication and location of application for each jacked pipe segment
6. Incidence of ground loss, heave, boulders, water or soil inflows, and any other unusual events.
7. Location of inserted intermediate jacking stations and whether in use.
8. Detailed time record of excavation and pipe change-out times, including delays and causes of delays.
9. Description of any worker safety concern or accident.

Tunneling Construction Safety Plan

Operation and Maintenance Manuals: Submit complete operations and maintenance manuals for all open face tunneling equipment proposed for use.

Pavement Monitoring: Monitor pavement settlement or heave during the jacking process. Heave and settlement of the road surface above the pipe shall not exceed 0.02 feet. If heave or settlement exceeds 0.02 feet revise the operations to reduce such induced movement. If heave or settlement exceeds 0.04 feet cease operations and submit to the Engineer a Work Plan to repair damage and limit such movement. Make repairs as directed by the Engineer to the roadway surface as required to correct damage from the jacking operation. Repairs to the roadway surface or subsurface grouting of voids created by the jacking process shall be at the Contractor's expense and will not be measured nor paid for.

Safety Requirements

Methods of construction for the tunneled pipe shall be such as to ensure the safety of the work, the Contractor's employees, and the County's employees and inspectors, the public, and the adjacent property, whether public or private. All work shall conform with OSHA standards.

The Safety Officer shall administer an accident prevention program and shall prepare a code of safe practices and an emergency plan. Hold safety meetings weekly and provide safety instruction for new employees as required by OSHA.

Conduct all tunneling operations by methods and with equipment that will positively control dust, fumes, vapors, gases, and other atmospheric impurities. Provide approved instrumentation for testing the quality of the air in manned work areas and man-entry pipelines. Obtain samples under working conditions at prescribed intervals in accordance with the above referenced requirements. Submit the results of the air quality tests each week.

All underground work areas shall have sufficient lighting to facilitate proper performance and inspection of work and safe passage between the shafts and tunnel headings in accordance with applicable federal, state, and local laws.

All underground construction shall be performed in accordance with the applicable fire prevention and control requirements of Cal OSHA and local Fire Department ordinances.

Tunnel Boring Machine

The tunnels shall be driven using an open face tunnel boring machine or open shield as defined herein and as specified in the Contract documents. The open face tunneling method shall be used in combination with dewatering wells, eductor wells, and/or sump pumps as needed to control groundwater conditions and create stable ground conditions at the face of the machine. Dewatering shall be performed to the requirements set forth in "Job Site Management of these special provisions.

The tunnel boring machine or open shield shall be capable of accommodating the soil, rock, and groundwater conditions as described in the Geotechnical Report. If the machine or shield is not capable of accommodating the ground conditions as described in the Geotechnical Report, the Contractor must provide suitable alternative means for accommodating the ground conditions. The Contractor shall be fully responsible for the success of construction methods selected to complete the work.

The tunnel machine or open shield shall be operated at the front face of the machine.

Cutterheads, if used, shall be capable of rotating in both directions.

The system shall be steerable at the front face of the tunnel excavation and shall be capable of maintaining the specified line and grade within the specified tolerances.

A laser guidance system shall be used to track the line and grade of the machine relative to the laser.

Stability of the tunnel face shall be maintained at all times, even during shutdowns of the tunneling machine.

The maximum allowable radial overcut shall be one inch.

The machine or shield shall be designed and constructed to allow for lubrication behind the over-cut ring and around the machine from inside the tunnel.

A gasketed seal between the tunnel boring machine and the jacking pipe shall be provided to ensure a competent watertight seal

Jacking System

The tunnel machine or open shield shall be designed to be propelled forward by pipe jacked into place by thrust cylinders.

The jacking system shall have an even number of thrust cylinders, arranged symmetrically. The thrust cylinders shall have individual actuation, synchronized actuation, and individual maximum thrust control. Thrust cylinders shall not exert forces when idle, but shall resist displacements.

Control gages shall be accessible to allow the Project Representative to check readings during excavation.

The maximum thrust at any point and any time on the jacked pipe shall not exceed the safe jacking capacity of the pipe.

The thrust cylinders shall be equipped with a push ring to equally distribute the jacking forces to the jacking pipe.

Guidance System and Alignment Control

A laser guidance system shall be used to determine the location of the tunnel boring machine or open shield relative to the laser.

The guidance system shall include a target to indicate deviations in line and grade.

The system shall be equipped with means by which the Project Representative can verify tunnel alignment and grade, such as access to the tunnel shield guidance system.

The initial alignment of the equipment and final casing alignment shall be certified by a Professional Land Surveyor licensed in the state of California at the Contractor's expense.

Material

Jacking Pipe: Jacking Pipe shall be reinforced concrete pipe Class IV (ASTM C76). Additional strength of pipe required to withstand jacking pressures shall conform to Section 65-1.05, "Jacking Pipe", of the Standard Specifications.

Annular Space Lubrication

1. Lubricants shall be non-toxic, environmentally safe materials
2. Water used for pipe lubrication shall be clean, fresh, and free from oil, organic matter, or other deleterious matter and of neutral pH.

Pressure Grout:

1. Pressure grouting of the space between the jacking pipe and the surrounding ground.
2. Develop one or more grout mixes designed to completely fill the voids outside the pipe and to provide acceptable strength. All grout mix proportions shall be subject to review and acceptance by the Engineer.
3. The maximum sustained grouting pressure shall be 15 pounds per square inch (psi) at the grout hole.

Backfill Sand or Annular Space Sand: Mortar sand

Installation

General:

1. Observe work requirements stipulated in any permit condition.
2. Consult Contract Drawings for limitation of construction right-of-way.
3. Tunneling work shall be executed in accordance with the approved working hours established for the project. Notify the Engineer at least 24 hours in advance of a change in working hours.
4. Prior to the start of tunnel excavation, conduct a pre-job safety conference in accordance with OSHA requirements and the project Safety and Health Program. Arrange this conference and inform the Engineer at least seven (7) days in advance.

5. When the work is interrupted for 4 hours or more, support face in accordance with the approved Shop Drawings.
6. Once the jacking has commenced, the operation shall be continuous until the pipe has been jacked to its final location as shown on the plans.

Tunneling Requirements:

1. Perform tunneling operations in a manner that will minimize the movement of the ground in front of and surrounding the tunnel excavation. Take all necessary measures to minimize subsidence that can cause damage or disruption of the ground surface, road crossings and utilities above or in the vicinity of the tunnel. Support the ground in a manner to prevent loss of ground and keep the perimeters and tunnel face stable.
2. Pressure grout all voids outside jacking pipe.
3. Provide electrical, water, lighting and other facilities required to complete the tunnel.
4. Proper ventilation shall be maintained to keep the atmosphere free of toxic or flammable gases and particulate matter. The ventilation system shall have sufficient capacity and shall meet all applicable ventilation requirements of OSHA and supplemental ventilation requirements contained herein.
5. Maintain clean working conditions inside the tunnel, and at the surface work areas. Immediately remove muck, slush, grout spills and any other material not required for tunneling from the tunnel and surface work areas.
6. Methods of excavation, equipment and procedures shall be selected to produce and maintain a stable excavated surface around the tunnel and portal perimeters, and to limit loosening and deterioration of the ground around the excavations to the maximum extent practical.
7. There will be no differentiation of soil and rock in the excavated materials for payment purposes. The term "excavation" shall include all materials excavated or removed from the tunnel, shafts, and pipeline excavations.
8. The Contractor shall keep the tunnel invert free from standing water. All water removed from the tunnel and associated construction locations shall be free of suspended solids, oil, or any other deleterious substances and shall meet minimum water quality discharge requirements prior to discharge in accordance with the Contract Documents. All work and materials in connection with water inflow removal shall be considered a subsidiary obligation of the Contractor and no separate payment will be made for such work and materials.
9. All water removed from the tunnel shall be disposed in a safe and approved manner.

MEASUREMENT AND PAYMENT

The length of jacked pipe to be paid for will be the length measured along the centerline of the jacked pipe as designated by the Engineer.

The contract price paid per linear foot for jacked pipe includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all of the work involved in installing jacked pipe, complete in place, including excavation, backfill, grouting and cleaning as specified in the Standard Specifications and these special provisions, as shown on the plans, and as directed by the Engineer.

AA

68 SUBSURFACE DRAINS

Replace Section 68-2.04 with:

68-2.04 Payment

Perforated Plastic Pipe underdrains will be paid for at the contract price per linear foot for the various sizes, types, thicknesses and coatings of pipe underdrains as designated in the Engineer's Estimate.

The contract price paid per linear foot for perforated plastic pipe underdrains shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing pipe underdrains complete in place, including excavation, filter fabric, permeable material, welded metal covers, concrete collars to connect to drainage structure, and structure backfill if required, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.



DIVISION VIII MISCELLANEOUS CONSTRUCTION

72 SLOPE PROTECTION

Replace Section 72-2.04 with:

72-2.04 Payment

The contract price paid per cubic yard for rock slope protection (No.2, Method B) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the rock slope protection, complete in place, including rock slope protection fabric, excavation, and backfilling footing trenches, as shown on the plans, and as specified in the Standard Specifications, these special provisions, and as directed by the Engineer.

Add to section 72-11.01A

Slope Paving (Patterned Concrete) as shown must comply with Section 72-11, "Slope Paving", of the Standard Specifications and these special provisions.

Payment for aesthetic patterns on slope paving as shown is included in the payment for Slope Paving (Patterned Concrete).



73 CONCRETE CURBS AND SIDEWALKS

Replace Section 73-3.04 with:

73-3.04 Payment

Curbs, sidewalks, curb ramps, driveways, medians, islands, gutters, gutter depressions, underdrain protection concrete slab will be paid for at the contract price per cubic yard for minor concrete (Miscellaneous Construction)

The contract prices for minor concrete (Miscellaneous Construction) shall include full compensation for furnishing all labor, materials (including adhesive, detectable warning surface, or reinforcing steel and dowels for anchoring curbs to existing pavement), tools, equipment, and incidentals, and for doing all the work involved in constructing curbs, sidewalks, curb ramps, driveways, medians, islands, gutters, gutter depressions, underdrain protection concrete slab, complete in place, including subgrade preparation, wall drain, as shown on the plans, as specified in the Standard Specifications, and these special provisions, and as directed by the Engineer.

Add to section 73

73-5 MINOR CONCRETE (TEXTURED PAVING)

Minor concrete (textured paving) contrasted gore, and minor concrete (textured paving) island paving shall conform to the provisions in Section 73, "Concrete Curbs and Sidewalks," of the Standard Specifications and these special provisions.

Aggregate for minor concrete (texture paving) shall conform to the grading requirement for fine aggregate in Section 90-1.02C(4)(c), "Fine Aggregate Grading" of the Standard Specifications.

Aggregate for grout shall conform to the following grading:

Aggregate Grading for Grout

Sieve Sizes	Percentage Passing
No. 4	100
No. 8	90-100
No. 16	60-100
No. 30	35-70
No. 50	15-35
No. 100	2-15

A sample of sufficient size, of each type and color of the textured paving, to demonstrate the textured paving, including color hardener, curing and finishing compounds, for both grouted and ungrouted finishes, shall be submitted to the Engineer for written approval.

Minor concrete (textured paving) shall not be placed on the project prior to written approval by the Engineer of the samples prepared and submitted by the Contractor. In the event more than one sample of each type and color of textured paving to be placed is required by the Engineer, each additional sample will be paid for as extra work as provided in Section 4-1.05 of the Standard Specifications.

Bar reinforcing steel, welded wire fabric, of the size and type shown on the plans and conforming to the provisions in Section 52, "Reinforcement," of the Standard Specifications, shall be placed in the textured paving areas as shown on the plans.

Aggregate base shall be Class 2 and shall conform to the provisions in Section 26, "Aggregate Bases," of the Standard Specifications.

The respective pattern types and colors of concrete for textured paving shall be placed at the locations shown on the plans, struck off and compacted until a layer of mortar is brought to the surface. The concrete shall be screeded to the required grade and cross section and floated to a uniform surface.

The forming tools for the minor concrete (textured paving) shall be applied to form the patterned surfaces while the concrete is still in the plastic stage of set.

Testing of the completed pumping equipment shall be completed in conformance with "Pumping Plant Electrical Equipment" of these special provisions and Section 74-1.01D, "Quality Control and Assurance," of the Standard Specifications.

Section 74-2.02B(2) Drainage Pumps – Add the following sentence to the end of paragraph 1:

"A base-elbow mounted pump is allowed and shown for Pump No. 3. Pump Nos,1 and 2 are pumps with fixed mounts in the wet well as shown.

Add Section 74-2.02C(4) Access Hatches:

Section 74-2.02C(4) Access Hatches

Factory fabricated and completely assembled extruded aluminum split leaf access hatches where indicated on the plans shall be furnished and installed. The hatches shall be suitable for exterior use. The hatch leafs shall be made of 6.35 mm (1/4 inch) diamond pattern aluminum floor plate with reinforcing bars welded to leafs, to support from live load of 7.6 KN/m². Frame shall be 6.35 mm extruded aluminum shape fully welded with 28 mm (1-1/8 inches) anchor strap bolted to frame. Leaf hardware shall be equipped with heavy duty stamped 6.35 mm (1/4 inch) aluminum hinge bolted to frame and leaf, torsion bars for easy operation, have a one-point latch, inside and outside handles, automatic hold-open arm with vinyl handle grip. Hardware shall be cadmium plated, and factory finish shall be mill finish or a prime coat applied to aluminum frame and leafs. Access hatches shall be manufactured by DUR-RED or Bilco Products, or equal. Padlock will be furnished by others after acceptance of pump house.

Add to Section 74-2.02D(3) Ductile Iron Pipe:

All ductile iron pipe shall be Class 200 or stronger and be installed using Type 3, 4, or 5 Trench Laying Condition.

Add Section 74-2.02D(5) Flange Coupling Adapters:

Section 74-2.02D(5) Flange Coupling Adapters

Flange coupling adapters shall be used as detailed on the drawings. Adapters shall be ductile iron per ASTM A536 and AWWA C219. Flanges shall be compatible with AWWA C115 and ANSI standards, with flange bolt circles compatible with ANSI B16.5. Where called for, flange adapters shall be restrained against pipe pull-out per manufacturer's recommendations using watertight lock pins or a harness assembly (set screws are specifically prohibited). Compression ends of the adapters shall have a wedge gasket for efficient sealing. Flange adapters shall permit a minimum of three degrees of deflection during assembly. All surfaces shall be lined and coated with fusion bonded epoxy conforming to AWWA C116.

Replace Section 74-2.04 Payment:

Section 74-2.04 Payment

The lump sum costs for Pumping Plant Equipment includes all piping (including 36" DIP outlet piping), fittings, elbows, reducers, flap gates, flanged coupler adapters, guide rails and brackets, hatches, gauges, hangers rods, pumps, motors, base plates, manholes, manhole covers, and all related mechanical appurtenances associated with the pumping plant furnished and installed, tested, commissioned and complete in place.

Section 74-3.02C(3) Pump Controller – Add the following section at the end of 74-3.02C(3):

Description of Operation:

Automatic operation of the pumps shall be controlled by reactive air level monitoring system and the PC. The reactive air level monitor measures the water storage level and converts it to a 4-20 milliampere signal, which is then scaled to provide the depth of the water in the sump relative to the bottom of the sump. From this information the PC outputs a signal to the LED water level display and determines which pump to turn on.

Pump No. 3 shall start when water level rises to the low-flow "Pump On" elevation.

Either high-flow Pump No. 1 or high-flow Pump No. 2 shall start when water level rises to the high-flow "Lead Pump" elevation. The lag high-flow pump shall start when water level rises to the high-flow "Lag Pump" elevation. Once a pump is started, it shall continue to run until the water level lowers to all "Pumps Off" elevation. Pump No. 1 and Pump No. 2 shall alternate with each lead pump call at the high- flow "Start Lead Pump" elevation. Should

the water level be at high-flow "Start Lag Pump" elevation or higher, requiring more than one high-flow pump to start, such as when power is restored after an interruption, there shall be a time delay of 10 seconds between the start of each high-flow pump.

When the motor current is sensed by the current sensor, relays shall activate the corresponding pilot light and time meter of the motor and the indicating light (IL2) which indicates that a motor is running. Whenever utility power is present and control power is available, indicating light (IL1) shall be activated. When FS2 is turned on, it will activate the high-water alarm pilot light (PL3) and indicating light (IL3), also, it will control the operation of the pumps in a backup mode.

A seal failure indication on a seal failure relay shall be treated as an alarm indication only, and in no way affect the control operation of a pump.

The phase failure relay for each service shall provide sensing for voltage unbalance or failure. Whenever an abnormal condition occurs for more than 5 seconds on that service, the control power to the pumps served from that service shall de-energized until the condition returns to normal.

The PC shall normally be provided control power from LP1 with an automatic transfer to LP2 if service from Service Pedestal is interrupted.

Replace "Reserved" in section 74-3.02B(2) with:

Service pedestals must be tamper resistant, Type 3R enclosures with:

1. Underground pull section
2. Service disconnect compartment
3. Meter compartment
4. Power transfer section

Service pedestals must be constructed with:

1. 12-gauge exterior sheet steel and 14-gauge interior sheet steel
2. Baked enamel or baked thermosetting polyester exterior finish
3. Stainless steel hardware, including screws, latches, hasps, hinge pins, and similar items
4. Power transfer switch
5. Service disconnect switch that operates with the exterior door open and the interior deadfront door closed

Service pedestals for services 400A and larger must have exterior doors with double hasp for 2 separate padlocks where removing either padlock opens both doors. Service pedestals for services smaller than 400A must have an exterior door with hasp.

Service disconnect switches must be 3-pole, 600-volt, 200-ampere frame, 200-ampere trip, molded case circuit breakers with the following features:

1. Adjustable AC magnetic trip set to 3,200 amperes
2. Interrupting capacity of 65,000 amperes Symmetrical at 600 volts
3. Handle that is lockable with a padlock in the "OFF" position

Power transfer switches must be 3-pole, 600-volt, 200-ampere frame, 200-ampere trip, molded case dual circuit breakers with the following features:

1. Mechanical interlock to prevent simultaneous "ON" for both breaker handles
2. Interrupting capacity of 65,000 amperes Symmetrical at 600 volts
3. Auxiliary normally open contact rated 10 amperes at 120 volts

Standby power receptacle must be circuit breaking, weather resistant, rain tight receptacle with male interior assembly. The male interior assembly must be 4-pole, 3-wire male assembly rated for 200 amperes at 600 volts. The standby power receptacle must include an AJ back box and angle adapter with either (1) screw-on dust cover and chain, or (2) self-closing, spring actuated cover.

Standby power receptacles must be compatible with the Department's standby power plug, Crouse-Hinds, Catalog No. AP20468-S22 with female interior assembly.

Replace Section 74-3.02B(3) Motor Control Center Equipment with:

Section 74-3.02B(3) Motor Control Center Equipment (MCC1)

Motor control center shall consist of enclosed vertical sections joined together to form a rigid, freestanding assembly. The construction of the motor control center shall meet the requirements set forth by Underwriters' Laboratories UL 845 and NEMA ICS-2-322. The motor control center shall be in conformance with NEMA standards for Type 1 gasketed enclosures.

The motor control center shall be suitable for operation with 277/480 volt, 3-phase, 4-wire plus ground, 60Hz service. Motor control center shall have a minimum fault-interrupting capacity of 65,000 amperes (symmetrical) at 600 volts, AC.

Vertical sections shall support the vertical buses, combination starter units, cover, and doors, and shall be designed to allow for easy rearrangement of units. Vertical sections shall have structural supporting members formed of minimum 12-gauge hot-rolled steel. Each section shall be maximum 90 inches high and shall have 7-gauge steel, 3-inch high removable lifting angle and two 1-5/8-inch high base channels. Base channels shall be provided with holes to permit bolting the motor control center to the floor.

Vertical sections, except control section, shall be designed to accommodate plug-on units in front-of-board construction. Vertical sections housing plug-on units shall be 20 inches wide and shall be 16 inches deep. Control section shall be 30 inches wide and shall be 16 inches deep. Removable blank plates shall cover all unused unit mounting spaces. Blank plates shall be flanged on all four sides and shall be mounted with captive screws.

Vertical sections shall be mounted with both horizontal and vertical wireways. Sufficient clearances shall be provided in the horizontal wireway so that no restriction is encountered in running wires from the vertical to horizontal wireway.

Horizontal wireways shall be provided in the top and bottom of each vertical section and shall be arranged to provide full-length of continuity throughout the entire assembly. The top horizontal wireway shall have a cross sectional area of not less than 20 in.² with openings between sections of not less than 11 in.². The bottom horizontal wireway shall extend through the length and depth of the vertical sections and shall also be provided with an opening of not less than 11 in.² to allow for full-length continuity throughout the entire assembly. Covers for all wireways shall be equipped with captive screws.

A vertical wire trough shall be located on the right hand side of each vertical section and shall extend from the top horizontal wireway to the bottom of the available unit mounting space. Each vertical-wire trough shall have a cross sectional area of not less than 18 in.². A separately hinged door having captive-type screws shall cover the vertical-wire trough to provide easy access to control wiring without disturbing control units.

Reusable wire ties shall be furnished to each vertical-wire trough for the purpose of grouping and securely holding wires in place. All wireways shall be isolated from the bus bars.

Main three-conductor horizontal bus and power terminal block for connection shall be provided. Horizontal bus bars shall be mounted edgewise and supported by insulated bus supports of high-strength glass-reinforced alkylid material.

For distribution of power from the main horizontal bus to each unit compartment, a 3-phase vertical bus shall be provided. The main vertical buses shall be made of aluminum and the entire length shall be electrolytically plated. The rating of the horizontal and vertical buses shall be minimum 600-ampere continuous current rating shall be in conformance with UL, ANSI, and NEMA standards.

Each unit shall have a door securely mounted and concealed-type hinges that allow the door to swing open a minimum of 112°. Doors shall be fastened to the structure so that they may remain in place when a unit is withdrawn and may be closed to cover the unit space when the unit has been temporarily removed. Doors shall be held closed with captive screws which engage self-aligning cage nuts. Each starter unit door shall house an external low-profile overload reset button for resetting the overload relay.

Each plug-on unit shall be supported and guided by tile and lift-out removal pan.

An external operator handle shall be supplied for each switch or circuit breaker. The operator handle shall be color-coded to display red in the position and black in the "OFF" position. The operator handle shall have a conventional up-down motion and shall be designed so that the down position will indicate that the unit is off. For

safety, it shall be possible to lock this handle in the "OFF" position with up to three padlocks. The operator handle shall be interlocked with the unit door to prevent switching to the "ON" position while the unit door is open. A defaeter mechanism shall be provided for the purpose of defeating this interlock.

A schematic diagram and a ladder diagram of the control system under transparent protective cover shall be provided with the MCC.

Motor control center wiring shall be NEMA Class 2-Type B wiring.

Section 74-3.02B(3)(a) Seal Failure Relay

Seal failure relay shall be shown on the plans and shall be compatible with the seal failure indication system of the pump. The seal failure relay, complete with pump leak indicator light, sensor probe, continuity test pushbutton, and test indicator light, shall be a factory-assembled unit mounted inside the MCC as shown on the plans.

Section 74-3.02B(3)(a) Building Disconnect (BD) – MCC

Building disconnect shall be 3-pole, 600-volt, 200-ampere frame, 200-ampere trip, molded case circuit breaker with adjustable AC magnetic trip set at 3,200 amperes mounted in MCC1 as shown on the plans. The interrupting capacity of the breaker shall be 65,000 amperes (symmetrical) at 600 volts, AC.

Section 74-3.02B(3)(b) Lighting Disconnect (LD1)

Lighting disconnect shall be 2-pole, 600-volt, AC, 100-ampere frame, 15-ampere trip, molded case circuit breaker mounted in MCC as shown on the plans. The interrupting capacity of the breaker shall be 65,000 amperes (symmetrical) at 600 volts, AC.

Section 74-3.02B(3)(c) Lighting Transformer (LT1)

Lighting transformer shall be double-wound, 5kVA, 60Hz, surface-mounted, dry-type transformer with 480-volt primary, 120/240-volt secondary. Transformer shall be mounted in the MCC as shown on the plans.

Section 74-3.02B(3)(d) Panelboard (LP1)

Panelboard shall be indoor open type, factory-assembled, single-phase, 3-wire, 120/240 volt, AC panelboard with 30-ampere, 2-pole main circuit breaker, insulated groundable neutral, and molded case circuit breakers as shown on the plans. Panel shall be mounted in the MCC as shown on the plans.

Section 74-3.02B(3)(e) Motor Starters (S1 and S2)

Motor starters shall be 480-volt, 3-pole, of the solid-state reduced-voltage starting-type with integral overload protection and full-speed bypass contacts. Each starter shall be provided with separate motor circuit protection, and mounted in the MCC as shown on the plans. Each motor starter shall provide for programmable acceleration of the pump motors. Each motor starter shall provide for a minimum of one normally open and one normally closed auxiliary contact and one single-pole double-throw starter failure contact. Each motor starter controls and auxiliaries shall operate from 120VAC source voltage.

Section 74-3.02B(3)(f) Motor Starter (S3)

Motor starter shall be NEMA size 2, NEMA-rated, 3-pole, line-voltage combination starter and motor circuit protector mounted in the MCC as shown on the plans. Starter shall have 120-volt coil, double-break silver contacts, and three manual-reset, nonadjustable thermal overloads set to trip between 115 and 125 percent of full load motor current, as quoted on the nameplate by the motor manufacturer. Overload reset shall be externally operable. Starter shall have one normally closed and one normally open auxiliary contact.

Section 74-3.02B(3)(g) Current Switches (CS1, CS2, and CS3)

Current switches shall be self-powered, solid state, AC, current sensing switch mounted in the MCC as shown on the plans. Switch shall have a single-pole, normally open contact rated 1-ampere at 240 volts, AC. Current sensing level shall be selectable between a low range of one to 15 amperes and a high range of 15 to 300 amperes. Switch shall have a thru-hole of 14mm minimum diameter for sensing the AC current.

Section 74-3.02B(3)(h) Time Meters (TM1, TM2, and TM3)

Time meters shall be 120-volt, 60 Hz non-resettable running-time meter with 0 to 99,999.9 hours range. Timer shall be mounted on MCC door as shown on the plans.

Section 74-3.02B(3)(i) Selector Switches (S1, S2, and S3)

Selector switches shall be single-pole, 2-position, 10-ampere, 120-volt rotary switch mounted on MCC door as shown on the plans. Switch contacts shall have an inductive pilot duty rating of 60 amperes (make), 6 amperes (break) and 10 amperes (continuous) at 120-volt and 35 percent power factor. Selector switches shall have legend plates marked "HAND-AUTO".

Section 74-3.02B(3)(j) Phase Failure Relay Disconnect (PFRD)

Phase failure relay disconnect shall be 3-pole, 600-volt, AC, 100-ampere frame, 15-ampere trip, molded case circuit breaker mounted in the MCC as shown on the plans. The interrupting capacity of the breaker shall be 65,000 amperes (symmetrical) at 600 volts, AC.

Section 74-3.02B(3)(k) Phase Failure Relay (PFR1)

Phase failure relay shall be 480-volt, AC, socket-mounted, automatic reset, voltage-sensing phase failure relay with double-pole, double-throw, 10-ampere, 120-volt contacts. Relay shall be mounted in MCC as shown on the plans.

Section 74-3.02B(3)(l) Terminal Block

Terminal block shall be 30-ampere, molded plastic with two or more mounting holes and two or more terminals in each cast block. The molded plastic shall have a high resistance to heat, moisture, mechanical shock and electric potential, and have a smooth, even finish. Terminal blocks shall have tubular, high-pressure clamp connectors.

Each terminal block shall have a molded marking strip attached with screws. The identifying numbers of the terminating conductors, as shown on the plans or on the submittal drawings, shall be engraved in the marking strip. The marking strip shall be laminated phenolic plastic with white core and black front and back.

Power terminal blocks shall be 3-pole rated for 600-volt service, rated 100 amps for low-flow pump cable termination and 200 amps for high-flow pump cable termination.

Replace Section 74-3.02C(2) Water Level Monitoring System with:

Section 74-3.02C(2) Water Level Monitoring System:

The water level monitoring shall be done by a reactive air system consisting of an air compressor, compression bell, three-way solenoid valve, and pressure transmitter. The pressure transmitter senses the back pressure of the static air column set up in the compression bell that is periodically replenished by the purge air compressor. The compression bell shall be designed with high-strength noncorrosive plastics and shaped to provide a resistance to buildup of foreign material. The specially designed programmed multi-cycle cleaning system shall prevent the compression bell from plugging while minimizing compressor run time to less than two minutes per day. The reactive air control shall also provide a means of manually actuating the purging cycle when immediate purging and cleaning is necessary.

The purge sequence shall be as follows:

1. The three-way valve is sequenced to the purge position by the pump controller's purge mode automatically every eight hours (adjustable). While in the purge mode, the last level transducer value is electronically held by the hold circuit.
2. The compressor is then started to purge and clean the air lines and replenish the compression bell with a 50 psi air blast. The air blast is retained for eight seconds (adjustable).
3. The three-way valve is held in the purge position an additional four seconds after the compressor is stopped to allow the air dynamics to settle.
4. The three-way valve is now transferred to the normal level monitoring position and the level transducer signal is released to reflect the real time level value.

The system is now recharged with a 30-day supply of air in the compression bell and the controller operation is back to normal mode.

Add the following subsections to Section 74-3.02G Miscellaneous Materials:

Wide Angle Float Switch (FS2)

Float switch shall be a wide angle type with a 120-volt, 8-ampere, single-pole, single-throw (SPST), mercury switch in an inert synthetic casing. Switch enclosure shall be leak proof, shockproof and corrosion and chemical resistant. Switch shall be provided with sufficient length of cable to run without splices from the pump sump to the junction box as shown on the plans. Cable shall be three-conductor, No. 19 AWG with polyvinyl chloride (PVC) jacket. Switch shall operate at approximately 135 degrees of tilt and remain closed until the float returns to 45 degrees of tilt. Switch shall be supported on a rod as shown on the plans and as recommended by switch manufacturer.

Pump Station Lights (F1-2X32)

Lights F1-2X32 shall be surface-mounted fluorescent fixture with two F32T8CW lamps and -20 degrees C ballast. Fixture housing shall be white, ABS slow-burning thermoplastic. Housing shall have neoprene gasket around the perimeter and stainless steel lens latches. Lens shall be high-impact clear acrylic. Fixture shall be suitable for damp locations.

Sump Lights (SL1 through SL3)

Sump light shall be cast-metal, fluorescent lighting fixture with metal guard, clear globe, and twin tube 18-watt, 120-volt fluorescent lamp with integral ballasts. The fixture shall be suitable for Class 1, Division 2 and wet locations. Sump lights shall be installed where shown on the plans.

Area Light

Area light shall be 310-watt, as specified in Section 86-6.01, "High Pressure Sodium Luminaires," in the Standard Specifications with integral ballast and photocell.

Entry Light (H1-1X50)

Entry light shall be outdoor wall-mounted, 50-watt, 120-volt, high-pressure sodium luminaire with integral ballast and photocell.

Duplex Plug Receptacles (DP1)

DP1 shall be a 15-ampere, 3-wire, 125-volt grounding-type duplex receptacle outlet.

Replace Section 74-3.03A General with:

Section 74-3.03A General

Do not install electrical equipment on unpainted wood panels.

Holes placed in concrete shall be cored by methods that will not shatter or damage the concrete adjacent to the holes.

The diameter of the cored holes shall be as shown on the plans or as required.

Water for the core drilling operations shall be from the domestic water supply and shall not contain more than 1,000 parts per million of chlorides as Cl, nor more than 1,300 parts per million of sulfates as SO₄, nor shall it contain any impurities in a sufficient amount to cause discoloration or etching of the surface.

Water from the core drilling operations shall not be permitted to flow into sewers or other drainage facilities.

Add Section 74-3.03E Manufacturer's Technical Support:

Section 74-3.03E Manufacturer’s Technical Support

The manufacturer of the PC shall provide technical assistance and guidance in the operation, maintenance and troubleshooting of operational problems for the PC for one year following the acceptance of the contract. The technical support shall be provided at no additional cost to the State.

Technical support shall be provided at the facility site by an authorized representative of the PC manufacturer and by a toll-free telephone service to the manufacturer.

Add Section 74-3.03F Testing:

Section 74-3.03F Testing:

After the electrical system installation work has been completed, the electrical system shall be tested in the presence of the Engineer to demonstrate that the electrical system functions properly. The testing shall include all the functions of the pump controller. The Contractor shall make necessary repairs, replacements, adjustments and retest at his expense.

Prior to start of functional testing, the Contractor shall perform the following tests on all circuits in the presence of the Engineer.

- 1. Continuity: Each circuit shall be tested for continuity.
- 2. Ground: Each circuit shall be tested for grounds.
- 3. Insulation Resistance: An insulation resistance test at 500VDC shall be made on each circuit between the circuit and ground. The insulation resistance shall not be less than 10M on all circuits.

Replace Section 74-3.04 Payment:

Section 74-3.04 Payment

The lump sum costs for Pumping Plant Electrical Equipment includes all conduit, wiring, junction boxes, Lighting, receptacles, instrumentation, service pedestal motor control center, and all related electrical appurtenances associated with the pumping plant furnished, installed, tested, commissioned, and complete in place.

^^

75 MISCELLANEOUS METAL

Add to the list in the 2nd paragraph of section 75-1.03A:

- 6. Bridge Deck Drainage System
- 7. Welded Steel Pipe Casing
- 8. Utility Support Hardware

Add to section 75-1.03D(1):

Bridge deck drainage system consists of:

- 1. Deck Drain Type D-1 (Mod)

DIVISION IX TRAFFIC CONTROL FACILITIES

83 RAILINGS AND BARRIERS

Replace item 1 in the 7th paragraph of section 83-1.02B with:

1. Wood posts

Replace item 2 in the 7th paragraph of section 83-1.02B with:

2. Wood blocks for line posts

Replace section 83-1.02C(3) with:

83-1.02C(3) Alternative Flared Terminal System

Alternative flared terminal system must be furnished and installed as shown on the plans and under these special provisions.

The allowable alternatives for a flared terminal system must consist of one of the following or a Department-authorized equal.

1. TYPE FLEAT TERMINAL SYSTEM - Type FLEAT terminal system must be a Flared Energy Absorbing Terminal 350 manufactured by Road Systems, Inc., located in Big Spring, Texas, and must include items detailed for Type FLEAT terminal system shown on the plans. The Flared Energy Absorbing Terminal 350 can be obtained from the distributor, Universal Industrial Sales, P.O. Box 699, Pleasant Grove, UT 84062, telephone (801) 785-0505 or from the distributor, Gregory Industries, Inc., 4100 13th Street, S.W., Canton, OH 44708, telephone (330) 477-4800.
2. TYPE SRT TERMINAL SYSTEM - Type SRT terminal system must be an SRT-350 Slotted Rail Terminal (8-post system) as manufactured by Trinity Highway Products, LLC, and must include items detailed for Type SRT terminal system shown on the plans. The SRT-350 Slotted Rail Terminal (8-post system) can be obtained from the manufacturer, Trinity Highway Products, LLC, P.O. Box 99, Centerville, UT 84012, telephone (800) 772-7976.

Submit a certificate of compliance for terminal systems.

Terminal systems must be installed under the manufacturer's installation instructions and these specifications. Each terminal system installed must be identified by painting the type of terminal system in neat black letters and figures 2 inches high on the backside of the rail element between system posts numbers 4 and 5.

For Type SRT terminal system, the steel foundation tubes with soil plates attached must be, at the Contractor's option, either driven, with or without pilot holes, or placed in drilled holes. Space around the steel foundation tubes must be backfilled with selected earth, free of rock, placed in layers approximately 4 inches thick and each layer must be moistened and thoroughly compacted. The wood terminal posts must be inserted into the steel foundation tubes by hand and must not be driven. Before the wood terminal posts are inserted, the inside surfaces of the steel foundation tubes to receive the wood posts must be coated with a grease that will not melt or run at a temperature of 149 degrees F or less. The edges of the wood terminal posts may be slightly rounded to facilitate insertion of the post into the steel foundation tubes.

For Type FLEAT terminal system, the soil tubes must be, at the Contractor's option, driven with or without pilot holes, or placed in drilled holes. Space around the steel foundation tubes must be backfilled with selected earth, free of rock, placed in layers approximately 4 inches thick and each layer must be moistened and thoroughly compacted. Wood posts must be inserted into the steel foundation tubes by hand. Before the wood terminal posts are inserted, the inside surfaces of the steel foundation tubes to receive the wood posts must be coated with a

grease that will not melt or run at a temperature of 149 degrees F or less. The edges of the wood posts may be slightly rounded to facilitate insertion of the post into the steel foundation tubes.

After installing the terminal system, dispose of surplus excavated material in a uniform manner along the adjacent roadway where designated by the Engineer.

Replace "Reserved" in section 83-1.02H with:

83-1.02H Bollard

Bollards shall be installed and furnished at the locations shown on plans.

Bollards shall be shop fabricated ferrous metal items, galvanized as indicated on drawings and as specified herein, and placed with concrete base. Contractor shall submit shop drawings indicating profiles, sizes, connection attachments, reinforcing, anchorage, size, and type of fasteners, and accessories for the Engineer's approval.

Payment

Bollard, including removable bollard will be measured and paid by each. The contract price paid per each for bollard shall include full compensation for furnishing all labor, materials, including concrete, tools, equipment, and incidentals, and for doing all the work involved in installing bollard, complete in place, as shown on plans as specified in these Special Provisions, and as directed by the Engineer.

^^

86 ELECTRICAL SYSTEMS

Add to section 86-1.01:

Locations of electric service extension installations are shown on the utility plans.

Lighting equipment is included in the following structures:

1. Kiernan Avenue Bridge No. 38-0163

Communication conduit is included in the following structures:

1. Kiernan Avenue Bridge No. 38-0163

Traffic signal work must be performed at the following locations:

1. County Location 1 (Salida Blvd./Route 219 Broadway Ave.)
2. Location 1 (Route 219/Route 99 SB Off ramp and On ramp)_
3. Location 2 (Route 219/ Route 99 NB Off ramp and On ramp)
4. Location 3 (Route 219/Sisk Road)

Add to section 86-1.03:

Submit a schedule of values within 15 days after Contract approval.

Add to the 4th paragraph of section 86-1.03:

13. Cabinet for Closed Circuit Television System
14. Cabinet for Highway Advisory Radio
15. Cabinet for Vehicle Classification Station

Replace the 3rd paragraph of section 86-1.06A with:

Traffic signal system shutdowns are limited to periods between the hours of 9:00 a.m. and 3:00 p.m.

Replace "Reserved" in section 86-1.06B with:

Traffic Management System (TMS) elements include, but are not limited to ramp metering (RM) system, communication system, traffic monitoring stations, video image vehicle detection system (VIVDS), microwave vehicle detection system (MVDS), loop detection system, changeable message sign (CMS) system, extinguishable message sign (EMS) system, highway advisory radio (HAR) system, closed circuit television (CCTV) camera system, roadway weather information system (RWIS), visibility sensor, and fiber optic system.

Existing TMS elements, including detection systems, shown and located within the project limits must remain in place and be protected from damage. If the construction activities require existing TMS elements to be nonoperational or off line, and if temporary or portable TMS elements are not shown, the Contractor must provide for temporary or portable TMS elements. The Contractor must receive authorization on the type of temporary or portable TMS elements and installation method.

Before work is performed, the Engineer, the Contractor, and the Department's Traffic Operations Electrical representatives must jointly conduct a pre-construction operational status check of all existing TMS elements and each element's communication status with the Traffic Management Center (TMC), including existing TMS elements not shown and elements that may not be impacted by the Contractor's activities. The Department's Traffic Operations Electrical representatives will certify the TMS elements' location and status, and provide a copy of the certified list of the existing TMS elements within the project limits to the Contractor. The status list will include the operational, defined as having full functionality, and the nonoperational components.

The Contractor must obtain authorization at least 72 hours before interrupting existing TMS elements' communication with the TMC that will result in the elements being nonoperational or off line. The Contractor must notify the Engineer at least 72 hours before starting excavation activities.

Traffic monitoring stations and their associated communication systems, which were verified to be operational during the pre-construction operational status check, must remain operational on freeway/highway mainline at all times, except:

1. For a duration of up to 15 days on any continuous segment of the freeway/highway longer than 3 miles
2. For a duration of up to 60 days on any continuous segment of the freeway/highway shorter than 3 miles

If the construction activities require existing detection systems to be nonoperational or off line for a longer time period or the spacing between traffic monitoring stations is more than the specified criteria above, and temporary or portable detection operations are not shown, the Contractor must provide provisions for temporary or portable detection operations. The Contractor must receive authorization on the type of detection and installation before installing the temporary or portable detection.

If existing TMS elements shown or identified during the pre-construction operational status check, except traffic monitoring stations, are damaged or fail due to the Contractor's activity, where the elements are not fully functional, the Engineer must be notified immediately. If the Contractor is notified by the Engineer that existing TMS elements have been damaged, have failed or are not fully functional due to the Contractor's activity, the damaged or failed TMS elements, excluding structure-related elements, must be repaired or replaced, at the Contractor's expense, within 24 hours. For a structure-related elements, the Contractor must install temporary or portable TMS elements within 24 hours. For nonstructure-related TMS elements, the Engineer may authorize temporary or portable TMS elements for use during the construction activities.

The Contractor must demonstrate that repaired or replaced elements operate in a manner equal to or better than the replaced equipment. If the Contractor fails to perform required repairs or replacement work, the Department may perform the repair or replacement work and the cost will be deducted from monies due to the Contractor.

A TMS element must be considered nonoperational or off line for the duration of time that active communications with the TMC is disrupted, resulting in messages and commands not transmitted from or to the TMS element.

The Contractor must provide provisions for replacing existing TMS elements within the project limits, including detection systems, that were not identified on the plans or during the pre-construction operational status check that became damaged due to the Contractor's activities.

If the pre-construction operational status check identified existing TMS elements, then the Contractor, the Engineer, and the Department's Traffic Operations Electrical representatives must jointly conduct a post construction operational status check of all existing TMS elements and each element's communication status with the TMC. The Department's Traffic Operations Electrical representatives will certify the TMS elements' status and provide a copy of the certified list of the existing TMS elements within the project limits to the Contractor. The status list will include the operational, defined as having full functionality, and the nonoperational components. TMS elements that cease to be functional between pre and post construction status checks must be repaired at the Contractor's expense.

The Engineer will authorize the schedule for final replacement, the replacement methods and the replacement elements, including element types and installation methods before repair or replacement work is performed. The final TMS elements must be new and of equal or better quality than the existing TMS elements.

If no electrical work exists on the project and no TMS elements are identified within the project limits, the pre-construction operational status check is change order work.

Furnishing and installing temporary or portable TMS elements that are not shown, but are required when an existing TMS element becomes nonoperational or off line due to construction activities, is change order work.

Furnishing and installing temporary or portable TMS elements and replacing TMS elements that are not shown nor identified during the pre-construction operational status check and were damaged by construction activities is change order work.

If the Contractor is required to submit provisions for the replacement of TMS elements that were not identified, submitting the provisions is change order work.

Add to section 86-2.04A:

Where the side tenon detail at the end of the signal mast arm is shown, you may substitute the applicable tip tenon detail.

The sign mounting hardware must be installed at the locations shown.

Set the Type 1 standards with the handhole on the downstream side of the pole in relation to traffic or as shown.

Replace "Reserved" in section 86-2.04C with:

Highway advisory radio poles must be fiberglass-reinforced plastic (FRP) poles as specified.

FRP pole standards must consist of round, FRP poles and bases. FRP poles must be hollow, tapered or with tapered sections, nonconductive, and chemically inert.

FRP pole standards must comply with the details shown and the requirements in "Standard Specifications for Structural Supports for Signs, Luminaires, and Traffic Signals" published by AASHTO, and ANSI Standard: C136.20, "Roadway Lighting Equipment - Fiber-Reinforced Plastic (FRP) Lighting Poles."

For standards described as "Breakaway" type, FRP pole standards must comply with the requirements in National Cooperative Highway Research Program Report 230, "Recommended Procedures for the Safety Performance Evaluation of Highway Appurtenances." Design wind velocity for Highway Advisory Radio standard systems must be 80 mph.

The poles must withstand the bending strength test load shown in the following table. The poles must withstand this load with the handhole in compression. The poles must not exceed a maximum deflection of 13 percent of the length of the pole above the ground line when subjected to the deflection test load shown in the following table:

Test Load Table

Standard type	Bending strength test load	Deflection test load
Type 15F, Type 15F (Breakaway)	541 lb	361 lb
Type 21F, Type 21F (Breakaway)	576 lb	384 lb

Test loads must be applied under the requirements in Section 12, "Pole Deflection Measurements," of ANSI Standard: C136.20. Poles must be loaded 12 inches below the tip.

FRP pole standards must be the anchor base type unless otherwise designated.

The manufacturer of FRP pole standards must have an approved testing and quality control program on file at METS prior to fabricating pole standards for this Contract.

Submit a certificate of compliance for the pole standards. The certificate must include the date of the certificate, reference project number, manufacturer product catalog number, pole type number, dates of manufacture, and the signature of the manufacturer's management person responsible for the testing and quality control program.

86-2.04C(1) Construction

Poles must be constructed from UV-resistant resin which must be pigmented light gray and be of uniform color throughout the entire body of the pole. The finish of poles must be smooth.

Each pole must have 3 handholes and handhole covers. The cover over the handhole nearest the base must bear the name of the manufacturer. The handhole covers must be securely attached to the pole with tamper-resistant hardware. The handholes must be located as shown in the plans.

The base must be bonded to the pole with a suitable adhesive and coated with an aliphatic-type acrylic-modified polyurethane finish. For new installations, adapter plates must not be used to attach the pole standards to the foundation.

Each pole standard must be provided with a removable aluminum or galvanized steel pole top cap.

Each pole standard must have an identification plate complying with section 86-2.04. The identification plate must show the pole standard type, manufacturer's name, manufacturer's part number and the year of fabrication. If the FRP pole standard is a breakaway type, the identification plate must include the word "BREAKAWAY." The plate must be located either on the anchor base or just above the base handhole.

86-2.04C(2) Exterior Protection

An aliphatic-type acrylic-modified polyurethane coating must be applied to the exterior of the fiberglass pole. The coating must be semi-gloss, highly weather resistant and light gray in color matching the color of the resin and must have a minimum 3-mil dry film thickness. A 1-quart can of the coating matching the poles must be supplied with each order of poles. The polyurethane coating must be tested for adhesion to the pole surface under the requirements in ASTM D 3359, Method A, and must have a scale rating of 5A. The adhesion testing must be conducted before and after the accelerated weathering evaluation.

The finished surface of the poles must withstand a minimum of 2,500 hours of accelerated weathering when tested under the requirements in ASTM G154, Cycle 2.

After testing, the finished surface of the poles must exhibit the following:

Fiber exposure	None
Crazing	None
Checking	None
Chalking	Very slight
Change in color	May dull slightly
Paint adhesion	5A scale rating, per ASTM D 3359, Method A using Permaceal 99 tape.

86-2.04C(3) Packaging

Each pole must be spiral wrapped in its entirety with a weatherproof wrap for protection during shipping and storage.

Add to section 86-2.05A:

Conduit installed underground must be Type 1 or Type 3.

Add to section 86-2.05B:

The conduit in a foundation and between a foundation and the nearest pull box must be Type 1 .

Add to section 86-2.05C:

If a standard coupling cannot be used for joining Type 1 conduit, use a UL-listed threaded union coupling under section 86-2.05C.

If Type 3 conduit is placed in a trench, not in the pavement or under concrete sidewalk, after the bedding material is placed and the conduit is installed, backfill the trench to not less than 4 inches above the conduit with minor concrete under section 90-2, except the concrete must contain not less than 421 pounds of cementitious material per cubic yard. Backfill the remaining trench to finished grade with backfill material.

After conductors have been installed, the ends of the conduits terminating in pull boxes, service equipment enclosures, and controller cabinets must be sealed with an authorized type of sealing compound.

At those locations where conduit is required to be installed under pavement and underground facilities designated as high priority subsurface installation under Govt Code § 4216 et seq. exist, conduit must be placed by the trenching in pavement method under section 86-2.05C.

At other locations where conduit is required to be installed under pavement and if a delay to vehicles will not exceed 5 minutes, conduit may be installed by the trenching in pavement method.

The final 2 feet of conduit entering a pull box in a reinforced concrete structure may be Type 4.

Replace "Reserved" in section 86-2.06B of the RSS for section 86-2.06 with:

86-2.06B(1) General

86-2.06B(1)(a) Summary

This work includes installing non-traffic-rated pull boxes.

86-2.06B(1)(b) Submittals

Before shipping pull boxes to the jobsite, submit a list of materials, Contract number, pull box manufacturer, manufacturer's instructions for pull box installation, and your contact information to METS.

Submit reports for pull box from an NRTL-accredited lab.

86-2.06B(1)(c) Quality Control and Assurance

86-2.06B(1)(c)(i) General

Pull boxes may be tested by the Department. Deliver pull boxes and covers to METS and allow 30 days for testing. When testing is complete, you will be notified. You must pick up the boxes and covers from the test site and deliver it to the job site.

Any failure of the pull box or the cover that renders the unit noncompliant with these specifications will be a cause for rejection. If the unit is rejected, you must allow 30 days for retesting. Retesting period starts when the replacement pull box is delivered to the test site. You must pay for all retesting costs. Delays resulting from the submittal of noncompliant materials does not relieve you from executing the Contract within the allotted time.

If the pull box submitted for testing does not comply with the specifications, remove the unit from the test site within 5 business days after notification that it is rejected. If the unit is not removed within that period, it may be shipped to you at your expense.

You must pay for all shipping, handling, and transportation costs related to the testing and retesting.

86-2.06B(1)(c)(ii) Functional Testing

The pull box and cover must be tested under ANSI/SCTE 77, "Specifications for Underground Enclosure Integrity."

86-2.06B(1)(c)(iii) Warranty

Provide a 2-year manufacturer replacement warranty for pull box and cover from the date of installation of the pull box and cover. All warranty documentation must be submitted before installation.

Replacement parts must be provided within 5 business days after receipt of failed pull box, cover, or both at no cost to the Department and must be delivered to the Department's Maintenance Electrical Shop at 1604 South B Street, Stockton, CA 95205.

86-2.06B(2) Materials

The pull box and cover must comply with ANSI/SCTE 77, "Specifications for Underground Enclosure Integrity," for Tier 22 load rating and must be gray .

Each pull box cover must have an electronic marker cast inside.

Extension for the pull box must be of the same material as the pull box and attached to the pull box to maintain the minimum combined depths as shown.

Include recesses for a hanger if a transformer or other device must be placed in a pull box.

The bolts, nuts, and washers must be a captive bolt design.

The captive bolt design must be capable of withstanding a torque range of 55 to 60 ft-lb and a minimum pull out strength of 750 lb. Perform the test with the cover in place and the bolts torqued. The pull box and cover must not be damaged while performing the test to the minimum pull out strength.

Stainless steel hardware must have an 18 percent chromium content and an 8 percent nickel content.

Galvanize ferrous metal parts under section 75-1-.05.

Manufacturer's instructions must provide guidance on:

1. Quantity and size of entries that can be made without degrading the strength of the pull box below Tier 22 load rating
2. Where side entries cannot be made
3. Acceptable method to be used to create the entry

Tier 22 load rating must be labeled or stenciled by the manufacturer on the inside and outside of the pull box and on the underside of the cover.

86-2.06B(3) Construction

Do not install pull box in curb ramps or driveways.

A pull box for a post or a pole standard must be located within 5 feet of the standard. Place a pull box adjacent to the back of the curb or edge of the shoulder. If this is impractical, place the pull box in a suitable, protected, and accessible location.

86-2.07 Telephone Cable

86-2.07A General

Not used.

86-2.07B Materials (The telephone cable (TC) shall consist of 6 pairs of No. 19 solid copper conductors. Conductors shall be twisted in pairs. Each conductor shall be insulated with a high molecular weight, heat stabilized, color coded polyethylene material. The insulation shall be 18 mils nominal.

Color code for TC cable shall be as follows:

1. White/Blue
2. White/Orange
3. White/Green
4. White/Brown
5. White/Gray

6. Red/Blue

The core shall be protected by a non-hygroscopic polyester film with a single longitudinally applied 5-mils thick corrugated copper shield (or 8-mils thick plastic coated aluminum shield). A moisture barrier of petrolatum-polyethylene compound shall be applied over the core tape and over and under the cable shield to fill all cable interstices.

The cable shall be provided with an outer jacket of extruded, black, high molecular weight, heat stabilized polyethylene material. The outer jacket shall have a thickness of 60 mils nominal. The outer diameter of the cable shall be 0.60-inch maximum.

All conductors shall be terminated inside the telephone demarcation cabinet and the controller cabinet as shown on the plans. All connections from the terminal block TBO to the 8-position connecting block shall be via a cable consisting of 2 pairs of No. 22 solid conductors and shall meet the same specifications as the TC cable.

86-2.07C Construction

Not used.

86-2.07D Payment

Not used.

Add to section 86-2.08A:

Wrap conductors around the projecting end of conduit in pull boxes as shown. Secure conductors and cables to the projecting end of the conduit in pull boxes.

Replace the 1st sentence of the 1st paragraph of section 86-2.08E with:

Signal interconnect cable must be the 6-pai type with stranded tinned copper no. 20 conductors.

Replace 1st, 6th, and 7th paragraphs of section 86-2.09E with:

Splices must be insulated by "Method B."

Add to section 86-2.11A:

Circuit breakers must be the cable-in/cable-out type mounted on non-energized clips. All circuit breakers must be mounted vertically with the up position of the handle being the "ON" position.

Circuits with Model 500 changeable message signs must have service equipment enclosures that have main busses and terminal lugs rated for 100 A, minimum, and a no. 2 bare copper ground wire.

Each service must be provided with up to 2 main circuit breakers that will disconnect ungrounded service entrance conductors. Where the "Main" circuit breaker consists of 2 circuit breakers as described, each of the circuit breakers must have a minimum interrupting capacity of 10,000 A, rms.

Replace 7th and 8th paragraphs of section 86-2.11A with:

Service equipment enclosures must be the aluminum type.

Replace "Reserved" in section 86-2.11B with:

Electric service (irrigation) must be from the service points to the irrigation controllers (IC) and to the spaces provided in the irrigation controller enclosure cabinets (CEC) for irrigation controllers as shown.

Irrigation Pump, Controllers (IC) A, B, C and LR-HUB : Electric service (irrigation) must be a metered 120/240 V(ac), three phase service in a Type III service equipment enclosure.

Service disconnects in service equipment enclosures must be 3 pole, 100A circuit breaker.

Nameplate inscriptions must be as follows:

Item	Inscription
Metering equipment enclosure	ICC, 120/240V, 3 ϕ , 4-wire, CTID No. 10382190000080L
Service disconnect	Main Disconnect
Booster Pump	Irr. Pump
Irrigation Controller A	Irr. Controller "A"
Irrigation Controller B	Irr. Controller "B"
Irrigation Controller C	Irr. Controller "C"
LR-HUB	LR-HUB

The inscription on the other nameplates must be the letter designation used on the plans and in the special provisions.

Conductors, conduit, and pull boxes to the pull box adjacent to irrigation controller enclosure cabinets and irrigation controllers are included in the payment for electric service (irrigation).

Replace the 2nd paragraph of section 86-3.01B with:

The Model 2070 Controller assemblies, including controller unit, completely wired controller cabinet and inductive loop detector sensor units, and battery back-up system, but without anchor bolts, shall be purchased from the Department by the Contractor.

The Contractor must pay \$42,858.00 to Caltrans to compensate the State of California for cost incurred in obtaining, testing and supplying the Traffic Signal Controller Assemblies, loop detector sensor units and battery back-up systems; Ramp Meter Controller Assemblies; loop detector sensor units and 2070 Controller units for ramp metering, Vehicle Count Stations and Traffic Monitoring Stations.

The Contractor must also pay \$8,400.00 to Caltrans for the cost of controller setup. This fee does not supersede any other fee charged by Caltrans for review, inspection or field work performed by department staff as a result of the permitted work. If the fee has not been paid prior to permit issuance, full payment shall be made to the district cashier prior to starting any Traffic Signal, Ramp Meter, Vehicle Count Station or Traffic Monitoring Station work authorized by this permit, and at least 30 (thirty) days before the controller is needed for installation.

Replace the 1st paragraph of section 86-3.02A(1) with:

This work includes installing a battery backup system. Comply with TEES.

Add to section 86-3.02A(3):

Batteries must have a written warranty against defects in materials and workmanship from the manufacturer prorated for a period of 60 months after installation. You must provide the Engineer with all warranty documentation before installation. Replacement batteries must be available within 5 business days after receipt of failed batteries. The Department pays to ship the failed batteries. Replacement batteries must be delivered to Caltrans Maintenance Electrical Shop at 1604 South B street, Stockton, CA 95205.

Add to section 86-3.02B:

External cabinet must be capable of housing:

1. 4 batteries
2. Inverter/charger unit

3. Power transfer relay
4. Manually-operated bypass switch
5. Required control panels
6. Wiring and harnesses

Replace the 3rd, 5th, 7th, and 9th paragraphs of section 86-3.02B with:

Dimensions and details for the external cabinet, for attaching the external cabinet to the Model 332 cabinet, and for wiring the Department-furnished equipment will be available in an *Information Handout* as specified in section 2-1.06B or as shown.

The external cabinet must be ventilated by using louvered vents, a filter, and a thermostatically controlled fan. Fan must be AC-operated from the same line output as the Model 332 cabinet. A 2-position terminal block must be provided on the fan panel along with 10 feet of connected hookup wire.

The external cabinet must include all bolts, washers, nuts, and cabinet-to-cabinet coupler fittings necessary for mounting it to the Model 332 cabinet.

External cabinet to Model 332 cabinet couplings must include a conduit for power connections between the 2 cabinets. Couplings must include:

1. 2-inch nylon-insulated steel chase nipple, T & B 1947 or equivalent
2. 2-inch sealing, steel locknut, T & B 146SL or equivalent
3. 2-inch nylon-insulated steel bushing, T & B 1227 or equivalent

Replace the 1st paragraph of section 86-3.02C with:

Mount external cabinet to either the left or right side of the Model 332 cabinet. The typical side-mounting location of the external cabinet is flush with the bottom of the Model 332 cabinet and approximately equidistant from the front and rear door edges.

Replace "Reserved" in section 86-3.02D with:

Payment for assembling and installing battery backup system is included in the payment for signal and lighting.

Add to section 86-3.04:

Cabinet must be Model 334L and consist of a housing (B), a mounting cage 1, and the following listed equipment. The equipment must comply with chapter 6 of TEES.

1. Service panel no. 1
2. Power distribution assembly no. 3
3. Input file (I file)
4. C1 harness
5. Controller and equipment shelves
6. Dual fan assembly with thermostatic control
7. Mechanical armature-type relays
8. Input panel

Before shipping to the job site, submit each Model 334L cabinet to METS for acceptance testing.

Notify the Engineer when each Model 334L cabinet is ready for functional testing. Functional testing will be conducted by the Department.

Each power distribution assembly must include the following equipment:

1. Two duplex NEMA 5-15R controller receptacle (rear mount)
2. One 30 A, 1-pole, 120 V(ac) main circuit breaker
3. Three 15 A, 1-pole, 120 V(ac) circuit breaker
4. One duplex GFCI NEMA 15 A, receptacle (front mount)

Furnish 3 shelves as shown. Each shelf must be attached to the tops of 2 supporting angles with 4 screws. Supporting angles must extend from the front to the back rails. The front of the shelf must abut the front member of the mounting cage. Arrange shelves as shown. The angles must be designed to support a minimum of 50 pounds each. The horizontal side of each angle must be a minimum of 3 inches. The angles must be vertically adjustable.

Furnish 3 terminal blocks as shown. Terminal blocks must comply with Chapter 6 of TEES, except the screw size must be 8-32.

Furnish a maintenance manual or a combined maintenance and operation manual for all controller units, auxiliary equipment, vehicle detector sensor units, control units, and amplifiers. Submit manual when the controllers are delivered for testing or, if ordered by the Engineer, before purchasing. The manual must include the following:

1. Specifications
2. Design characteristics
3. General operation theory
4. Function of all controls
5. Troubleshooting procedure (diagnostic routine)
6. Block circuit diagram
7. Geographical layout of components
8. Schematic diagrams
9. List of replaceable component parts with stock numbers

Replace section 86-4.01D(1)(c)(ii) with:

86-4.01D(1)(c)(ii) Warranty

The manufacturer must provide a written warranty against defects in materials and workmanship for LED signal modules for a minimum period of 48 months after installation of LED signal modules. Replacement LED signal modules must be provided within 15 days after receipt of failed LED modules at your expense. The Department pays for shipping the failed modules to you. All warranty documentation must be submitted to the Engineer before installation. Replacement LED signal modules must be delivered to State Maintenance Electrical Shop at 1604 South B Street, Stockton, CA 95205.

Add to section 86-4.01D(2)(a):

LED signal module must be manufactured for 12-inch circular, 8-inch circular, 12 inch arrow, and 12 inch PV sections.

Replace "Reserved" in 86-4.03D with:

86-4.03D LIGHT EMITTING DIODE COUNTDOWN PEDESTRIAN SIGNAL FACE MODULES

GENERAL

Summary

This work includes installing Light Emitting Diode (LED) countdown pedestrian signal face (PSF) module into standard Type A pedestrian signal housing. Comply with Section 86, "Electrical Systems," of the Standard Specifications, TEES and the California MUTCD.

Submittals

Before shipping to job site, submit the LED countdown PSF modules and the following to the Transportation Laboratory:

1. Delivery form including district number, EA, and contact information
2. List containing serial numbers of all LED countdown PSF modules anticipated for use
3. Installation manuals and schematic wiring diagram.
4. Manufacturer's name, trademark, model number, lot number, month and year of manufacture

Submit documentation of manufacturer's production quality assurance testing performed on LED countdown PSF module. The documentation must include test data that conforms to the specified requirements and the following:

1. Luminous intensity as specified in "Photometric Requirements" of these special provisions.
2. Power factor after burn-in.
3. Test current flow measurements in amperes after burn-in. Measured values must conform with design qualification figures and with this specification. The measured ampere values with rated voltage must be recorded -on the product labels.

Failure to submit manufacturer test documentation will be cause for rejection.

Quality Control and Assurance

Module must be one listed on the Pre-Qualified Products List for LED traffic signals at:

http://www.dot.ca.gov/hq/esc/approved_products_list

If the Engineer determines by visual inspection that there is exterior physical damage, assembly anomalies, scratches, abrasions, cracks, chips, discoloration, or other defects to surface of the lens, modules will be rejected.

The State will test LED countdown PSF module shipments as specified in ANSI/ASQ Z1.4.. Testing will be completed within 30 days of delivery to the Transportation Laboratory. LED countdown PSF modules submitted for testing must be representative of typical production units. LED countdown PSF modules will be tested as specified in California Test 606. All parameters of the specification may be tested on the modules.

Delays resulting from submittal of non-compliant materials do not relieve you from executing the contract within the allotted time. Non-compliant materials will be rejected. You must resubmit new LED countdown PSF for retesting and pick up the failed units within 7 days of written notification. If the failed materials are not removed within that period, it may be shipped to you at your expense. You must allow 30 days for retesting. You must pay for all shipping and handling costs related to testing and retesting.

After successful testing, you must pick up the tested LED countdown PSF modules from the Transportation Laboratory and deliver to the job site.

Warranty

You must provide a manufacturer's written warranty against defects in materials and workmanship for LED countdown PSF modules for a minimum period of 48 months from the date of successful completion of acceptance testing.. Replacement LED countdown PSF modules must be provided within 15 days after receipt of failed modules at no cost to the State, except for the cost of shipping. All warranty documentation must be submitted to the Engineer before installation. Replacement LED countdown PSF modules must be delivered to State Maintenance Electrical Shop at 1604 South B Street, Stockton, CA 95206.

MATERIALS

LED countdown PSF module must:

1. Be from the same manufacturer.
2. Be installed in standard Type A pedestrian signal housing.
3. Use LED as the light source.
4. Be designed to mount behind or replace face plates of standard Type A housing as specified in ITE publication, Equipment and Material Standards, Chapter 3, "Pedestrian Traffic Control Signal Indications" and the "California MUTCD."
5. Have a minimum power consumption of 10 W for the UPRAISED HAND.
6. Use required color and be ultra bright type rated for 100,000 hours of continuous operation for a temperature range of -40 ° to +74 °C.
7. Be able to replace signal lamp optical units and PSF.
8. Fit into pedestrian signal section housings without modifications.
9. Be a single, self-contained device, not requiring on-site assembly for installation.
10. Have the following information permanently marked on the back of module:

- 10.1. Manufacturer's name
- 10.2. Trademark
- 10.3. Model number
- 10.4. Serial number
- 10.5. Lot number
- 10.6. Month and year of manufacture
- 10.7. Required operating characteristics, as follows:

- 10.7.1. Rated voltage
- 10.7.2. Power consumption
- 10.7.3. Volt-ampere (VA)
- 10.7.4. Power factor

- 11. Have prominent and permanent vertical markings for accurate indexing and orientation within the signal housing if a specific mounting orientation is required. Markings must include an up arrow, or the word "UP" or "TOP." Marking must be a minimum of 1-inch diameter.

Circuit board and power supply must be contained inside the LED countdown PSF modules. Circuit board must comply with Chapter 1, Section 6 of TEES.

Individual LEDs must be wired so catastrophic loss or failure of 1 LED will not result in loss of more than 5 percent of the PSF module light output. Failure of an individual LED in a string must not result in the loss of entire string or the indication.

LEDs must be evenly distributed in each indication. Do not use outline shape.

No special tools for installation are allowed.

Installation of the LED countdown PSF module into pedestrian signal face must require only removal of lenses, reflectors, lamps, and existing LED modules.

Assembly and manufacturing processes for LED countdown PSF module must assure that all internal components are adequately supported to withstand mechanical shock and vibration from high winds and other sources.

Material used for LED countdown PSF module must comply with ASTM D 3935.

Enclosures containing the power supply or electronic components of LED countdown PSF module, except lenses, must be made of UL94VO flame-retardant material.

Each symbol must not be less than 10 inches high and 6.5 inches wide. Uniformity ratio of illuminated symbols must not exceed 4 to 1 between highest and lowest luminance areas. Symbols must comply with ITE publication, Equipment and Material Standards, Chapter 3, "Pedestrian Traffic Control Signal Indications," and the "California MUTCD." For the countdown, the size of the symbol must be 9" high, 7" wide, with a spacing of 1/2" between the two digits per ITE publication.

LED countdown PSF modules must be designed to operate over the specified ambient temperature and voltage range, and be readable (both day and night) at all distances from 10 feet to the full width of the area to be crossed.

LED countdown PSF module must maintain an average luminance value over 48 months of continuous use in signal operation for a temperature range of -40 to +74 °C. In addition, LED countdown PSF modules must meet or exceed the following luminance values upon initial testing at 25 °C.

Luminance Values

PSF module	Luminance
UPRAISED HAND	1,094 FL
WALKING PERSON	1,547 FL

The luminance value of the number indicated in the countdown timer must be in proportion to the luminance of the "UPRAISED HAND", based on a percentage of LED actuation in a given area.

Color output of LED countdown PSF module must comply with chromaticity requirements in Section 5.3 of ITE publication, Equipment and Material Standards, Chapter 3, "Pedestrian Traffic Control Signal Indications."

Measured chromaticity coordinates of LED countdown PSF module must comply with the following chromaticity requirements for 48 months when operating over a temperature range of -40 to +74 °C.

Chromaticity Standards (CIE Chart)

UPRAISED HAND and COUNTDOWN TIMER (portland orange)	Not greater than 0.390, nor less than 0.331, nor less than 0.997-X
WALKING PERSON (lunar white)	X: not less than 0.280, nor greater than 0.320 Y: not less than 1.055*X - 0.0128, nor greater than 1.055*X + 0.0072

LED countdown PSF module maximum power consumption must not exceed the following values:

Power Consumption Requirements

PSF module	Power Consumption @ 24°C	Power Consumption @ 74°C
UPRAISED HAND	10.0 W	12.0 W
WALKING PERSON	9.0 W	12.0 W
COUNTDOWN TIMER	6.0 W	8.0 W

Wiring and terminal block must comply with Section 13.02 of ITE publication, Equipment and Material Standards, Chapter 2, "Vehicle Traffic Control Signal Heads." The LED countdown PSF module must be supplied with spade lugs and 3 secured, color-coded, 3-foot long, 600 V(ac), 20 AWG minimum stranded jacketed copper wires. Wires must comply with NEC, rated for service at +105 °C.

LED countdown PSF module must operate:

1. At a frequency of 60 ± 3 Hz over a voltage range from 95 to 135 V(ac) without perceptible flicker to the unaided eye. Fluctuations of line voltage must have no visible effect on luminous intensity of the indications. Rated voltage for measurements must be 120 V(ac).
2. Compatible with currently used State controller assemblies including solid state load switches, flashers, and conflict monitors. Comply with TEES Chapters 3 and 6. If a 20 ma alternating current or less is applied to the unit, the voltage read across the 2 leads must be 15 V(ac) or less.
3. Where the control and regulation module must be "smart" to exhibit countdown displays automatically adjusted with the traffic controller programmed intervals.
4. The mode of operation of the module must be the clearance cycle countdown, wherein the display of the number of remaining seconds must begin only at the beginning of the pedestrian change interval. The module will begin counting down when the flashing clearance signal turns on and will countdown to "0" and turn off when the steady "Don't Walk" signal turns on.

LED countdown PSF module on-board circuitry must:

1. Include voltage surge protection to withstand high-repetition noise transients. The voltage surge protection must comply with NEMA Standard TS2., Section 2.1.6.
2. Comply with FCC, Title 47, SubPart B, Section 15 regulations for Class A emission limits for electronic noise.

LED countdown PSF module must provide a power factor of 0.90 or greater.

Total harmonic distortion from current and voltage induced into an alternating current power line by LED countdown PSF module must not exceed 20 percent at an operating temperature of 25 °C.

The LED countdown PSF module circuitry must prevent perceptible light emission to the unaided eye when a voltage, 50 V(ac) or less is applied to the unit.

When power is applied to LED PSF module, light emission must occur within 90 ms.

The "UPRAISED HAND" and "WALKING PERSON" symbol indications must be electrically isolated from each other. Sharing a power supply or interconnect circuitry between the 3 indications is not allowed.

Replace section 86-4.03I(1)(c)(ii) with:

86-4.03I(1)(c)(ii) Warranty

The manufacturer must provide a written warranty against defects in materials and workmanship for LED PSF modules for a minimum period of 48 months after installation of LED PSF modules. Replacement LED PSF modules must be provided within 15 days after receipt of failed LED PSF modules at your expense. The Department pays for shipping the failed modules to you. All warranty documentation must be submitted to the Engineer before installation. Replacement LED PSF modules must be delivered to State Maintenance Electrical Shop at 1604 South B Street, Stockton, CA 95205.

Add to section 86-4.03I(2):

Installation of the LED PSF module into the pedestrian signal face only requires the removal of lenses, reflectors, lamps, and existing LED modules.

Add to section 86-4.03J:

The "Meter On" sign must be a Type A pedestrian signal modified so the reflector is a single chamber with 2 incandescent lamps.

Add to section 86-5.01A(1):

Loop wire must be Type 2.

Loop detector lead-in cable must be Type B .

Slots must be filled with hot-melt rubberized asphalt sealant.

The depth of the loop sealant above the top of the uppermost loop wire in the sawed slots must be 2 inches, minimum.

Replace "Reserved" in section 86-5.01D with:

86-5.01D(1) General

Each traffic signal must have an emergency vehicle detector system that must comply with the details shown and the special provisions.

Each emergency vehicle detector system must consist of an optical emitter assembly or assemblies located on the appropriate vehicle and an optical detector/discriminator assembly or assemblies located at the traffic signal.

Emitter assemblies are not required for this project except units for testing purposes to demonstrate that the systems perform as specified. Tests must be conducted in the presence of the Engineer as described below under "System Operation" during the signal test period. The Engineer must be provided a minimum of 2 working days notice prior to performing the tests.

Each system must allow detection of 2 classes of authorized vehicles. Class I (mass transit) vehicles must be detected at ranges of up to 1,000 feet from the optical detector. Class II (emergency) vehicles must be detected at ranges up to 1,800 feet from the optical detector.

Class I signals (those emitted by Class I vehicles) must be distinguished from Class II signals (those emitted by Class II vehicles) on the basis of the modulation frequency of the light from the respective emitter. The modulation frequency for Class I signal emitters must be 9.639 Hz \pm 0.110 Hz. The modulation frequency for Class II signal emitters must be 14.035 Hz \pm 0.250 Hz.

A system must establish a priority of Class II vehicle signals over Class I vehicle signals and must comply with the requirements in section 25352 of the California Vehicle Code.

86-5.01D(2) Emitter Assembly

Each emitter assembly, provided for testing purposes, must consist of an emitter unit, an emitter control unit, and connecting cables.

86-5.01D(2)(a) General

Each emitter assembly, including lamp, must operate over an ambient temperature range of -34 to +60 degrees C at both modulation frequencies and operate continuously at the higher frequency for a minimum of 3,000 hours at 25degrees C ambient before failure of the lamp or other components.

Each emitter unit must be controlled by a single, maintained-contact switch on the respective emitter control unit. The switch must be located to be readily accessible to the vehicle driver. The control unit must contain a pilot light to indicate that the emitter power circuit is energized and must generate only 1 modulating code, either that for Class I vehicles or that for Class II vehicles.

86-5.01D(2)(b) Functional

Each emitter unit must transmit optical energy in 1 direction only.

The signal from each Class I signal emitter unit must be detectable at a distance of 1,000 feet when used with a standard optical detection/discriminator assembly and filter to eliminate visible light. Visible light must be considered eliminated when the output of the emitter unit with the filter is less than an average of 0.0003 candela per energy pulse in the wavelength range of 380 nm to 750 nm when measured at a distance of 10 feet. Submit a certificate of compliance for each Class I emitter unit.

The signal from each Class II signal emitter unit must be detectable at a distance of 1,800 feet when used with a standard optical detection/discriminator assembly.

The standard optical detection/discriminator assembly to be used in making the range tests must be available from the manufacturer of the system. A certified performance report must be furnished with each assembly.

86-5.01D(2)(c) Electrical

Each emitter assembly must provide full light output with input voltages of between 12.5 V (dc) and 17.5 V (dc). An emitter assembly must not be damaged by input voltages up to 7.5 V (dc) above supply voltage. The emitter assembly must not generate voltage transients, on the input supply, that exceed the supply voltage by more than 4 volts.

Each emitter assembly must consume not more than 100 W at 17.5 V (dc) and must have a power input circuit breaker rated at 10 A to 12 A, 12 V (dc).

The design and circuitry of each emitter must allow its use on vehicles with either negative or positive ground without disassembling or rewiring of the unit.

86-5.01D(2)(d) Mechanical

Each emitter unit must be housed in a weatherproof corrosion-resistant housing. The housing must be provided with facilities to allow mounting on various types of vehicles and must have provision for aligning the emitter unit properly and for locking the emitter unit into this alignment.

Each emitter control unit must be provided with hardware to allow the unit to be mounted in or on an emergency vehicle or mass transit vehicle. Where required for certain emergency vehicles, the emitter control unit and exposed controls must be weatherproof.

86-5.01D(3) Optical Detection/Discriminator Assembly

86-5.01D(3)(a) General

Each optical detection/discriminator assembly must consist of 1 or more optical detectors, connecting cable and a discriminator module.

Each assembly, when used with standard emitters, must have a range of at least 1,000 feet for Class I signals and 1,800 feet for Class II signals. Standard emitters for both classes of signals must be available from the

manufacturer of the system. Range measurements must be taken with all range adjustments on the discriminator module set to "maximum".

86-5.01D(3)(b) Optical Detector

Each optical detector must be a waterproof unit capable of receiving optical energy from 2 separately aimable directions. The horizontal angle between the 2 directions must be variable from 180 degrees to 5 degrees.

The reception angle for each photocell assembly must be a maximum of 8 degrees in all directions about the aiming axis of the assembly. Measurements of reception angle will be taken at a range of 1,000 feet for a Type I emitter and at a range of 1,800 feet for a Type II emitter.

Internal circuitry must be solid state and electrical power must be provided by the associated discriminator module.

Each optical detector must be contained in a housing, which must include 2 rotatable photocell assemblies, an electronic assembly and a base. The base must have an opening to allow mounting on a mast arm or a vertical pipe nipple, or suspension from a span wire. The mounting opening must have female threads for 3/4 inch conduit. A cable entrance must be provided which must have male threads and gasketing to allow a waterproof cable connection. Each detector must have weight of less than 2.5 pounds and must present a maximum wind load area of 36 square inches. The housing must be provided with weep holes to allow drainage of condensed moisture.

Each optical detector must be installed, wired and aimed as specified by the manufacturer.

86-5.01D(3)(c) Cable

Optical detector cable (EV-C) must comply with the requirements of IPCEA-S-61-402/NEMA WC 5, section 7.4, 600-V (ac) control cable, 75 degrees C, Type B, and the following:

1. The cable must contain 3 conductors, each of which must be No. 20 (7 x 28) stranded, tinned copper with low-density polyethylene insulation. Minimum average insulation thickness must be 25 mils. Insulation of individual conductors must be color coded: 1-yellow, 1-blue, 1-orange.
2. The shield must be either tinned copper braid or aluminized polyester film with a nominal 20 percent overlap. Where film is used, a No. 20 (7 x 28) stranded, tinned, bare drain wire must be placed between the insulated conductors and the shield and in contact with the conductive surface of the shield.
3. The jacket must be black polyvinyl chloride with minimum ratings of 600 V (ac) and 80 degrees C and a minimum average thickness of 43 mils. The jacket must be marked as required by IPCEA/NEMA.
4. The finished outside diameter of the cable must not exceed 0.35-inch.
5. The capacitance, as measured between any conductor and the other conductors and the shield, must not exceed 48 pf per foot at 1000 Hz.
6. The cable run between each detector and the controller cabinet must be continuous without splices or must be spliced only as directed by the detector manufacturer.

86-5.01D(3)(d) Discriminator Module

Each discriminator module must be designed to be compatible and usable with a Model 170E controller unit and to be mounted in the input file of a Model 332L or Model 336L controller cabinet, and must comply with the requirements of chapter I of the State of California, Department of Transportation, "Traffic Signal Control Equipment Specifications."

Each discriminator module must be capable of operating 2 channels, each of which must provide an independent output for each separate input.

Each discriminator module, when used with its associated detectors, must perform the following:

1. Receive Class I signals at a range of up to 1,000 feet and Class II signals at a range of up to 1,800 feet.
2. Decode the signals, on the basis of frequency, at 9.639 Hz \pm 0.119 Hz for Class I signals and 14.035 Hz \pm 0.255 Hz for Class II signals.
3. Establish the validity of received signals on the basis of frequency and length of time received. A signal must be considered valid only when received for more than 0.50-second. No combination of Class I signals must be recognized as a Class II signal regardless of the number of signals being received, up to a maximum of 10 signals. Once a valid signal has been recognized, the effect must be held by the module in the event of

temporary loss of the signal for a period adjustable from 4.5 seconds to 11 seconds in at least 2 steps at 5 seconds \pm 0.5 second and 10 seconds \pm 0.5 second.

4. Provide an output for each channel that will result in a "low" or grounded condition of the appropriate input of a Model 170E controller unit. For Class I signals the output must be a 6.25 Hz \pm 0.1 percent, rectangular waveform with a 50 percent duty cycle. For Class II signals the output must be steady.

Each discriminator module must receive electric power from the controller cabinet at either 24 V (dc) or 120 V (ac).

Each channel together with the channel's associated detectors must draw not more than 100 mA at 24 V (dc) or more than 100 mA at 120 V (ac). Electric power, 1 detector input for each channel and 1 output for each channel must terminate at the printed circuit board edge connector pins shown in the following table:

Board Edge Connector Pin Assignment

A	DC ground		
B	+24 V (dc)	P	(NC)
C	(NC)		
D	Detector input, Channel A	R	(NC)
E	+24V (dc) to detectors	S	(NC)
F	Channel A output (C)	T	(NC)
		U	(NC)
H	Channel A output (E)	V	(NC)
J	Detector input, Channel B	W	Channel B output (C)
K	DC ground to detectors	X	Channel B output (E)
L	Chassis ground	Y	(NC)
M	AC-	Z	(NC)
N	AC+		

(C) Collector, slotted for keying

(E) Emitter, slotted for keying

(NC) Not connected, cannot be used by manufacturer for any purpose.

Two auxiliary inputs for each channel must enter each module through the front panel connector. Pin assignment for the connector must be as follows:

1. Auxiliary detector 1 input, Channel A
2. Auxiliary detector 2 input, Channel A
3. Auxiliary detector 1 input, Channel B
4. Auxiliary detector 2 input, Channel B

Each channel output must be an optically isolated NPN open collector transistor capable of sinking 50 mA at 30 V (ac) and must be compatible with the Model 170E controller unit inputs.

Each discriminator module must be provided with means of preventing transients received by the detector from affecting the Model 170E controller assembly.

Each discriminator module must have a single connector board and must occupy 1 slot width of the input file. The front panel of each module must have a handle to facilitate withdrawal and the following controls and indicators for each channel:

1. Three separate range adjustments each for both Class I and Class II signals.
2. A 3-position, center-off, momentary contact switch, 1 position (down) labeled for test operation of Class I signals, and 1 position (up) labeled for test operation of Class II signals.
3. A "signal" indication and a "call" indication each for Class I and for Class II signals. The "signal" indication denotes that a signal above the threshold level has been received. A "call" indication denotes that a steady, validly coded signal has been received. These 2 indications may be accomplished with a single indication lamp; "signal" being denoted by a flashing indication and "call" with a steady indication.

In addition, the front panel must be provided with a single circular, bayonet-captured, multi-pin connector for 2 auxiliary detector inputs for each channel. Connector must be a mechanical configuration complying with the requirements in Military Specification MIL-C-26482 with 10-4 insert arrangement, such as Burndy Trim Trio Bantamate Series, consisting of the following:

1. Wall mounting receptacle, G0B10-4PNE with SM20M-1S6 gold plated pins.
2. Plug, G6L10-4SNE with SC20M-1S6 gold plated sockets, cable clamp and strain relief that must provide for a right angle turn within 2-1/2 inches maximum from the front panel surface of the discriminator module.

86-5.01D(3)(e) Cabinet Wiring

The Model 332L cabinet has provisions for connections between the optical detectors, the discriminator module and the Model 170E controller unit.

Wiring for a Model 332L cabinet must comply with the following:

1. Slots 12 and 13 of input file "J" have each been wired to accept a 2-channel module.
2. Field wiring for the primary detectors, except 24-V (dc) power, must terminate on either terminal board TB-9 in the controller cabinet or on the rear of input file "J," depending on cabinet configuration. Where TB-9 is used, position assignments must be as shown in the following table:

Position	Assignment
4	Channel A detector input, 1st module (Slot J-12)
5	Channel B detector input, 1st module (Slot J-12)
7	Channel A detector input, 2nd module (Slot J-13)
8	Channel B detector input, 2nd module (Slot J-13)

The 24-V (dc) cabinet power will be available at Position 1 of terminal board TB-1 in the controller cabinet.

Field wiring for the auxiliary detectors must terminate on terminal board TB-O in the controller cabinet. Position assignments are as shown in the following table:

For module 1 (J-12)		For module 2 (J-13)	
Position	Assignment	Position	Assignment
1	+24V (dc) from (J-12E)	7	+24V (dc) from (J-13E)
2	Detector ground From (J-12K)	8	Detector ground from (J-13K)
3	Channel A auxiliary detector input 1	9	Channel A auxiliary detector input 1
4	Channel A auxiliary detector input 2	10	Channel A auxiliary detector input 2
5	Channel B auxiliary detector input 1	11	Channel B auxiliary detector input 1
6	Channel B auxiliary detector input 2	12	Channel B auxiliary detector input 2

86-5.01D(4) System Operation

The Contractor must demonstrate that the components of each system are compatible and will perform satisfactorily as a system. Satisfactory performance must be determined using the following test procedure during the functional test period:

1. Each system to be used for testing must consist of an optical emitter assembly, an optical detector, an optical detector cable and a discriminator module.
2. The discriminator modules must be installed in the proper input file slot of the Model 170E controller assembly.
3. Two tests must be conducted; 1 using a Class I signal emitter and a distance of 1,000 feet between the emitter and the detector, the other using a Class II signal emitter and a distance of 1,800 feet between the emitter and the detector. Range adjustments on the module must be set to "Maximum" for each test.
4. Each test must be conducted for a period of 1 hour, during which the emitter must be operated for 30 cycles, each consisting of a 1 minute "on" interval and a 1 minute "off" interval. During the total test period the emitter signal must cause the proper response from the Model 170E controller unit during each "on" interval and there must be no improper operation of either the Model 170E controller unit or the monitor during each "off" interval.

Add section 86-5.01E Video Image Vehicle Detection System

86-5.01E Video Image Vehicle Detection System

GENERAL

Summary

This work includes installing video image vehicle detection system (VIVDS) for traffic signals.

Definitions

Video Detection Unit (VDU): Processor unit that converts the video image from the camera and provides vehicle detection in defined zones. Unit includes an image processor, extension module, and communication card.

Video Image Sensor Assembly (VIS): An enclosed and environmentally-protected camera assembly used to collect the video image.

Video Image Vehicle Detection System (VIVDS): A system that detects video images of vehicles in defined zones and provides video output.

Submittals

Submit proposed list of materials before starting work:

Submittals

Item	Description
Certificate of compliance	For VIVDS as specified in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications.
Site analysis report	Written analysis for each detection site, recommending the optimum video sensor placement approved by the manufacturer.
Lane configuration	Shop drawing showing detection zone setback, detection zone size, camera elevation, selected lens viewing angle, illustration of detection zone mapping to reporting contact output, and illustration of output connector pin or wire terminal for lane assignment.
Configuration record	Windows XP PC compatible CD containing the final zone designs and calibration settings to allow reinstallation.
Mounting and wiring information	Approved wiring and service connection diagrams wrapped in clear self-adhesive plastic, placed in a heavy duty plastic envelope, and secured to the inside of the cabinet door.
Communication protocol	Industry standard available in public domain. Document defining message structure organization, data packet length, message usability, and necessary information to operate a system from a remote Windows based personal computer.
Programming software	CD containing set up and calibration software that observes and detects the vehicular traffic, including bicycles, motorcycles, and sub-compact cars, with overlay of detection zones and allows adjustment of the detection sensitivity for a traffic signal application.
Detector performance DVD recordings and analysis	Performance analysis based on 24-hour DVD recording of contiguous activity for each approach. Include 2 contiguous hours of sunny condition, with visible shadows projected a minimum of 6 feet into the adjacent lanes, and two 1-hour night periods with vehicle headlights present.
Preventative maintenance parts documentation	Documentation containing equipment replacement parts list for preventative maintenance, including electrical parts, mechanical parts, and assemblies.
Acceptance testing schedule	Submit schedule for approval 15 days before acceptance testing of VIVDS. Acceptance testing is separate from detector performance and analysis.

QUALITY CONTROL AND ASSURANCE

Warranty

The Contractor must provide a manufacturer's written warranty against defects in materials and workmanship for VIS and VDU units. The warranty shall be valid for a period extending at least 36 months beyond the date of successful completion of acceptance testing. All warranty documentation must be given to the Engineer prior to installation.

After final acceptance of VIVDS, replacement VIS and VDU must be provided within 10 days of receipt of a failed unit at no cost to the State, except the cost of shipping failed VIS and VDU. Deliver replacement VIS and VDU to District10, Traffic Branch, 1976 E. Charter Way, Stockton, CA 95205

MATERIALS

VIVDS must include:

1. VIS and mounting hardware. Use a clamping device as mounting hardware on a pole or mast-arm.
2. VDU
3. Power supply

4. Surge suppression
5. Cables
6. Connectors
7. Wiring for connecting to the State-furnished Model 332L traffic controller cabinet.
8. Communication card

VIVDS must include necessary firmware, hardware, and software for designing the detection patterns or zones at the intersection or approach. Detection zones must be created with a graphic user interface designed to allow to anyone trained in VIVDS system setup to configure and calibrate a lane in less than 15 minutes.

Functional Requirements

VIVDS must support normal operation of existing detection zones while a zone is being added or modified. Zone must flash or change color on a viewing monitor when vehicular traffic is detected. Length and width of each detection zone for each lane must be approved by the Engineer.

Software and firmware must detect vehicular traffic presence, provide vehicle counts, set up detection zones, test VIVDS performance, and allow video scene and system operation viewing from the local traffic management center/office. VIVDS must support a minimum of 2 separate detection patterns or zones that can be enacted by a remote operator at the signal controller cabinet.

VIVDS detection zone must detect vehicles by providing an output for presence and pulse. At least one detection output must be provided for each detection zone. One spare detection output must be provided for each approach. Detection performance must be achieved for each detection zone with a maximum of 8 user-defined zones for every camera's field of view.

VIVDS must detect the presence of vehicles under all types of adverse weather and environmental conditions, including snow, hail, fog, dirt, dust or contaminant buildup on the lens or faceplate, minor camera motion due to winds, and vibration. Under low visibility conditions, the VIVDS must respond by selecting a fail-safe default pattern, placing a constant call mode for all approaches. VIVDS outputs must assume a fail-safe "on" or "call" pattern for presence detection if video signal or power is not available and must recover from a power failure by restoring normal operations within 3 minutes without manual intervention. If powered off for more than 90 days, system must maintain the configuration and calibration information in memory.

Detection algorithm must be designed to accommodate naturally occurring lighting and environment changes, specifically the slow moving shadows cast by buildings, trees, and other objects. These changes must not result in a false detection or mask a true detection. VIVDS must not require manual interventions for day-night transition or for reflections from poles, vehicles or pavement during rain and weather changes. VIVDS must suppress blooming effects from vehicle headlights and bright objects at night.

Vehicle detection must call service to a phase only if a demand exists and extend green service to the phase until the demand is taken care of or until the flow rates have reduced to levels for phase termination. VIVDS must detect the presence of vehicular traffic at the detection zone positions and provide the call contact outputs to the Model 170E or Model 2070L controller assembly with the following performance:

Detector Performance

Requirements	Performance during AMBER and RED interval	Performance during GREEN interval
Average response time after vehicle enters 3 feet into detection zone or after exiting 3 feet past detection zone	≤ 1 s	≤ 100 ms
Maximum number of MISSED CALLS in 24-hour duration, where MISSED CALLS are greater than 5 s during AMBER and RED intervals and greater than 1 s during GREEN intervals (upon entering 3 feet of detection zone or after departing 3 feet past detection zone).	0	10
Maximum number of FALSE CALLS in 24-hour duration (calls greater than 500 ms without a vehicle present)	20	20

VIVDS must be able to locally store, for each lane, vehicle count data in 5, 15, 30, and 60 minute intervals for a minimum period of 7 days and be remotely retrievable. VIVDS must count vehicular traffic in detection zone with a 95 percent accuracy or better for every hour counted over a morning or an evening peak hour. VIVDS detection zone tested must have a minimum range of 50 feet behind the limit line for each approach. Testing period will be pre-approved by the engineer 48 hours in advance.

Technical Requirements

System elements must comply with the manufacturer's recommendations and be designed to operate continuously in an outdoor environment.

All equipment, cables, and hardware must be part of an engineered system that is designed by the manufacturer to fully interoperate with all other system components. Mounting assemblies must be corrosion resistant. Connectors installed outside the cabinets and enclosures must be corrosion resistant, weather proof, and watertight. Exposed cables must be sunlight and weather resistant. Label cables with permanent cable labels at each end.

Camera and zoom lens assembly must be housed in an environmentally sealed enclosure that complies with NEMA 4 standards. Enclosure must be watertight and protected from dust. Enclosure must include a thermostat controlled heater to prevent condensation and to ensure proper lens operation at low temperatures. Adjustable sun shield that diverts water from the camera's field of view must be included. Connectors, cables and wiring must be enclosed and protected from weather. An environmentally sealed (protected from dust and moisture ingress) connector must be used at the rear plate of the housing. Wiring to the connector must be sealed with silicone or putty compound.

Each camera and its mounting hardware must be less than 10 pounds and less than 1 square foot equivalent pressure area. Only one camera must be mounted on a traffic signal or luminaire arm. Top of camera must not be more than 12 inches above top of luminaire arm or 30 inches above top of traffic signal arm.

VIS must use a charge-coupled device (CCD) element, support National Television Standards Committee (NTSC) and RS170 video output formats, and have a horizontal resolution of at least 360 lines. VIS must include an auto gain control (AGC) circuit, have a minimum sensitivity to scene luminance from 0.01 to 930 foot-candle, and produce a usable video image of vehicular traffic under all roadway lighting conditions regardless of the time of day. VIS must have a motorized lens with variable focus and zoom control with an aperture of f/1.4 or better. Focal length must allow ± 50 percent adjustment of the viewed detection scene.

A flat panel video display with a minimum 8-inch screen and that supports NTSC video output must be enclosed in the Model 332L cabinet for viewing video detector images and for performing diagnostic testing. Display must be viewable in direct sunlight. Each VIVDS must have video system connections that support the NTSC video output format, can be seen in each camera's field of view, and has a program to allow the user to switch to any video signal at an intersection. A metal shelf or pull-out document tray with metal top capable of supporting the VDU and monitor must be furnished and placed on an EIA 19 inch rack with 10-32 "Universal Spacing" threaded

holes in the Model 332L cabinet. System must allow independent viewing of a scene while video recording other scenes without interfering with the operation of the system's output.

Mounting hardware must be powder-coated aluminum, stainless steel, or treated to withstand 250 hours of salt fog exposure as specified in ASTM B 117 without any visible corrosion damage.

VDU must operate between -35 to +74 °C and 0 to 95 percent relative humidity.

VDU front panel must have indicators for power, communication, presence of video input for each VIS, and a real time detector output operation. Hardware or software test switch must be included to allow the user to place either a constant or momentary call for each approach. Indicators must be visible in daylight from 5 feet away.

VDU must have a serial communication port, EIA-232/USB 2.0 that supports sensor unit setup, diagnostics, and operation from a local PC compatible laptop with Windows XP or later version operating system. VIVDS must have an Ethernet communication environment, including Ethernet communication card. VIVDS must include central and field software to support remote real-time viewing and diagnostics for operational capabilities through wide area network (WAN) or wireless. VDU, image processors, extension modules, and video output assemblies must be inserted into the controller input file slots using the edge connector to obtain limited 24 V(dc) power and to provide contact closure outputs. Cabling the output file to a "D" connector on the front of the VDU is acceptable. No rewiring to the standard Model 332L cabinet is allowed. Controller cabinet resident modules must comply with the requirements in Chapter 1 and Sections 5.2.8, 5.2.8.1, 5.2.8.2, 5.4.1, 5.4.5, 5.5.1, 5.5.5, and 5.5.6 of TEES.

VIVDS must operate between 90 to 135 V(ac) service as specified in NEMA TS-1. VIS, excluding the heater circuit, must draw less than 10 W of power. Power supply or transformer for the VIVDS must meet the following minimum requirements:

Minimum Requirements for Power Supply and Transformers

Item	Power Supply	Transformer
Power Cord	Standard 120 V(ac), 3 prong cord, 3 feet minimum length (may be added by Contractor)	Standard 120 V(ac), 3 prong cord, 3 feet minimum length (may be added by Contractor)
Type	Switching mode type	Class 2
Rated Power	Two times (2x) full system load	Two times (2x) full system load
Operating Temperature	-35 to 74 °C	-35 to 74 °C
Operating Humidity Range	From 5 to 95 percent	From 5 to 95 percent
Input Voltage	From 90 to 135 V(ac)	From 90 to 135 V(ac)
Input Frequency	60 ± 3 Hz	60 ± 3 Hz
Inrush Current	Cold start, 25 A Max. at 115 V	N/A
Output Voltage	As required by VIVDS	As required by VIVDS
Overload Protection	From 105 to 150 percent in output pulsing mode	Power limited at >150 percent
Over Voltage Protection	From 115 to 135 percent of rated output voltage	N/A
Setup, Rise, Hold Up	800 ms, 50 ms, 15 ms at 115 V(ac)	N/A
Withstand Voltage	I/P-0/P:3 kV, I/P-FG:1.5 kV, for 60 s.	I/P-0/P:3 kV, I/P-FG:1.5 kV, for 60 s
Working Temperature	Not to exceed 70 °C@30 percent load	Not to exceed 70 °C@ 30 percent load
Safety Standards	UL 1012, UL 60950	UL 1585
EMC Standards	EN55022 Class B, EN61000-4-2, 3, 4, 5	N/A

Field terminated circuits must include transient protection as specified in IEEE Standard 587-1980, Category C. Video connections must be isolated from ground.

Wiring must be routed through end caps or existing holes. New holes for mounting or wiring must be shop-drilled.

VIVDS and support equipment required for acceptance testing must be new and as specified in the manufacturer's recommendations. Date of manufacture, as shown by date codes or serial numbers of electronic circuit assemblies, must not be older than 12 months from the scheduled installation start date. Material substitutions must not deviate from the material list approved by the Engineer.

CONSTRUCTION

Install VDU in a State-furnished Model 2070L controller assembly. Install VIS power supply or transformer on a standard DIN rail using standard mounting hardware and power conductors wired to DIN rail mounted terminal blocks in the controller cabinet.

Wire each VIS to the controller cabinet with a wiring harness that includes all power, control wiring, and coaxial video cable. Attach harness with standard MIL type and rated plugs. Cable type and wire characteristics must comply with manufacturer's recommendations for the VIS to cabinet distance. Wiring and cables must be continuous, without splices, between the VIS and controller cabinet. Coil a minimum of 7 feet of slack in the bottom of the controller cabinet. For setup and diagnostic access, terminate serial data communication output conductors at TB-0 and continue for a minimum of 10 feet to a DB-9F connector. Tape ends of unused and spare conductors to prevent accidental contact to other circuits. Label conductors inside the cabinet for the functions depicted the approved detailed diagrams.

Adjust the lens to view 110 percent of the largest detection area dimension. Zones or elements must be logically combined into reporting contact outputs that are equivalent to the detection loops and with the detection accuracy required.

Verify the performance of each unit, individually, and submit the recorded average and necessary material at the conclusion of the performance test. Determine and document the accuracy of each unit, individually, so that each unit may be approved or rejected separately. Failure to submit necessary material at the conclusion of testing invalidates the test. The recorded media serves as acceptance evidence and must not be used for calibration. Calibration must have been completed before testing and verification.

Verify the detection accuracy by observing the VIVDS performance and recorded video images for a contiguous 24-hour period. The recorded video images must show the viewed detection scene, the detector call operation, the signal phase status for each approach, the vehicular traffic count, and time-stamp to 1/100 of a second, all overlaid on the recorded video. Transfer the 24-hour analysis to DVD.

VIVDS must meet the detection acceptance criterion specified in table titled "Detector Performance."

Calculate the VIVDS's vehicular traffic count accuracy as $100[1-(|TC-DC|/TC)]$, where DC is the detector's vehicular traffic count and TC is the observed media-recorded vehicular traffic count and where the resulting fraction is expressed as an absolute value.

The Engineer will review the data findings and accept or reject the results within 7 days. Vehicle anomalies or unusual occurrences will be decided by the Engineer. Data or counts not agreed by the Engineer will be considered errors and count against the unit's calibration. If the Engineer determines that the VIVDS does not meet the performance requirements, you must re-calibrate and retest the unit, and resubmit new test data within 7 days. After 3 failed attempts, you must replace the VIVDS with a new unit.

Notify the Engineer 20 days before the unit is ready for acceptance testing. Acceptance testing must be scheduled to be completed before the end of a normal work shift. You must demonstrate that all VIS and VDUs satisfy the functional requirements.

Repair, replacement, and retesting of VIVDS components due to failure or rejection are the Contractor's expense.

PAYMENT

Full compensation for video image vehicle detection system is included in the contract lump sum price paid for modify signal and lighting, and no separate payment will be made therefor.

Add to section 86-6.01:

Ballasts must be the lag or lead regulator type.

Add to section 86-6.02

86-6.02 LIGHT EMITTING DIODE LUMINAIRES 86-6.02A General

86-6.02A(1) Summary

Not used.

86-6.02A(2) Definitions

CALiPER: Commercially Available LED Product Evaluation and Reporting. A US DOE program for the testing and monitoring of commercially available LED luminaires and lights.

correlated color temperature: A visible light characteristic of comparing a light source to a theoretical heated black body radiator. Measured in Kelvin.

footcandle: Unit of illuminance; a measurement of light.

Houseside lumens: Lumens from luminaire directed to light up areas between fixture and the pole: e.g. as sidewalks at intersection, or areas off of the shoulders on freeways.

IP: International Protection rating, sometimes referred to as ingress protection, that delineates the level at which foreign objects and water can intrude inside a device.

Junction temperature: The temperature of the electronic junction of the LED device. The junction temperature is critical in determining photometric performance, estimating operational life, and preventing catastrophic failure of the LED.

L70: The extrapolated life in hours of the luminaire when the luminous output depreciates 30 percent from initial values.

LM-79: A test method from the Illumination Engineering Society of North America (IESNA) specifying test conditions, measurements and report format for testing solid state lighting devices including LED luminaires.

LM-80: A test method from the IESNA specifying test conditions, measurements and report format for testing and estimating the long term performance of LEDs for general lighting purposes.

NVLAP: National Voluntary Laboratory Accreditation Program under the US DOE to accredit independent testing laboratories to qualify.

power factor: Ratio of the real power component to the total, complex, power component.

Streetside lumens: Lumens from luminaire directed to light up areas between fixture and the roadway: e.g. the traveled ways, freeway lanes.

surge protection device: A subsystem or component that can protect the unit against short duration voltage and current surges.

Transportation Electrical Equipment Specifications: A package of standard specifications for transportation related electrical equipment to be used on State Highways. This document is compiled by the Department.

total harmonic distortion: Amount of higher frequency power on the power line.

86-6.02A(3) Submittals

Submit sample luminaire to the Transportation Laboratory after the manufacturer's testing is completed. Include the manufacturer's testing data.

Product submittals must be accompanied by:

1. LED Luminaire Checklist
2. Product specification sheets:
 - 2.1. Maximum power in watts
 - 2.2. Maximum designed junction temperature
 - 2.3. Heat sink area in square inches
 - 2.4. Designed junction to ambient thermal resistance calculation with thermal resistance components clearly defined
 - 2.5. L70 in hours when extrapolated for the average nighttime operating temperature
3. IES LM-79 and IES LM-80 compliant test reports from a CALiPER-qualified or NVLAP-approved testing laboratory for the specific model submitted.
4. Photometric file (IES) based on LM-79 test report.
5. Initial and depreciated isofootcandle charts showing the specified minimum illuminance curve for that particular application. The charts must be calibrated to feet and show a 40 by 40 foot grid. The charts must be calibrated to the mounting height specified for that particular application. The depreciated isofootcandle curve must be calculated at the minimum operational life.

6. Test report showing surge protection device (SPD) performance as tested under ANSI/IEEE C62.41.2 and ANSI/IEEE C62.45.
7. Test report showing mechanical vibration test results as tested under California Test 611 or equal.
8. Datasheets from the LED manufacturer that includes information on life expectancy based on junction temperature.
9. Datasheets from power supply manufacturer that includes life expectancy information.

86-6.02A(4) Quality Control and Assurance

Production quality assurance must include statistically-controlled routine tests to ensure minimum performance levels of the modules built to meet this specification and a documented process for resolving problems. The process and test results documentation must be kept on file for a minimum of 7 years.

The Department may perform random sample testing on all shipments. Testing will be completed within 30 days after delivery to the Transportation Laboratory. Luminaires will be tested under California Test No. 678 and as specified. All parameters of the specification may be tested on the shipment sample. When testing is complete, you will be notified. You must pick up equipment from the test site and deliver to the job site.

One sample luminaire must be fitted with temperature sensor (either thermistor or thermo-couple). A temperature sensor must be mounted on the LED solder pad as close to the LED as possible. Another temperature sensor must be mounted on the power supply (driver) case. Light bar or modular systems must have one sensor for each module, mounted as close to the center of the module. Other configurations must have at least 5 sensors per luminaire. Contact the Department's Transportation Laboratory for advice on sensor location. Thermocouples must be either Type K or Type C. Thermistors must be negative temperature coefficient (NTC) type with a nominal resistance of 20 kΩ. The appropriate thermocouple wire must be used. The leads must be a minimum of 6 ft. Documentation must accompany the test unit that details the type of sensor used.

The sample luminaires must be energized for a minimum of 24 hours, at 100 percent on-time duty cycle, at a temperature of +70 °F before performing any design qualification testing.

Any failure of the luminaire that renders the unit non-compliant with the specification after burn in must be rejected.

The luminaire lighting performance must be depreciated for the minimum operating life by using the LED manufacturer's data or the data from the LM-80 test report, whichever results in a higher lumen depreciation.

Failure of the luminaire that renders the unit non-compliant with the specification will be cause for rejection. If unit is rejected, you must allow 30 days for retesting. Retesting period starts when replacement luminaire is delivered to test site. You must pay for all retesting costs. Delays resulting from submittal of non-compliant materials do not relieve you from executing the contract within the allotted time.

If luminaire submitted for testing does not comply with specifications, remove the unit from the Transportation Laboratory within 5 business days after notification that it is rejected. If the unit is not removed within that period, it may be shipped to you at your expense.

You must pay for all shipping, handling, and transportation costs related with testing and retesting

86-6.02A(5) Warranty

Provide two years replacement warranty from the manufacturer of the luminaires from the date of installation against any defects or failures. Replacement luminaires must be provided within 10 days after receipt of failed luminaire at no cost to the Department. All warranty documentation must be given to the Engineer prior to installation. Replacement luminaires must be delivered to Department Maintenance Electrical Shop at 1283 N West Ave, Fresno, CA 93728.

86-6.02B Materials

86-6.02B(1) General

The luminaire consists of an assembly that uses LEDs as the light source. In addition, a complete luminaire consists of a housing, an LED array, and an electronic driver (power supply). The luminaire must comply with the following requirements:

1. UL listed under UL 1598 for luminaires in wet locations or an equivalent standard from a recognized testing laboratory
2. Have a minimum operational life is 63,000 hours
3. Expected to operate at an average operating time of 11.5 hours per night
4. Designed to operate at an average nighttime operating temperature of 70 °F
5. Have an operating temperature range from -40 °F to +130 °F.
6. Defined by the following application:

Application	Typically Replaces
Roadway 1	200 Watt HPS mounted at 34 ft
Roadway 2	310 Watt HPS mounted at 40 ft.
Roadway 3	310 Watt HPS mounted at 40 ft. with back side control
Roadway 4	400 Watt HPS mounted at 40 ft.

The individual LEDs must be connected such that a catastrophic loss or a failure of one LED will not result in the loss of more than 20 percent of the luminous output of the luminaire.

86-6.02B(2) Luminaire Identification

Each luminaire must have the following identification permanently marked inside the unit and outside of its packaging box:

1. Manufacturer's name
2. Trademark
3. Model number
4. Serial number
5. Date of manufacture (month-year)
6. Lot number
7. Project/Contract number
8. Rated voltage
9. Rated wattage
10. Rated power in VA

The rated voltage in watts and rated power in volt-ampere must be permanently marked inside each unit.

86-6.03B(3) Electrical

The luminaire must operate from a 60 Hz ±3 Hz AC line over a voltage ranging from 95 to 250 V(ac). The fluctuations of line voltage must have no visible effect on the luminous output. The standard operating voltages are 120 and 240 V(ac). The power factor of the luminaire must be 0.90 or greater. Total harmonic distortion (current and voltage) induced into an AC power line by a luminaire must not exceed 20 percent. The maximum power consumption allowed for the luminaire depends on the application and is as shown in the following table:

Application	Max Wattage
Roadway 1	165
Roadway 2	235
Roadway 3	235
Roadway 4	300

86-6.02B(4) Surge Suppression and Electromagnetic Interference

The luminaire on-board circuitry must include an SPD to withstand high repetition noise transients as a result of utility line switching, nearby lightning strikes, and other interference. The SPD must protect the luminaire from damage and failure for transient peak voltages and currents as defined in ANSI/IEEE C64.41.2 (Tables 1 and 4) for Location Category C-High. SPD must conform to UL 1449 depending on the components used in the design. SPD performance must be tested under ANSI/IEEE C62.45 based on ANSI/IEEE C62.41.2 definitions for standard and optional waveforms for Location Category C-High.

The luminaires and associated onboard circuitry must meet Class A emission limits under FCC Title 47, Subpart B, Section 15 regulations concerning the emission of electronic noise.

86-6.02B(5) Compatibility

The luminaire must be operationally compatible with currently used lighting control systems and photoelectric controls.

86-6.02B(6) Photometric Requirements

The luminaire must maintain a minimum illuminance level throughout the minimum operating life. The illuminance must not decrease by more than 30 percent over the minimum operating life or L70 must be at least the minimum operating life. The measurements must be calibrated to standard photopic calibrations. The minimum maintained illuminance is listed in the table below and is measured as a point:

Application	Mounting Height (ft)	Minimum Maintained Illuminance (fc)	Light Pattern Figure (iso-footcandle curve)
Roadway 1	34	0.15	Pattern defined by ellipse with equation : $\frac{x^2}{(82)^2} + \frac{(y - 20)^2}{(52)^2} = 1$ where: x =direction is longitudinal to the roadway, y =direction is transverse to roadway, luminaire is offset from center of pattern by 20 feet to the "houseside" of pattern.
Roadway 2	40	0.2	Pattern defined by ellipse with equation :

			$\frac{x^2}{(82)^2} + \frac{(y-20)^2}{(52)^2} = 1$ <p>where: x = direction is longitudinal to the roadway, y = direction is transverse to roadway, luminaire is offset from center of pattern by 20 feet to the "houseside" of pattern.</p>
Roadway 3	40	0.2	<p>Pattern defined by ellipse with equation :</p> $\frac{x^2}{(92)^2} + \frac{(y-23)^2}{(55)^2} = 1$ <p>for y ≥ 0 (street side)</p> <p>where: x = direction is longitudinal to the roadway y = direction is transverse to roadway, luminaire is offset from center of pattern by 23 feet to the "houseside" of pattern.</p>
Roadway 4	40	0.2	<p>Pattern defined by ellipse with equation :</p> $\frac{x^2}{(92)^2} + \frac{(y-23)^2}{(55)^2} = 1$ <p>where: x = direction is longitudinal to the roadway y = direction is transverse to roadway, luminaire is offset from center of pattern by 23 feet to the "houseside" of pattern.</p>

The luminaire must have a correlated color temperature range of 4,000 to 6,500 K. The color rendition index must be 65 or greater.

The luminaire must not allow more than:

1. 10 percent of the rated lumens to project above 80 degrees from vertical
2. 2.5 percent of the rated lumens to project above 90 degrees from vertical

86-6.02B(7) Thermal Management

The thermal management of the heat generated by the LEDs must be of sufficient capacity to assure proper operation of the luminaire over the minimum operation life. The LED manufacturer's maximum junction temperature for the minimum operation life must not be exceeded. The maximum allowed junction temperature is 221 °F.

The junction-to-ambient thermal resistance must be 95 °F per watt or less. Thermal management must be passive by design. The use of fans or other mechanical devices is not allowed. The heat sink material must be aluminum or other material of equal or lower thermal resistance.

The luminaire must contain circuitry that will automatically reduce the power to the LEDs to a level that will insure that the maximum junction temperature is not exceeded, when the ambient outside air temperature is 100 °F or greater.

86-6.02B(8) Physical and Mechanical Requirements

The luminaire must be a single, self-contained device, not requiring on-site assembly for installation. The power supply for the luminaire is integral to the unit. The maximum weight of the luminaire must be 35 lbs. The maximum effective projected area when viewed from either side or either end must be 1.4 sq ft. The housing must be a light or medium gray color within the Federal Standard 595B ranges of 26250 to 26500 for semi-gloss sheen or 36250 to 36500 for flat sheen.

The housing must be fabricated from materials that are designed to withstand a 3000-hour salt spray test under ASTM B 117. All aluminum used in housings and brackets must be a marine grade alloy with less than 0.2 percent copper. All exposed aluminum must be anodized.

Each refractor or lens must be made from UV-inhibited high impact plastic (such as acrylic or polycarbonate) or heat and impact resistant glass, and be resistant to scratching. Polymeric materials of enclosures containing either the power supply or electronic components of the luminaire must be made of UL94VO flame retardant materials. The lenses of the luminaire are excluded from this requirement. Paint or powder coating of the housing must conform to the requirements of the Department's Standard Specifications and the Contract's Bid Book. A chromate conversion undercoating must be used underneath a thermoplastic polyester powder coat.

Each housing must be provided with a slip fitter capable of mounting on a 2 inch pipe tenon. This slip fitter must fit on mast arms from 1-5/8 to 2-3/8 in (O.D.) The slip fitter must be capable of being adjusted a minimum of ± 5 degrees from the axis of the tenon in a minimum of five steps: +5, +2.5, 0, -2.5, -5. The clamping brackets of the slip fitter must not bottom out on the housing bosses when adjusted within the designed angular range. No part of the slip fitter mounting brackets on the luminaires must develop a permanent set in excess of 1/32 in. when the 2 or 4, 3/8 in. diameter cap screws used for mounting are tightened to 10 ft-lb. Two sets of cap screws may be supplied to allow for the slip fitter to be mounted on any pipe tenon in the acceptable range without the cap screws bottoming out in the threaded holes. The cap screws and the clamping brackets must be made of corrosion resistant materials or treated to prevent galvanic reactions, and be compatible with the luminaire housing and the mast-arm.

The assembly and manufacturing process for the LED luminaire must be designed to assure all internal components are adequately supported to withstand mechanical shock and vibration from high winds and other sources. Luminaires to be mounted on horizontal mast arms, when tested under California Test 611 (as modified below) must be capable of withstanding the following cyclic loadings in units of acceleration of gravity, G:

1. Vertical plane at a minimum peak acceleration level of 3.0 G peak-to-peak sinusoidal loading (same as 1.5 G peak) with the power supply installed, for a minimum of 2 million cycles without failure of any luminaire parts.
2. Horizontal plane perpendicular to the direction of the mast arm at a minimum peak acceleration level of 1.5 G peak-to-peak sinusoidal loading (same as 0.75 G peak) with the power supply installed, for a minimum of 2 million cycles without failure of any luminaire parts.

The housing must be designed to prevent the build up of water on the top of the housing. Exposed heat sink fins must be oriented to allow the water to freely run off the luminaire and carry dust and other accumulated debris away from the unit. The optical assembly of the luminaire must be protected against dust and moisture intrusion to at least IP-66. The power supply enclosure must be protected to at least IP-43.

Each mounted luminaire may be furnished with or without a photoelectric unit receptacle. If a photoelectric unit receptacle is included, a rain tight shorting cap must be provided and installed. The receptacle must comply with Section 86-6.08, "Types," of the Standard Specifications. If the luminaire housing is provided with a hole for the receptacle, the hole must be closed, covered, and permanently sealed with weatherproof material.

When the components are mounted on a down-opening door, the door must be hinged and secured to the luminaire housing separately from the refractor or flat lens frame. The door must be secured to the housing in a manner to prevent its accidental opening. A safety cable must mechanically connect the door to the housing.

Field wires connected to the luminaire must terminate on a barrier type terminal block secured to the housing. The terminal screws must be captive and equipped with wire grips for conductors up to No. 6. Each terminal position must be clearly identified.

The power supply must be rated for outdoor operation and have a minimum IP rating of IP65.

The power supply must be rated for a minimum operational life equal to the minimum operation life of the luminaire, or greater.

The power supply case temperature must have a self rise of 77 degrees F or less above ambient temperature in free air with no additional heat sinks.

Conductors and terminals must be identified.

86-6.02C Construction

Not used.

86-6.02D Payment

Not used.

Replace "Reserved" in section 86-6.10D with:

Model 500 changeable message sign (CMS) system consists of a Model 500 changeable message sign, a Model 170E controller assembly in a completely wired Model 334LC cabinet with the required wiring, and auxiliary equipment required to control the CMS described.

Contractor must pay \$48,151.00 to Caltrans to compensate the State of California for cost incurred in obtaining, testing and supplying the changeable message sign system. The Contractor must also pay \$1,200.00 to Caltrans for the cost of controller setup. This fee does not supersede any other fee charged by Caltrans for review, inspection or field work performed by department staff as a result of the permit work. If the fee has not been paid prior to permit issuance, full payment shall be made to the district cashier prior to starting any work on the changeable message sign system and at least 30 days before the equipment is needed for installation.

The Model 500 LED changeable message sign, wiring harness, and Model 170E controller assembly including controller unit and completely wired cabinet, but without anchor bolts, shall be purchased from the Department by the Contractor as described above.

Install the sign assembly on the sign structure. Construct the controller cabinet foundation as shown for a Model 334LC cabinet, including furnishing and installing anchor bolts. Install the controller cabinet on the foundation and connect the field wiring to the terminal blocks in the sign assembly and in the controller cabinet.

Field conductors no. 12 and smaller must terminate with spade terminals. Field conductors no. 10 and larger must terminate in spade or ring terminals.

A listing of field conductor terminations in each CMS and controller cabinet will be furnished to you at the job site.

The foundation location for each controller cabinet will be determined by the Engineer. Distance between the cabinet and the CMS structure must be less than 250 feet.

The Department will maintain the sign assemblies.

Add to section 86-6.11B(1):

Photoelectric units for illuminated signs must have a "turn-on" level between 20 and 30 foot-candles, corresponding to a switching level of approximately 40 to 60 foot-candles measured in the horizontal plane. "Turn-off" level must not exceed 3 times the "turn-on" level.

Add to section 86-8.01:

Payment for highway lighting at intersections in connection with signals is included in the payment for signal and lighting.

Payment for roadway lighting on the project is included in the payment for Lighting and Sign Illumination.

For each item shown in the following table, the Department deducts the corresponding amount shown:

Source Inspection Expense Deductions

Item	Distance ^a	Deduction
Service equipment enclosures Telephone demarcation cabinets Contractor-furnished closed circuit television cabinets Contractor-furnished highway advisory radio cabinets	> 300	\$2,000

^aDistance is air-line miles from both Sacramento and Los Angeles to the inspection source.

The contract unit price paid for each of the following items shall include full compensation for furnishing all materials, tools, equipment, and incidentals, as shown on the plans, as specified in these special provisions, and as directed by the Engineer:

1. High speed wireless modem assembly

Payment for initial site analysis, set up and configuration of the system, calibration of the device performance, verification of detector accuracy, testing, and retesting of failed units is included in the payment for relocate microwave vehicle detection system.

A microwave vehicle detection system will not be included in a progress payment until the Engineer accepts the accuracy result for the system.

The contract lump sum price paid for vehicle classification station includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in vehicle classification station, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract lump sum price paid for changeable message sign system shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in changeable message sign system, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract lump sum price paid for the HAR System shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in the highway advisory radio system, complete in place, including testing and manuals, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract lump sum price paid for closed circuit television system includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in the closed circuit television system including camera assembly, and video encoder unit, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract lump sum price paid for electrical systems equipment shall include full compensation for purchasing traffic signal, ramp metering, count station and CMS equipment from the department as specified in these special provisions. The costs for installing this equipment shall be included in the contract lump sum prices paid for the bid item requiring this equipment.

The contract lump sum price paid for electric service extension shall include full compensation for furnishing all labor, materials including conduits, tools, equipment, and incidentals, and for doing all the work involved in extending the MID service to the new transformer pad including constructing transformer pad, trench and backfill, complete in place, as shown on the utility plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

86-9.01 CLOSED CIRCUIT TELEVISION SYSTEM

GENERAL

Summary

This work includes installing closed circuit television (CCTV) system. Comply with Section 86 of the Standard Specifications.

The CCTV system shall conform to all rules and regulations of the Federal Communications Commissions.

The existing CCTV system deployed in the district is the Pelco ES31C, Model #S31C22 -5W. The new system furnished by the Contractor shall be compatible with the existing CCTV system and these special provisions.

Each CCTV system shall consist of providing electrical service, furnishing and installing a camera assembly, video encoder, camera control unit, a camera pole, Model 334 cabinet, composite cable and wiring, and other required equipment as shown on the plans. Testing of all CCTV equipment shall be performed after installation as described in these special provisions.

Quality Control and Assurance

Testing

Once the CCTV system is installed, the Contractor shall conduct tests of the CCTV system in accordance with these special provisions. Transportation Management Center personnel, prior to acceptance of CCTV system, shall be present for the testing of the CCTV system.

Each CCTV camera shall be tested after installed in place on the pole. In the Model 334 cabinet, the camera video output cable will be connected to a Contractor-furnished NTSC color monitor and the pan/tilt/zoom communications link will be connected to a portable laptop computer (PC) configured to the Pelco D protocol. State forces will make available the PC with Pelco D protocol for testing purpose only. The PC will remain State property and must be returned to the State by the Contractor upon successful completion of the test. The tests performed are:

- A. Video quality observed on the NTSC color monitor as the lens focal lengths and apertures of the lens are varied and verifying the correct operation of the auto focus.
- B. Pan/tilt/zoom ranges as specified in these special provisions for the CCTV camera.
- C. Preset storage: two presets will be stored in the CCTV camera memory and observed for accurate positioning for a minimum of five cycles of pan/tilt/zoom movement.

Documentation

Documentation of all test results shall be provided to the Engineer for review and approval. System documentation shall incorporate the test results for ongoing maintenance and performance measurements.

The Contractor shall be responsible for all deliveries.

Warranty

All components of the camera assembly shall have a minimum 2-year manufacturer's warranty for parts and labor. Warranty periods shall begin from the date of successful completion of acceptance testing.

The Contractor shall fill out and mail equipment warranties of all camera equipment under "CALTRANS District 10, Traffic Branch, 1976 E. Charter Way, Stockton, CA 95205. Copies of mailed warranties with serial numbers shall be submitted as part of the system documentation.

MATERIALS

Camera Assembly

The camera assembly shall consist of the camera and positioner components integrated into one unit.

The camera component shall meet or exceed the following requirements: an imager with a 1/4" color charge-coupled device (CCD), NTSC horizontal resolution of 520, optical zoom range of 24X, 4 mm to 88 mm and auto/manual focus, and camera shall be enclosed in a sealed housing.

The positioner component shall meet or exceed the following requirements: an angular travel of 360 degrees continuous pan and -83 to +33 degree tilt ranges.

Video Encoder

The existing video encoder deployed in the district is the Axis 241S. The new video encoder furnished by the Contractor shall be compatible with the existing CCTV system and these special provisions.

Composite Cable

The existing composite cable deployed in the district is the Cohu CA290 series, Model # CA295F. The new cable system furnished by the Contractor shall be compatible with the existing CCTV system and these special provisions.

The composite cable shall provide video, data, and power conductors in a single jacketed cable. The cable shall have a strain relief located towards the top of the CCTV pole and hung on the pole j-hook.

Wiring shall run continuous from source to destination. No splices shall be allowed.

The Contractor shall verify composite cable length prior to ordering of materials and shall use a vendor manufactured and tested cable.

The existing camera control unit (CCU) deployed in the district is the Cohu 9300 series, Model #9305-0100. The new CCU furnished by the contractor shall be compatible with the existing CCTV system and these special provisions.

The CCU shall be compatible with the camera assembly. The CCU shall be 19-inch EIA-rack mountable.

CCTV Pole

CCTV poles shall conform to the provisions in Standard Specifications Section 86-2.04, "Standards, Steel Pedestals and Posts," of the Standard Specifications and these special provisions.

Model 334 Cabinet

Each Model 334 cabinet shall meet the requirements as shown on the plans and specified in these special provisions and the following requirements.

Surge Protector

The Contractor shall furnish and install a surge protector, which shall reduce the effect of power line transients and rated as follows:

Recurrent Peak Voltage	184 V
Energy Rating (Minimum)	20 J
Power Dissipation, Average	0.85 W
Peak Current for pulses less than 7 microseconds	1250 A
Stand-by Current for 60 Hz Sinusoidal	1 mA or less

Add Section 86-10.01 HIGHWAY ADVISORY RADIO SYSTEM

86-10.01 Highway Advisory Radio System

DESCRIPTION

The highway advisory radio (HAR) system shall consist of AM broadcast band radio equipment for a fixed location.

The HAR system shall include one AM transmitter, coupler, audio processor, telephone line interface, solid-state recorder/player, one antenna, fiberglass pole, grounding system, transient lightning suppression, battery back-up/charging systems, external digital recorder/player microphone, (or broadcast quality headset with noise canceling microphone), and control speaker phone.

The outside of each equipment packing container shall be marked with the Caltrans contract number and the make, model number, serial number, and installed operating frequencies of the unit within.

Test methods followed by the State for evaluation of supplied equipment will follow EIA recommendations where applicable.

Prototype equipment will not be acceptable. Only equipment previously marketed and sold for at least 6 months prior to the advertising date will be acceptable.

Any semiconductor devices or components utilized in the radio equipment which are not available from a minimum of two manufacturers shall have five such devices or components provided for each device utilized in the radio equipment.

All manuals, warranty forms, and license forms shall be submitted with the unit(s) for acceptance.

All equipment shall be warranted against defects and any failures which may occur through normal use for one year from the date the equipment is placed in service.

Proper contact protection shall be placed at all high voltage connections to prevent accidental contact with operators and operator's tools and equipment.

The HAR system may consist of equipment from multiple manufacturers but shall be integrated into existing system and be fully functional.

The HAR system shall be designed and installed to ensure operation that is in conformance with CFR Title 47, Section 90.242 of the FCC rules and regulations.

Enclosures and all radio, electrical, and mechanical equipment shall be designed to be card rack or shelf mounted inside a Caltrans standard Model 332/334 controller cabinet enclosure as described in Section 86-3.11, "Model 170 controller Assemblies," of the Standard Specifications. Card rack mountable equipment shall be provided with slotted mounting holes and shall be compatible with an EIA-310B rack.

The equipment shall be designed and installed in such a way to be easily accessible for maintenance.

TRANSMITTERS

The transmitters shall be the type certified and accepted by the FCC for travelers information stations (TIS) service, and shall operate in a range from 530 kHz to 1700 kHz.

Each transmitter shall have the capability of remote and local control. The ability to broadcast live messages from the transmitter site and the ability to record and broadcast from the Transportation Management Center (TMC) shall be provided.

Adjustment of RF power output shall be made by using an easily accessible control and shall be adjustable over the transmitter output power range specified herein.

Built-in, switchable meters shall indicate relative percentage of modulation and forward/reflected RF output power levels.

A provision for automatic station identification using stored, digitized audio shall be provided every 30 minutes while transmitting.

Operating temperature range shall be from -30°C to 60°C. Operating humidity range shall be from 20 percent relative at 30°C to 95 percent relative at 50°C.

The HAR shall deliver a 0.6 millivolt/foot signal, minimum, at a distance of 0.93 miles from the station with a maximum transmitter output of 10 watts.

The transmitter shall withstand an overload mismatched output (including an open or short circuit) for a period of 5 minutes at 10 watts output without overheating or component failure. The transmitter shall automatically resume normal operation when the mismatched output load is removed.

The maximum transmitter RF power output level shall be rated at least 10 watts. The transmitter output level shall be adjusted from a minimum of 2 watts to no more than 10 watts. A warning label shall be securely attached to the transmitter next to the adjustment output control and shall read as follows, "DO NOT EXCEED 10 WATTS".

Transmitter	
RF power output	Adjustable to 10 watts
Type of emission	Amplitude modulation (A3)
Frequency range	530 kHz to 1.7 MHz
Frequency stability	100Hz or better
Carrier shift	2% maximum
Harmonic attenuation	45 dB or better
Noise	70 dB below 80% modulation
Audio input	600Ω balanced
Modulation monitoring	100% peak flasher Built-in envelope detector
Frequency response	20 Hz to 15kHz ±1.0 dB maximum
Audio distortion	Less than 1.5% from 200Hz to 3.5KHz
RF Output Impedance	50 Ohm
Power consumption	150W at 117VAC

Transmitter Station

The transmitter station shall include the amplitude modulation (AM) transmitter and antenna system, digital recorder system, lightning protection, controls, dual tone multi-frequency (DTMF) telephone handset, back-up system, conduit, wiring and other hardware required for proper operation. The transmitter station shall be housed in a Model 332/334 cabinet enclosure.

The operating frequency of the transmitter shall be 1630 kHz as shown on the plans.

POWER/VOLTAGE STANDING WAVE RATIO (VSWR) METER

One radio frequency (RF) power/VSWR meter shall be included with the transmitter. The power/VSWR meter shall measure output power between the antenna and the RF output of the transmitter coupler. The power/VSWR meter shall have the following features and requirements:

- A. Meter.--Displays forward RF power, reflected RF power and SWR. Uppermost scale is for high (H) and low (L) power SWR reading. Low power SWR scale is for RF power below 30 W. High power SWR scale is for RF power over 30 W. Second and third scales are for RF power measurement which are 30 W, 300 W and 3 kW full scales.
- B. Range Switch.--Selects full scale RF power reading between 30 W, 300 W and 3 kW.
- C. Function Switch.--Selects measurement function between RF power and SWR.
- D. Calibration Knob.--Sets RF power to full scale reading depending on transmitting RF power to measure SWR. Readings increase as the knob is being turned clockwise in transmission.
- E. Power Direction Switch.--Selects RF power measurement between forward RF power and reflected RF power.
- F. Meter Zero Adjustment Screw.--Adjusts the meter indicator to zero position with regular screwdriver if the indicator is far from zero position when the unit is not in use.

- G. Transceiver.--RF power input from a radio equipment which is to be connected by 50 Ω coaxial cable with UHF connector.
- H. Antenna.--RF power output to an antenna or a dummy load which is to be connected by 50 Ω coaxial cable with UHF connector.
- I. 13.8 V(dc).--(dc) power source for meter illumination and LED display. Acceptable DC voltage range is from 11 V(dc) to 15 V(dc). Connect red line for positive and black line for negative polarities. This power source is not essential for measuring purpose.

COUPLER UNIT

The coupling unit shall:

- A. Isolate the transmitter from high voltage through the use of high-pass capacitors and fuses.
- B. Compensate for antenna system impedance mismatch through the use of multi-tap toroidal transformers.
- C. Compensate for antenna stray reactance through the use of a decade system of capacitor combinations.
- D. Include an internal VSWR meter and include controls for correcting load impedance and reactance.

HAR POWER AND BACK-UP EQUIPMENT

Equipment necessary for operation and backup of the HAR shall be included as part of the system and shall conform to the following.

Primary Power Input Provisions

Operation shall be from 117 ±10 percent V(ac), 60 ±3 Hz single phase, at a power input not to exceed 150 watts, continuous.

The primary input power shall be controlled by a circuit breaker mounted on the front panel labeled "AC POWER".

An AC power light indicator shall be provided on the front panel.

Interface Unit

The highway advisory radio system shall be supplied with an interface unit containing all system power control including chargers, isolation relays, metering, switches, fuse indicators and audio/power arrestors. The interface unit shall plug into 120 V(ac) power in the cabinet via a standard 120 V(ac) cord and plug. Barrier strips on the rear provide for telephone line input and output, battery charge/discharge and backup power distribution to components. "HAR INTERFACE" shall be marked on the outside of the unit.

Main Power Back-up

In the event of AC power loss, the HAR system shall automatically switch to a battery back-up system and continue to operate without degradation of performance for a period of not less than 12 hours.

The battery back-up system shall utilize a battery charger and gel cell batteries. The battery back-up system shall maintain the batteries without overcharging. The batteries shall not emit any corrosive, toxic, or explosive gasses.

The HAR system shall resume normal operation after AC power has been restored.

Indicator lights shall be provided to show when the unit is operating on AC power, or when it is operating on battery back-up. A voltmeter shall show the condition of the battery back-up system.

A front panel switch labeled "DC POWER" shall activate DC operation for the HAR system.

Fuse protection shall be provided on the battery charger and on the front panel for DC load.

The battery charger shall be designed for floating service and have an adjustable output voltage. The battery charger shall be the complete shut off type (fully automatic) and shall bring completely discharged batteries to a fully charged condition within 12 hours. The battery charger shall be designed to operate in unventilated area.

When the HAR is operating on battery back-up, the system shall automatically disconnect the HAR, to protect the batteries from damage caused by too deep a discharge. The disconnect threshold shall be adjustable over the range of either 20.0 to 24.0 V(dc) for a 24 volt system or 10 to 12 V(dc) for a 12 volt system.

The batteries shall not discharge to less than 10 V(dc) for a 12-volt system, or 20 V(dc) for a 24-volt system, when supplying 4.0 amperes for a period of 30 hours at 30° C. They shall be organized as a group of two 12 volt batteries and mounted on a wooden frame at the bottom of the controller cabinet enclosure.

The batteries shall be easily accessible and removable from the cabinet for service or replacement using connectors that do not require the use of hand tools. If 2 connectors are identical, and used for different purposes, they shall be clearly marked or polarized differently to ensure proper installation after repair or replacement of component parts. When the battery back-up system is disconnected from the cabinet, the station shall be capable of continued operation solely on (ac) power without having to connect, jump, or bypass any other device. Only relay, contact, and switch type devices shall be used to make a clean procedure of removal.

HAR OPERATION CONTROL EQUIPMENT

Equipment necessary for local and remote control of the HAR operations shall be included as part of the system and shall comply with the following.

Local Control Facilities

Local operator control of all essential features of the highway advisory radio station shall be accomplished either by the use of a standard dual tone multi-frequency (DTMF) telephone or by necessary discrete front panel controls.

Remote Control Facilities

A telephone line interface shall be provided so that the HAR may be connected to and controlled through a voice-grade dial-up telephone line, leased telephone line, or cellular telephone line with appropriate interface. The telephone line interface shall have a standard RJ-11 connector.

The HAR shall be equipped with a telephone line interface so that it will be possible to access, monitor and control the message being transmitted. The audio for the monitor function shall be obtained by demodulating the transmitter audio.

HAR MESSAGE STORAGE AND MANAGEMENT EQUIPMENT

Equipment necessary for storage and management of messages shall be included as part of the HAR and shall comply with the following.

Message Management

The HAR shall be able to receive a live or recorded message from a remote location via the telephone line and/or cellular telephone line or from the operator at the station location. This feature shall not require the use of hand tools.

The message shall be stored in a solid-state recorder/player, with the ability for selecting and checking the message prior to transmission.

Solid-state Recorder/player

Non-volatile solid-state memory shall be used for message storage. Magnetic media will not be acceptable.

A DTMF decoder shall be provided for programming and control of the recorder using a standard DTMF telephone. This function shall be possible, both remotely, via the telephone line interface, and at the station location. The DTMF tones shall not be recorded on the message.

Memory storage capacity shall be provided for a minimum of 250 different messages, with a minimum of 860 seconds total recording time. The length of each message shall be continuously variable up to the total recording time available.

The recorder shall have the flexibility for messages to be organized into a minimum of 20 different playlists with a minimum total of 100 different messages contained within the 20 playlists.

An internal clock shall be provided to select and control message play-back by day, hour and minute.

The system shall allow the recording of a message while another message is being broadcast.

Recording features shall include:

- A. Monitor off-air RF output of transmitter
- B. Recording message
- C. Playback of recorded message
- D. Erasing of message
- E. Set time spacing between messages
- F. Set playlist sequence
- G. Hear playlist sequence
- H. Set recording source input (dynamic microphone, cassette player (auxiliary audio input), and control telephone)
- I. Set recording speed
- J. Set background source materials message.
- K. Set alternate audio source
- L. Set clock time and day of the week (clock time shall be in military time and day of week shall be from 1 to 7, where 1 is Sunday)
- M. Set message schedules
- N. Hear message schedules
- O. Cancel message schedules
- P. Set playlist number
- Q. Hear playlist number
- R. Cancel playlist number
- S. Stop record
- T. Set remote record security code

Note 1: The days of the week shall be numbered consecutively from 1 to 7 beginning with Sunday.

The functions of recording and editing shall be accessible remotely or locally.

The recorder shall be able to be configured in the message repeater mode using DTMF tones.

Frequency response shall be from 200 to 10,000 Hz.

The solid state recorder/player shall have the following functions:

Recorder/Player Function	Function Access Tone	Command Action Tone
Turn transmitter on	*62#	2008#
Turn transmitter off	*62#	2009#
Recording message	*1#	(message number)#

Playback of recorded message	*2#	(message number)# 999# playback all in order (1000+message number)#beginning only 1999# beginning of all
Erasing of message	*3#	(message number)#
Set time spacing between messages	*4#	(spacing in seconds)#
Set selected message sequence	*5#	(Message number)#(message number)#, etc. 999# play all in order % repeat
Hear selected message sequence	*6#	
Cancel selected message sequence	*5#	0#
Set local recording source	*7#	1# Dynamic microphone 2# Cassette player aux 3# Control telephone
Set recording speed (see note 1)	*8#	1# 859 seconds 1004# 644 seconds 2# 481 seconds 1011# 266 seconds
Set single audio source	*9#	0# Prevents play through
Set clock time and day of the week	*21#	(Day number)# (Four digit military time)#
Create play list number	*41#	(Play list number)# (Message number)#(message number)#, etc.
Hear play list number	*42#	(Play list number)#
Schedule play list	*43#	(Play list number)#

Cancel play list number	*44#	(Play list number)# 999# Cancel all play lists
Schedule play list by day	*22#	(Day number)#(time)#(1000+Play list)
Cancel schedule	24#	(Day number)# 999# Cancel entire week
Terminate programming	*51#1#	
Stop record	#	
Transmitter audio monitor	*62#	7900#
Set remote record security code	*71#	(New code)#

The above described equipment shall be equivalent or superior to Vaisala or Information Station Specialists manufactured type

Memory Power and Back-up

The recorder shall operate on 24 V(dc) ±5 percent at a total power consumption not to exceed 10 watts from the source. The recorder memory back-up shall operate on 8 to 24 V(dc).

In the event of AC power loss to the digital recorder, the memory power back-up shall automatically maintain messages in the memory for a minimum of 14 days.

HAR TRANSIENT / LIGHTNING PROTECTION

The transient/lightning (T/L) protection shall be provided for the power line, telephone line, and antenna system.

The (T/L) protection for the power line shall provide as a minimum protection the following:

Number of (ac) outlets (minimum):	5
Turn-on voltage:	200 volts
Energy rating (minimum): IEEE 8/20 waveform	700 joules
Peak current (minimum):	20,000 amperes
Stand-by current (maximum), for 60 Hz:	1 mA

The (T/L) protection for the telephone line shall provide as a minimum protection the following:

Clamping voltage:	200 volts ±10%
Energy rating (minimum):	400 joules
Series resistance (max.):	30 ohms
Response time (maximum):	1 nanosecond

The (T/L) (lightning arrestor) protection for the antenna system shall provide as a minimum protection the following:

Clamping voltage:	90 volts \pm 10%
RF power (minimum):	35 watts
Frequency range:	500 kHz to 2 MHz
VSWR (maximum):	1.2 to 1
Insertion loss (maximum):	0.2 dB
Surge current (minimum): IEEE 8/20 waveform	17,000 amperes
Response time (maximum):	5 nanosecond

ANTENNA

The antenna shall be a center-loaded vertical whip type with loading coil.

The antenna shall be designed to be mounted on a fiberglass pole as shown on the plans. The length of the antenna shall be tuned for the selected frequency and shall not be less than 10 feet and not more than 25 feet. The top of the antenna shall extend 49 feet above ground level.

The antenna shall be anodized aluminum with a tuning tip. The tip shall be adjustable for precise tuning and shall be made of stainless steel tubing.

The antenna shall be the weather resistant type and shall operate within a temperature range of -40° C. to 85° C. It shall withstand wind velocities of 80 miles per hour without any discernible damage while remaining functional.

The maximum weight of the complete antenna including lower base, loading coil form, mid tip pipe and adjustable stainless steel tip shall not exceed 12 lbs.

The lower base of the antenna shall be aluminum with gold anodized finish.

The loading coil shall be a continuous filament glass fabric and the coil shall be made of enameled close wound copper wire.

The antenna mounts shall be the "high impact thermoplastic split" type and shall provide 360 degree support to the antenna. All other mounting hardware shall be stainless steel or cadmium plated.

Attention is directed to the requirements for fiberglass highway advisory (HAR) pole, in these special provisions.

GROUND SYSTEM

The ground system shall be the triad ground type as shown on the plans and described in these special provisions. The ground system shall allow the maximum FCC field strength to be achieved on any frequency from 530 kHz to 1700 kHz with 10 watts or less of output power.

Forty-Foot Ground Rod

The ground rod system shall consist of a forty foot ground rod placed in a 6 inch, minimum, vertically drilled hole. The hole shall be backfilled with bentonite slurry. Each pipe shall be bonded to No. 4 bare stranded copper wires which shall be routed to the arrestor enclosure as shown on the plans. Conductors shall enter the conduit below grade. Each pipe shall be capped before surface materials are restored.

The ground rod shall be a UL listed ground electrode designed for the purpose. The Contractor shall provide the Engineer a certificate of compliance from the manufacturer in accordance with the provisions of Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for the ground rod and bentonite backfill material. The certificate of compliance shall be provided to the Engineer for approval, prior to ordering or shipping the material.

The ground rod shall be a 2.125-inch outside diameter hollow tube of Type K copper, with nominal 0.083-inch wall thickness, 40 feet in length. A rod formed from two 20 foot sections and joined with an outside threaded copper coupler will be acceptable. The top end of the rod shall have a shop welded ground connection with a 4/0 gage, minimum, copper pigtail. The ends of the rod shall have press-on end caps.

The breather and weep holes on the top and bottom of the rod, as shown on the plans, shall be protected with tape until the installation of the rod. The Contractor shall remove the tapes and provide them to the Engineer before installation.

The drilled hole shall be backfilled with 100 percent bentonite clay slurry and consolidated around the rod. The bentonite slurry shall be placed in the presence of the Engineer. Two working days notice shall be provided to the Engineer prior to backfilling.

The bentonite backfill material shall be a natural volcanic, non-corrosive form of bentonite clay grout. The backfill material shall be capable of absorbing 14 gallons of water per 50 pounds to obtain an optimal 30 percent solids density. The pH value shall be 8-10 with maximum resistivity of 3 ohm-m's at 30 percent solids density.

The ground rod shall be connected to a surge arrestor ground lug. The ground wire splice to the pigtail shall be made by a UL listed exothermic (Cadweld, or similar) connection method. Soldering, brazing, or field welding will not be acceptable.

The ground rod shall be filled with non-hazardous Calsolyte to enhance grounding performance. The filler shall hygroscopically extract moisture from the air to activate the electrolytic process, improving ground performance. The ground rod system shall be 100 percent self activating and maintenance free. No additions of chemicals or water solutions shall be required.

HAR INSTALLATION

HAR equipment shall be installed at the locations shown on the plans. The Contractor shall terminate the power conductors on the TBS terminal of the controller cabinet enclosure. The Contractor shall terminate the telephone cable at the barrier strips on rear of the telephone line interface unit.

The installation shall be under the immediate supervision of a person holding an FCC general class radio telephone operators license.

SERVICE MANUALS

The Contractor shall provide 5 service manuals which will contain the following described sections.

Introduction

Each manual shall contain a general information section which shall include the following items:

- A. A list of applicable sub-assemblies that comprise the specified equipment.
- B. Overall description of the equipment design features, performance, and applications.
- C. Equipment specifications summary.
- D. Equipment installation instructions, if applicable.

Theory of Operation Section

Each manual shall contain equipment theory of operation section which shall include the following items:

- A. Theory of operation of the standard equipment, with unique or unusual circuitry described in detail.
- B. Theory of operation reflecting any modifications to the standard equipment.

Maintenance Section

Each manual shall contain an equipment maintenance section which shall include the following items:

- A. Recommended test equipment and fixtures, or minimum operational and performance requirements for appropriate test equipment.

- B. Troubleshooting information and charts.
- C. Removal and installation procedures for replacing assemblies and subassemblies, if not obvious or if improper sequencing of steps may result in component damage.

Replacement Parts Section

Each manual shall contain an equipment replacement parts section which shall include a component parts list(s) including electrical parts, mechanical parts, and assemblies. All semiconductors shall be identified by the supplier's numbers and, as applicable, by JEDEC numbers.

Diagram Section

Each manual shall contain an equipment diagram section which shall include the following items:

- A. Schematic diagram(s) identifying all circuit components and showing normal test voltages and levels.
- B. An overall functional block diagram.
- C. Detailed interconnecting diagram(s) showing wiring between modules, circuit boards, and major components.
- D. Pictorial circuit board layout diagram(s) showing both component placement and printed wiring detail.
- E. Diagram(s) showing location of circuit boards and other subassemblies.
- F. Exploded view diagram(s) of complex mechanical assemblies.

Physical Requirements

Each manual shall conform to the following physical requirements:

All pages, including latest revisions, shall be securely fastened together between protective covers (loose-leaf ring binding is acceptable).

No page shall be subject to fading from exposure to any normal source of ambient lighting (ozalid reproduced pages are not acceptable).

The cover or first page shall be marked in any manner to show the Caltrans Contract number and advertising and bid opening dates.

ARRESTOR ENCLOSURE

The arrestor enclosure shall be a NEMA Type 3R with hinged cover, with dimensions of 12" x 10" x 6" (± 0.25 "), and shall have provisions for padlocking. A 4"x4"x0.1" aluminum plate shall be installed vertically, facing the door, in the enclosure as shown on the plans. The Contractor shall terminate the ground conductor(s) with an aluminum-copper NEMA one and/or three bolt hold tongue. The ground conductor(s) and lightning arrestor shall be mounted on the aluminum plate.

ANTENNA COAXIAL CABLE (ACC)

The ACC shall consist of an RG-8/U single foil single braid flexible coaxial cable with a solid bare copper center conductor, Cellular Polyethylene dielectric, 97 percent tinned copper braid, and 100 percent shield coverage and shall conform to the following requirements:

Electrical Characteristics	
Capacitance	25 pF/ft (nominal)
Impedance	50 ohms (nominal)
Velocity of propagation	82% (nominal)
(dc) loop resistance	1.2 ohms per 1000ft. (nominal) @ 20° C.

Attenuation at 20° C.	
Frequency (MHz)	Nominal dB/100 ft
5.0	0.40
10.0	0.50
50.0	1.00
100.0	1.4

Physical Dimensions	
	Nominal O.D. (inches)
Center conductor	0.108
Dielectric	0.285
Outer jacket	0.405

ANTENNA FEEDING CABLE (AFC)

The AFC shall consist of a No. 12 AWG solid copper conductor. The AFC shall have a length necessary to connect the lightning arrestor and the antenna without causing stress to the cable and shall be terminated with a UHF plug and a reducing adapter as specified in these special provisions.

After installing the AFC between the arrestor enclosure and the antenna, the Contractor shall seal the 1 1/2" nipple near the top of the fiberglass pole.

COAXIAL CABLE CONNECTORS (FOR TYPE ACC AND AFC)

Coaxial cable connectors for attaching Type ACC and AFC including the reducing adapter shall be UHF Standard and meet the following requirements:

Electrical Characteristics	
Impedance:	50 ohms (nominal)
Frequency range:	0 - 300 MHz
Voltage rating:	500 volts peak

Mechanical	
Mating:	Standard size: 5/8- 24 threaded coupling. Push-on mates with any standard size threaded receptacle
Method of attachment:	Clamp and Crimp.
Composition:	Bodies- Brass or die cast zinc Contacts- brass, silver plated Insulators- TFC, copolymer of styrene, polystyrene, mica-filled phenolic and/or, PBT polyester or equal Plating- ASTRO plate and silver Other metal parts- Brass

Environmental	
Temperature	-55 ° C to +165 ° C
Moisture	Weather resistant design.

SYSTEM TESTING

Ground System Testing

The Contractor shall take certified measurements after the installation of the ground system.

The testing shall utilize an earth resistance meter and be conducted in accordance with IEEE Standard 3-point fall of potential method.

The Contractor shall provide all test equipment, take and document resistivity measurements on the grounding system as specified in these special provisions and submit the test results to the Engineer for approval.

Cable Testing

The antenna coaxial cable (ACC) will be tested by the Engineer. Those cables found to have faults shall be replaced. The testing shall utilize a time domain reflectometer.

A fault in a length of cable is defined as any of the following:

1. A return loss measurement indicating that there is a short in the cable.
2. A return loss measurement indicating a cut or open circuit in the cable.
3. A visual inspection which reveals exposure or damage to the cable shielding.
4. A return loss measurement less than 30 db anywhere along the cable.

HAR Testing

After all HAR equipment has been installed, the Contractor shall test the HAR.

Minimum test equipment required for testing the HAR shall consist of:

- A. Dummy load, 50 ohms
- B. Power meter
- C. Communications monitor
- D. Field strength meter

The Contractor shall tune the HAR with the impedance matching network of the coupling unit by adjusting the stainless steel tip of the antenna.

The HAR shall be considered tuned when the system's voltage standing-wave ratio (vswr) is at the lowest possible value (1.2:1 or better) as directed by the Engineer.

After the HAR has been tuned, the Contractor shall record and transmit a test message with the output power level of the transmitter set at approximate 10 watts or lower. Modulation shall be adjusted between 85 to 95 percent as specified by the FCC for the standard AM broadcast band.

The Contractor shall make actual on-the-air field strength measurements. A sufficient number of points shall be selected in order to determine the distance at which the attenuated field of 0.6 mV/ft exists, as measured with a calibrated standard field strength meter. This may be done in a 5 to 8 radial directions facilitating a plot of a 0.6 mV/ft at a distance of 0.93 miles from the HAR antenna. If the measured field exceeds 0.6 mV/ft at a distance of 0.93 miles, the transmitter output power shall be decreased accordingly and if the measured field is less than 0.6 mV/ft at the same distance then the power may be increased, up to a maximum of 10 ERP, as directed by the Engineer.

At the completion of all HAR testing the Contractor shall submit a written report of all measurements to the Engineer for approval. The report shall include a map, with scale, showing a 0.6 mV/ft contour based on the actual on-the-air field strength measurements. The VSWR, percent modulation and transmitter output power measurements shall be tabulated.

Add Section 86-11.01 VEHICLE CLASSIFICATION STATION

86-11.01 Vehicle classification station

GENERAL

Summary

The work includes installing a vehicle classification station (VCS) consisting of a Model 334 cabinet, automated traffic counter (ATC), inductive loop detectors, piezo axle sensors, screened transmission cable (STC), and the required wiring and auxiliary equipment required for a fully functional system as shown on the plans and in conformance with these special provisions. The automated traffic counter (ATC) must be a make and model covered under a current Statewide Maintenance and Repair contract. Comply with Section 86, "Electrical Systems" of the Standard Specifications.

Submittals

Manuals

The Contractor must provide 10 copies of all user and operator manuals, technical briefs or other documentation for the units and accessories for equipment installation and commissioning; software installation and operation; and system and unit diagnostics and repair.

Quality Control and Assurance

Acceptance Testing

The Contractor must provide test equipment and documentation that the equipment meets performance specifications and accuracy requirements specified in these special provisions. The Contractor must provide the Engineer with documentation that supports the accuracy analysis.

The Contractor must demonstrate that the vehicle classification station is available for use by the State by successfully completing the acceptance test for each lane of data collection.

The acceptance test shall consist of the following:

1. Loop detectors shall be tested according to the procedure in Section 86-2.14B, "Field Testing" of the Standard Specifications.
2. Piezo axle sensors shall be tested as follows:
 - a) Capacitance shall be 20% of the sensor's data sheet as provided by the manufacturer.
 - b) Dissipation factor shall be less than 0.04 when measured in the 20 nF range.
 - c) Resistance shall be greater than 20 Megohms.
3. A minimum of 100 per-vehicle records shall be collected for each lane. Collected data must meet the following accuracy standards:
 - a) Total volume $\pm 3\%$
 - b) Vehicle classification 95% accurate classification by type.
4. Correct functioning of the communications link shall be verified by collecting data files from the on-site equipment with the traffic census host computer.
5. Continuous operation of the vehicle classification system on-site equipment be checked for 5 consecutive days. Failure of the system to record and store data meeting the requirements set forth in these special provisions for an accumulated time exceeding 3 hours during the 5-day period shall be cause for the acceptance test to be rejected and repeated.
6. Failure of the software to perform any application required in these special provisions shall be cause for the acceptance test to be rejected and repeated.

ATC Functional Acceptance

To be considered fully functional, an individual ATC unit must:

1. Collect data locally and remotely meeting the accuracy specifications for a minimum of 30 continuous days
2. Successfully process downloaded files for input in Caltrans TSN database

Warranty

The Contractor must provide a written warranty of the manufacturer against defects in materials and workmanship of the equipments for a period of 24 months from the date of acceptance. The warranty for each unit will begin when the equipment is installed and commissioned in the field and is fully functional. A completed form will be returned to the Contractor for each unit certifying that the unit has been fully functional on the date specified.

The warranty will include repair or replacement of defective components including two-way shipping charges by the State's district office that owns the equipment. Repair or replacement of any traffic data collection device is expected to be accomplished within five working days of receipt at the manufacturer's repair facility of the defective equipment returned by the State.

MATERIALS

Model 334 Cabinet

Model 334 cabinets shall conform to the provisions in "Controller Cabinets" of these special provisions.

Automated Traffic Counter

The ATC must collect data for traffic volume, vehicle speed and vehicle classification from permanently installed sites. The ATC must be capable of storing data, generate reports and provide outputs in suitable format to Caltrans Transportation System Network (TSN) database.

ATC Hardware Requirements

ATC must meet the provisions for connecting the following inputs:

1. 8 inputs for piezoelectric axle sensors
2. 16 inputs for inductive loop detectors

ATC Requirements

The ATC shall meet the following specifications:

1. **Construction** - All traffic data collection equipment and accessories must be of solid state construction with no moving or wearing parts, exclusive of switches and keypads.
2. **Operating Temperature Range** - From -40 to +158 °F minimum.
3. **Noise** - Equipment must be resistant to electromagnetic noise, electrostatic discharges, and induced power supply fluctuations. The signal-to-noise level shall be equal to or greater than 10:1.
4. **Lane/Direction** - Equipment must be capable of sensing, collecting, and recording data by lane. Number and direction of lanes shall be user configurable.
5. **Internal Clock** - The equipment must have continuous date (corrected for leap years) and time (24 hour). The internal clock must continue to keep the correct time even when the primary battery is completely discharged or disconnected.
6. **Loop Separation** - The loop sensor separation (spacing - leading edge to leading edge) must be a user-programmable parameter by lane.
7. **Piezo Separation** - The piezo sensor separation must be a user-programmable parameter by lane.
8. **Memory Retention During Power Loss** - Data stored in memory must not be lost when the battery of the unit is completely discharged or disconnected.
9. **Data Overwrite** - The counter must provide RAM memory that utilizes first-in, first-out (FIFO), also known as wrap around, so that when memory is filled the most recent observations replace the oldest observations.
10. **Vehicle Density** - The maximum vehicle density measured by the ATC must be three vehicles per lane per second.
11. **Operating Speed Range** - The operating speed range of the unit must be from 5 to 95 miles per hour.

12. **Count Storage Capacity** - The unit must be able to detect, count, measure speed and classify at least 3,600 vehicles per lane per hour.
13. **Memory Capacity** - The internal RAM of the unit must be capable of storing a minimum of 45 days of data in hourly interval or bins, in a configuration that stores data for at least eight lanes.
14. **Time Intervals** - Time intervals must be user programmable with intervals of thirty seconds, one minute, five minute, ten minutes, fifteen minutes, sixty minutes and twenty four hours.
15. **Rack Mountable** - Shall have the option to mount in an EIA 19 inch rack.

Power

The ATC shall be powered by 120 V(ac) as shown on the plans.

Accuracy

The ATC equipment must meet the following accuracy standards:

1. Accuracy of Traffic Volumes Counts - ± 3 percent with 95 percent accuracy level.
2. Accuracy of Vehicle Classification - Within ± 4 %.
3. Number of Vehicle Classification Bins - Vehicles must be classified into a minimum of fifteen user-programmable bins.
4. User-Programmable Classification Parameters - Users must be able to program the algorithms for axle spacing for all classes.
5. Default Vehicle Classification Scheme - Shall be user programmable.

Accessories

You must provide all accessories that are necessary for making the equipment fully functional and tested. The following cables shall be furnished:

1. Laptop to ATC cable
2. ATC to sensor port cable for each port on the ATC

Software Requirements

You must provide all communication software. Access to stored data in the ATC must be available through personal computers, both laptop and desktop with Windows XP, Windows 7, or newer operating system via standard EIA-232 interface. Remote access shall be available through a modem, either hard wired or wireless.

Communications, either in the field or from the office, via direct connection or wireless modem must support all programmable features and shall include the following applications:

1. Real Time View - The real time view application shall provide for on-line monitoring of traffic. The display on the traffic census host computer shall indicate the number of vehicles passing within the time interval and update each passage. If programmed for vehicle classification, the display on the traffic census host computer shall depict the axle type and speed of each vehicle passing through the site. The user shall have the option of displaying either all traffic or only vehicle classifications as well as the option of displaying a selected individual lane or all lanes.
2. System Data Programming - The system data programming application shall provide for on-line modification to the ATC.'s software parameters, such as speed, axle spacing factors, loop and piezo sensitivity settings. System shall be password protected.
3. Manual Downloading - The manual downloading application shall be capable of downloading selected daily data files from the storage medium of the ATC to the storage medium of the traffic census host computer. The program shall provide for a listing of the daily data files stored in the ATC and shall provide for user selection of the file or files to be downloaded. The program shall provide for the downloading of the current day's data stored as of the time of downloading.

4. Automatic Downloading - When required, the automatic downloading application shall provide for unattended downloading of daily data files stored in the ATC's storage medium to the traffic census host computer. The program shall provide the following:
 - 4.1 User's input for the date and time that unattended downloading is to begin.
 - 4.2 Downloading of all daily files not previously downloaded by the automatic downloading application.
 - 4.3 Program shall indicate when any interrupted or incomplete file download has occurred.
 - 4.4 Discontinuation of telephone connection after downloading of files from the ATC (or after an abort) and returning the traffic census host computer to a standby mode. The polling feature in communications software must support a telephone directory with a minimum of 200 sites where the user can add, change, or delete any data in a directory record.

5. History file - The history file application shall create a daily file that chronologically records the events occurring during manual and automatic downloading sessions. Such events shall include, but not be limited to, modem result messages, and start and end time of each file being downloaded and any pertinent messages generated by the program. The programming shall provide either:
 - 5.1 The history file shall be in the form of an ASCII text file which can be viewed or sent to the printer or,
 - 5.2 A menu selection which shall provide for a listing of available history files and user selection of a file to be sent to the printer in the form of a report.

Retrieved data must include information to produce the data formats specified in Attachment 1, 2, and 3 "ASCII Speed and Classification Formats."

The communications portion of the system program shall meet the following functional requirements:

1. Baud Rate - The programming will provide for operation at a minimum baud rate of 9600.
2. Error Control - The program shall not in any way disable the modem's error-checking features, which prevent phone-line noise from corrupting data during file downloading.
3. File Downloading Monitoring - The program shall display a window that allows the user to monitor the progress of file downloading. The program shall also provide for the abort of a file download.

Inductive Loop Detectors

Inductive loop detectors for vehicle classification station and the installation thereof shall conform to the provisions in "Detectors" of these special provisions.

Piezo Axle Sensors

Piezo axle sensors shall be Class II and use for vehicle classification purposes. Piezo axle sensors shall consist of a piezo-electric copolymer surrounded by a 1/64" thick outer brass sheath. Each sensor shall be 1/4" wide x 1/16" thick x 6' long with a STC attached. The Engineer will determine the exact location of the inductive loop detector/piezo axle sensors.

The piezo axle sensor shall be installed in a channel as shown on the plans, per manufacturer's specifications, and as directed by the Engineer. The channel shall be filled with epoxy grout. The epoxy grout shall consist of an acrylic resin and a benzoyl peroxide catalyst. The grout shall not exceed 76 °C while curing, and shall be adequately set before re-opening the lane to traffic.

All sawed pavement slots containing STC shall be filled with elastomeric sealant. Elastomeric sealant shall conform to Section 86-5.01A(5), "Installation Details" of the Standard Specifications.

Piezo axle sensors shall meet or exceed the following requirements:

Performance Requirements	
Output Uniformity	±20%
Operating Temperature Range	-40° to +70°C
Typical Output Level	A wheel load of 400 pounds will produce a minimum output signal of 250 mV, at 21°C and 55 mph.
Signal-to-Noise Level	The signal-to-noise level shall be equal to or greater than 10:1
Insulation Resistance	>500 Mohms
Product Life	Equivalent Single Axle Loadings (ESAL)

Screened Transmission Cable

STC shall be RG-58C/U coaxial cable with a high density polyethylene outer jacket. STC shall be rated for direct burial. Sufficient STC to reach the cabinet shall be supplied with each axle sensor. The STC shall not be spliced. STC terminations shall be made using properly sized captive or spring spade type terminals, crimped and soldered.

PAYMENT

The contract lump sum price paid for vehicle classification station includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in vehicle classification station, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

ATTACHMENTS

Attachment 1

ASCII SPEED FILE FORMAT

Field	Length (characters)	Starts in Column
Lane	2	1
Hour	2	4
Count, from 0 to 35 mph	4	7
Count, from 36 to 40 mph	4	12
Count, from 41 to 45 mph	4	17
Count, from 46 to 50 mph	4	22
Count, from 51 to 55 mph	4	27
Count, from 56 to 60 mph	4	32
Count, from 61 to 65 mph	4	37
Count, from 66 to 70 mph	4	42
Count, from 71 to 75 mph	4	47
Count, from 76 to 80 mph	4	52
Count, from 81 to 85 mph	4	57
Count, greater than 86 mph	4	62

ASCII CLASSIFICATION FILE FORMAT

Field	Length (characters)	Starts in Column
Lane	2	1
Hour	2	4
Count, Class 1	4	7
Count, Class 2	4	12
Count, Class 3	4	17
Count, Class 4	4	22
Count, Class 5	4	27
Count, Class 6	4	32
Count, Class 7	4	37
Count, Class 8	4	42
Count, Class 9	4	47
Count, Class 10	4	52
Count, Class 11	4	57
Count, Class 12	4	62
Count, Class 13	4	67
Count, Class 14	4	72
Count, Class 15	4	77

Attachment 2

Caltrans Total Vehicle Load Format

Columns	Length (characters)	Char/Num	Name	Interface Notes
1	1	N	Record Type	Default - 3
2-3	2	N	FIPS State Code	Default - 06
4-5	2	N	Functional Class	Input from lookup table columns 54-55
6-10	5	N	Site Identification	Input from lookup field "TSN," if columns 8-10=--go to column 141 of Load Format and write data from Lookup Table Fields: District, County, Route, Route Suffix, Postmile Prefix, Postmile, Highway Group, Leg.
11	1	N		Not used
12	1	N	Direction of Travel	Input "Direction" from Lookup Table; N=1, S=5, E=3, W=7
13	1	N	Lane of Travel	Channel from traffic counter file
14-15	2	N	Year of Data	
16-17	2	N	Month of Data	
18-19	2	N	Day of Data	
20	1	N	Day of Week	1=Sun, 2=Mon, 3=Tues, 4=Wed, 5=Thurs, 6=Fri, 7=Sat
21-25	5	N	Traffic Counted for hour ending 01 (Midnight to 1 AM)	From traffic counter file; Null Fields for no counts
26-140	5	N	Columns 21-25 repeated (hour 2 to hour 24)	From traffic counter file; Null Fields for no counts
141-142	2	N	District	If columns 8-10= -- write "District" from Lookup Table
143-145	3	C	County	If columns 8-10= -- write "County" from Lookup Table
146-148	3	N	Route	If columns 8-10= -- write "Route" from Lookup Table
149	1	C	Route Suffix	If columns 8-10= -- write "Route Suffix" from Lookup Table
150	1	C	Postmile Prefix	If columns 8-10= -- write "Postmile Prefix" from Lookup Table
151-156	6	N	Postmile	If columns 8-10= -- write "Postmile" from Lookup Table
157	1	A	Highway Group	If columns 8-10= -- write "Highway Group" from Lookup Table
158	1	A	Leg	If columns 8-10= -- write "Leg" from Lookup Table

Attachment 3

MS Access TSN Location Load Lookup Table Definition

Columns	Length (characters)	Char/Num	Name	Interface Notes
1	15	C/N	Site Identification from Traffic Counter	
16	38	N	Channels from Traffic Counter	Channels separated by commas
54	2	N	Functional Class	Write to columns 4-5 of Total Vehicle Load Format
56	5	N	TSN Site Identification	Match with Site ID from counter and write to columns 6-10 of Total Vehicle Load Format or columns 4-8 of Vehicle Class Load
61	16	N	TSN Direction of Travel	Match with channels set in counter and write to column 12 of Total Vehicle Load Format or column 10 of Vehicle Class Load
77	2	N	District	Write to columns 141-142 of Total Vehicle Load or columns 100-101 of Vehicle Class Load
79	3	C	County	Write to columns 143-145 of Total Vehicle Load or columns 102-104 of Vehicle Class Load
82	3	N	Route	Write to columns 146-148 of Total Vehicle Load or columns 105-107 of Vehicle Class Load
85	1	C	Route Suffix	Write to column 149 of Total Vehicle Load or column 108 of Vehicle Class Load
86	1	C	Postmile Prefix	Write to column 150 of Total Vehicle Load or column 109 of Vehicle Class Load
87	6	N	Postmile	Write to columns 151-156 of Total Vehicle Load or columns 110-115 of Vehicle Class Load
93	1	A	Highway Group	Write to column 157 of Total Vehicle Load or column 116 of Vehicle Class Load
94	1	A	Leg	Write to column 158 of Total Vehicle Load or column 117 of Vehicle Class Load
20-24	5	N	Total Volume	
25-29	5	N	Count for Class 1	From traffic counter file; Null Fields for no counts
30-99	5	N	Columns 25-29 repeated for Class 2 to Class 15	From traffic counter file; Null Fields for no counts
100-101	2	N	District	If columns 6-8= -- write "District" from Lookup Table
102-104	3	C	County	If columns 6-8= -- write "County" from Lookup Table
105-107	3	N	Route	If columns 6-8= -- write "Route" from Lookup Table
108	1	C	Route Suffix	If columns 6-8= -- write "Route Suffix" from Lookup Table
109	1	C	Postmile Prefix	If columns 6-8= -- write "Postmile Prefix" from Lookup Table
110-115	6	N	Postmile	If columns 6-8= -- write "Postmile" from Lookup Table
116	1	A	Highway Group	If columns 6-8= -- write "Highway Group" from Lookup Table
117	1	A	Leg	If columns 6-8= -- write "Leg" from Lookup Table

Add 86-12.01 HIGH SPEED WIRELESS MODEM

86-12.01 High speed wireless modem

GENERAL

The wireless modem must provide wireless data transmission between the field units and the Transportation Management Center (TMC). The modem and antenna must not cause any interference with any other electrical

equipment in the cabinet. The wireless modem must be mounted in the cabinet as directed by the Engineer. Cable ties, wire mounting devices and fixed diameter clamps must be used in the controller cabinet and equipment rack to avoid physical interference between cables and adjacent equipment.

You must furnish, install, integrate, test and provide warranty for all equipment and components necessary to provide complete functionality of the wireless system. The wireless modem must consist of the modem, an external antenna, antenna cable, EIA-232 serial cable, and a power adapter.

The wireless modem must meet or exceed the following minimum requirements:

Wireless Modem	
Communications	GPRS, <u>EIA-485</u> and <u>EIA-232</u> DTE
Wireless Communications	GPRS/EDGE <u>or</u> 3G
Baud Rate Supported	1200, 2400, 4800, 9600, 19200, 28800, 38400, 57600, and 115200 bps
Serial Connector	DB9M
Input Voltage	10-30 V(dc)
Power Consumption	1 Watt
Operating Temperature	From -35°C to +74°C
Operating Humidity Range	From 5 to 95 % non-condensing
Standards Compliance	PCCA STD-101
Network Protocols	TCP, UDP, HTTP, SNMP,FTP, Serial over IP
Persistent Network Connectivity	99.2 % error free operation with auto reconnect
Status LED Indicators	Power, Receive, Transmit, RSSI(Signal Strength)
Network Port	RJ45

SOFTWARE REQUIREMENTS

The wireless modem must have firmware, software, hardware, and protocol features that must be fully compatible with the existing network and with the service provider . The software configuration package must be supplied for the wireless system at no extra cost. The control software configuration package must have features to provide for remote programming, remote maintenance, and system diagnostics.

ANTENNA

The external antenna must be of a low profile design with integrated ground plane for outdoor permanent mount on a metallic structure. Before permanently installing the antenna, you must conduct signal strength measurements to verify signal strength per the manufacturer requirements. The antenna must be mounted at the top of the cabinet with antenna cable routed so as not to interfere with the fan assembly. Install the antenna and apply 100 percent clear silicon rubber sealant.

EIA-232 SERIAL PORT

The modems must be configurable remotely through the wireless network or through the modem serial port. The modem must have the following DB9 pins.

Modem EIA-232 Signal	DB9M Plug Connector
	Pin
RD	2
TD	3
RTS	7
CTS	8
Signal GND	5
DCD	1
DTR	4
DSR	6

TESTING

The modem must be configured and tested remotely. Proper operation of the modem must be demonstrated by successfully configuring the modem by modifying settings, checking the signal strength, and checking for status of the TCP/IP connection. The signal strength must be within the range of -50 to -80 dBm. Perform visual check of the LED status lights to see that the LED lights are functioning properly.

CERTIFICATE OF COMPLIANCE

You must provide the Engineer with a Certificate of Compliance from the manufacturer in accordance with the provisions of Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for all modems furnished.

WARRANTY

You must provide a written warranty from the manufacturer against defects in materials and workmanship for the wireless modem and assembly for a period of 24 months from the date of final acceptance. Replacement of the modem must be provided within 5 days after receipt of failed wireless modem at no cost to the State, except the cost of shipping the failed parts. All warranty documentation must be given to the Engineer at the time of delivery.

AA

DIVISION X MATERIALS

90 CONCRETE

Add to section 90-2.02B:

You may use rice hull ash as an SCM. Rice hull ash must comply with AASHTO M 321 and the chemical and physical requirements shown in the following tables:

Chemical property	Requirement (percent)
Silicon dioxide (SiO ₂) ^a	90 min
Loss on ignition	5.0 max
Total alkalis as Na ₂ O equivalent	3.0 max

Physical property	Requirement
Particle size distribution	
Less than 45 microns	95 percent
Less than 10 microns	50 percent
Strength activity index with portland cement ^b	
7 days	95 percent (min percent of control)
28 days	110 percent (min percent of control)
Expansion at 16 days when testing project materials under ASTM C 1567 ^c	0.10 percent max
Surface area when testing by nitrogen adsorption under ASTM D 5604	40.0 m ² /g min

^aSiO₂ in crystalline form must not exceed 1.0 percent.

^bWhen tested under AASHTO M 307 for strength activity testing of silica fume.

^cIn the test mix, Type II or V portland cement must be replaced with at least 12 percent rice hull ash by weight.

For the purpose of calculating the equations for the cementitious material specifications, consider rice hull ash to be represented by the variable *UF*.

AA

DIVISION XI BUILDING CONSTRUCTION

99 BUILDING CONSTRUCTION

Replace "Reserved" in section 99 with:

99-1 GENERAL REQUIREMENTS

99-01011 GENERAL REQUIREMENTS

99-01011A General

99-01011A(1) Summary

Section 99-1 includes general specifications for performing building construction work.

Building construction work includes the construction of the project pumping plant, storage box, storage pipe, and extension and existing storage box extension as shown on the sheets:

- GP-1 General Plan No.1
- GP-2 General Plan No.2
- ST-1 Pumping Plant Plan
- ST-2 Pumping Plant Sections and Details
- ST-3 Pumping Plant Layout Details
- ST-4 RCB Storage Box Section
- ST-5 Wet Pit Debris Sump Sections
- ST-6 RCB Storage Box Sections
- ST-7 Wet Pit & Inlet Sections
- ST-8 Discharge Box Sections
- ST-9 Roof Details
- ST-10 Control Room Details and Sections
- ST-11 Stair Layout and Sections
- ST-12 Landing Details No. 1
- ST-13 Landing Details No. 2
- ST-14 Landing Details No. 3
- ST-15 Equipment Access Cover Details
- ST-16 Access Opening Details No. 1
- ST-17 Access Opening Details No. 2
- ST-18 Pipe Support and Hanger Details
- ST-19 Control Room Door Details
- ST-20 Box Culvert Demo & Improvements
- ST-21 Box Culvert Details
- Log of Test Borings 1 of 7
- Log of Test Borings 2 of 7
- Log of Test Borings 3 of 7
- Log of Test Borings 4 of 7
- Log of Test Borings 5 of 7
- Log of Test Borings 6 of 7
- Log of Test Borings 7 of 7
- M-1 Wet Pit Plan and Profile
- M-2 Sump Plan and Elevation
- M-3 Details
- M-4 Discharge Pipeline Profile
- EE-1 Symbols & Abbreviations

- EE-2 Electrical Site Plan
- EE-3 Pump Station Plan and Profile
- EE-4 Pump Station Lighting Plan
- EE-5 Electrical Three-Line
- EE-6 Electrical Elevations
- EE-7 Level Control Schematic
- EE-8 Pump Schematics
- EE-9 Electrical Details 1
- EE-10 Electrical Details 2
- SC-1 Staging Plan No. 1
- SC-2 Staging Plan No. 2
- SC-3 Staging Plan No. 3

The construction of the pumping plant shall be conducted so as to be compatible with the construction of the overall interchange project. The contractor shall follow the construction phasing for the pumping plant and storage box extension as depicted on the contract plans. In general the phasing of the pumping plant and storage box extension consists of the following:

- Phase 1: The first phase of work consists of constructing the storage box extension, placing the 8-foot diameter storage pipe, and constructing the new pumping plant and outlet piping. Simultaneously with this work, a portion of drainage system on Route 99 connected to storage box will be constructed to maintain storm water flow into the existing box during Phase 2 and Phase 3.
- During Phase 1 construction, the existing pumping plant will remain in operation. Near the end of the Phase 1 work, both the existing pumping plant and the new pumping plant will be connected to the existing storm water storage box. This will facilitate testing of the new pumping plant while the existing pumping plant is still operational.
- Phase 2: The second phase of work will not occur until the new pumping plant is fully operational and all testing is complete. Phase 2 involves shutting down and demolishing the existing pumping plant and demolishing 33'-10" of the existing storm water storage box located in the SR 99 median. To keep drainage water from escaping the existing storage box during this demolition work, the contractor will be required to construct temporary dams using sand bags, water bladders, or some other means. The temporary dams will be removed after the Phase 3 work is complete.
- Phase 3: The third and last phase of work consists of reconstructing 9'-9" of the existing storm water storage box which rebuilds the cross connection for four storage cells. In addition the closure portion of the storage box extension will be constructed as part of the Phase 3 work which fills in the void left by the demolition of the existing pumping plant.

The contractor shall maintain the existing storm water pumping capacity at all times during project construction per Section 74 of the Standard Specifications

Sections 15 and 87 through 98 do not apply to building construction work.

The styles of section 99 differ from the styles of the other sections in that:

1. Section 99 numbers and titles correlate with the 16-division CSI MasterFormat numbers and titles
2. Some section 99 specifications are in a streamlined form. In these specifications, interpret a colon as "must be"

99-01011A(2) Abbreviations

Interpret the meaning of an abbreviation used in section 99 as shown in the following table:

Abbreviations	
Abbreviation	Meaning
AAMA	American Architectural Manufacturers' Association
ADAAG	ADA Accessibility Guidelines for Buildings and Facilities
AGA	American Gas Association
AITC	American Institute of Timber Construction
ALSC	American Lumber Standard Committee
AMCA	Air Movement and Control Association International
APA	Engineered Wood Association
APWA	American Public Works Association
AHRI	Air-Conditioning, Heating, and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BIA	Brick Industry Association
CEC	California Electrical Code
CMC	California Mechanical Code
CPC	California Plumbing Code
CRRC	Cool Roof Rating Council
CSA	Canadian Standards Association
ESO	Electrical Safety Orders
FM	FM Global
FS	Federal Specification
GA	Gypsum Association
GANA	Glass Association of North America
IGMA	Insulating Glass Manufacturers Alliance
ISO	International Organization for Standardization
NAAMM	National Association of Architectural Metal Manufacturers
PEI	Porcelain Enamel Institute
RIS	Redwood Inspection Service
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
TCNA	Tile Council of North America
TPI	Truss Plate Institute
WCLB	Grade stamp issued by West Coast Lumber Inspection Bureau
WI	Woodwork Institute
WWPA	Western Wood Products Association

99-01011A(3) Definitions

Not Used

99-01011A(4) Coordination with the Department

Not Used

99-01011A(5) Submittals

In addition to specified submittals, submit anyother submittal the Engineer requests.

Within 50 days of Contract approval, submit building construction work action submittals, including:

1. Shop drawings
2. Material lists
3. Product and descriptive data
4. Samples

Submit at least 5 sets or samples for each item. Except for samples, the Department returns 2 copies that show an authorized date or a request for correction and resubmittal.

Submit the schedule of values within 20 days of Contract approval. Submit at least 2 sets.

Each shop drawing sheet must be at least 11 by 17 inches and at most 24 by 36 inches.

Each material list must include the name of manufacturer, catalog number, size, capacity, finish, all pertinent ratings, and identification symbols described.

Notify the Engineer of the submittal. Include the date and contents of the submittal in the notification.

Allow 25 days for the review.

Dispose of samples not incorporated in the work.

Submit 3 copies of the following items as informational submittals:

1. Part lists and service instructions packaged with or accompanying the equipment
2. Operating and maintenance instructions
3. Manufacturer's warranties
4. Qualification data

99-01011A(6) Quality Control and Assurance

Not Used

99-01011A(8) Utility Connection

Make arrangements and obtain PLACs required for the extension of and connection to each utility service. For extensions not furnished by the utility, furnish the extensions and install any intermediate equipment required by the serving utilities.

The costs incurred by you for the following items is change order work:

1. Utility permits, licenses, connection charges, and excess length charges
2. Extensions of utilities beyond the limits shown
3. Furnishing and installing any intermediate equipment required by the serving utilities

99-01011A(10) As-Built Drawings

Prepare and maintain 1 set of as-built drawings using an unaltered set of original project plans, to show all as-constructed information, including:

1. Any plan clarifications or *Change Order* changes
2. Locations of any underground utilities
3. Location, size, type, and manufacturer of major products or components used in the work

Neatly prepare as-built drawings as follows:

1. Place markings on the project record drawings using red ink or red pencil.
2. Do not eradicate or write over original figures.
3. Line out superseded material.
4. Submit additional drawings if the required information cannot be clearly shown on the original set of project plans. The additional drawings must be at least 11 by 17 inches and at most 24 by 36 inches.
5. Sign and date each sheet verifying that all as-built information shown on the drawings is correct.

Review the as-built drawings monthly with the Engineer during the progress of the work to assure that all changes and other required information are being recorded.

Before completion of the work, request a review of the as-built drawings to determine the completeness and adequacy of them. If the as-built drawings are unacceptable, you must inspect, measure, and survey the work as necessary to record the required additional information.

99-01011B Materials

Not Used

99-01011C Construction

99-01011C(1) General

Not Used

99-01011C(2) Inspection

Any work that will be covered or not visible in the completed work must be inspected and accepted by the Engineer before progress of work conceals portions to be inspected. Notify the Engineer at least 3 business days before needing inspection.

99-01011D Payment

Not Used

99-2 SITEWORK

99-02000 GENERAL

Section 99-2 includes specifications for performing site work for building construction.

99-02071 REMOVING PORTIONS OF EXISTING FACILITIES

99-02071A General

99-02071A(1) Summary

Scope: This work consists of removing portions of the existing facilities, including removal of existing work to gain access to or for new work and removal of the existing pumping plant and partial removal of the existing storage basin.

99-02071A(2) Definitions

Demolition Plan: Submit demolition plan and schedule that shows the proposed method for the safe removal of the existing facility. Plan shall include all temporary shoring and demonstrate protection of adjacent facilities.

99-02071A(3) Submittals

Not Used

99-02071(4) Quality Control and Assurance

LEED:

99-02071B Materials

Not Used

99-02071C Construction

99-02071C(1) Preparation

The limits of removal must be located and identified. Items to be removed and the interface of items to be removed and items to remain intact must be identified and marked.

Prior to removing concrete or masonry, a saw cut approximately one inch deep must be made along the limits of removal on all faces that will be visible in the completed work.

At new openings in concrete or masonry, full depth saw cuts, except where existing reinforcement is called out to remain, must be made from both faces. Overcuts must not be made at corners. Remaining material at corners must be chipped out and the surfaces ground smooth.

99-02071C(2) Removal

Removal must be to the limits shown. Removal must be done carefully to minimize damage to the portions to remain. Remaining portions that are damaged by the Contractor's operation must be restored to original condition at the Contractor's expense.

Assemblies to be salvaged which require dismantling for removal must be matchmarked before dismantling.

Existing apparatuses, devices, or accessories which would be functionally impaired by new construction or remodeling must be moved, brought out to new surfaces, or provided with new access covers, as necessary to restore apparatuses, devices, or accessories to their original usefulness.

Piping and conduits to be abandoned must be capped or plugged.

Surfaces that are exposed to view at the limits of removal work must be patched, bumps must be removed and depressions filled, and the surface must be finished to match the existing surrounding surfaces. Depressions in concrete less than one inch deep must be deepened to one inch minimum depth before filling with cement mortar.

Anchor bolts and reinforcement must be removed at least one inch below the surrounding surfaces, and the resulting hole must be patched with cement mortar.

Existing reinforcement that is to be incorporated into the new work must be protected from damage and thoroughly cleaned before being embedded in new concrete.

99-02071C(3) Disposal

Materials that are to be removed must be handled under section 14-10.

99-02071D Payment

All costs associated with the removal or partial removal of the existing facilities, including shoring, bracing, saw cutting, and other work needed to safely remove the existing facility to the limits shown on the plans shall be included in the payment of "Remove Existing Pumping Plant (Portion)"

99-02220 EARTHWORK FOR BUILDING WORK

99-02220A General

99-02220A(1) Summary

Scope: This work consists of performing earthwork for building work.

Earthwork for building work consists of structure excavation and structure backfill. Structure excavation must include excavation for footings, foundations, walls, slabs, and trenches. In addition structural excavation shall include all dewatering and shoring system items. Structure backfill must include backfilling under slabs; backfilling under and around footings; backfilling for walls, backfilling for pipes and conduits; backfilling holes resulting from removal of existing facilities. In addition to structure excavation and structure backfill, earthwork for building work must include any other earthwork, not mentioned, but necessary to complete the building work.

The Materials Information Handout includes information regarding foundation recommendations and reports that were prepared for use during the design of this project.

99-02220A(2) Definitions

Not Used

99-02220A(3) Submittals

Samples: Submit samples of sand, pea gravel, or crushed stone, weighing not less than 25 pounds.

Dewatering: Submit dewatering plans in sufficient detail to indicate sizes of pumps, piping, appurtenances, and the ultimate disposal point of water.

Shoring: Submit shoring plan and calculations stamped by an engineer registered in the State of California.

99-02220A(5) Site Conditions

Existing Underground Piping and Conduit: The location of existing underground piping and conduit is based on the best records available. Before beginning work, the Contractor must accurately locate the piping and conduit involved in the work. If the location of the existing piping or conduit deviates from the location shown by more than 5 feet, or, if no elevations are indicated and the piping or conduit is more than 3 feet below grade, the cost of the additional excavation, backfill, piping or conduit, and removal and replacement of concrete, if any, will be change order work.

Existing Surfaced or Planted Areas:

Existing surfaced or planted areas that are removed, broken, or damaged by the Contractor's operations must be restored to their original condition except as otherwise shown or described.

Restoration materials must be equal to or better than the original materials. Surfacing must be replaced to match the material thickness, grades, and finish of the adjacent surrounding surfaces.

99-02220B Materials

Structure Backfill: Structure and trench backfill must comply with the Project Foundation Report and must be free of organic and other deleterious material and must be suitable for the required compaction. Gravel without sand matrix must not be used except as free draining granular material beneath slabs and footings.

Sand: Sand must be clean, washed sand, free from clay or organic material graded such that 100 percent passes the 1/4-inch sieve, 90 percent to 100 percent passes the No. 4 sieve and not more than 5 percent passes the No. 200 sieve size.

Pea Gravel (Naturally Rounded):

Pea gravel (naturally rounded) must be clean, washed, dry density of not less than 95 pounds per cubic foot, free from clay or organic material and must comply with the following grading as determined by California Test 202:

Sieve or Screen Size	Percentage Passing
3/4"	100
1/2"	90-100
3/8"	40-70
No. 4	0-15
No. 8	0-3

Pea gravel must comply with the following requirements:

Test	California Test No.	Test Requirements
Durability Index	229	35 Min.

Crushed Stone:

Crushed stone must be clean, washed, dry density of not less than 95 pounds per cubic foot, crushed stone or crushed gravel with an angular particle size not less than 1/8 inch or more than 1/2 inch.

Sieve or Screen Size	Percentage Passing
1/2"	100
3/8"	85-100
No. 4	10-30
No. 8	0-3

Crushed stone must comply with the following requirements:

Test	California Test No.	Test Requirements
Durability Index	229	35 Min.

99-02220C Construction

99-02220C(1) Preparation and Restoration

Sawcutting: Prior to excavation or trenching, existing surfacing must be removed to saw cut lines, or to existing wood dividers or expansion joints, if any. The saw cut must be to a neat line and have a depth not less than one inch.

Restoration: Surfacing must be replaced to match the thickness, grades and finish of the adjacent surrounding surfaces.

99-02220C(2) Structure Excavation

Unless otherwise noted, all excavation for building work must be classified as structure excavation.

Footing Excavation:

The bottom of excavation must not be disturbed. The contractor must excavate by hand to the final grade. The bottom of concrete footings must be poured against undisturbed material. Unless otherwise noted, compaction of the bottom of footing excavation is not required unless the material is disturbed. The footing depths shown must be changed to suit field conditions when directed by the Engineer. Solid rock at or near required depths must not be disturbed. Unsuitable material must be excavated down to firm bearing as directed by the Engineer. Work and materials required because of excavation in excess of the depths shown, when such excavation has been ordered by the Engineer, will be change order work.

Excavate to the elevations and dimensions within a tolerance of $\pm 1/2$ inch. Limits of the excavation must allow for adequate working space for installing materials and as required for safety of personnel. Such working space excavation must be replaced in kind and compacted at the Contractor's expense.

Overdepth excavation for footings must be backfilled with concrete or such other material recommended by the Contractor and authorized by the Engineer. Relative compaction must be not less than 95 percent.

At locations and to the limits shown, material below the bottom of the foundation or footing must be removed and replaced with select backfill under the placing and compacting requirements for backfill.

Excavation for Pipes and Conduits:

Pipes or conduits in the same trench must have a minimum clear distance between pipes or conduits of 6 inches. Pipes or conduits must have not less than 2½ feet of cover from top of pipes or conduits to finished grade unless otherwise shown or described.

Trenching must be of sufficient depth to permit placing a minimum depth of 4 inches of compacted sand under all pipes and conduits.

Excavation adjacent to trees must be performed by hand methods where necessary to avoid injury to trees and roots. Roots 2 inches in diameter and larger must be protected with heavy burlap. Roots smaller than 2 inches in diameter adjacent to trees must be hand trimmed. Cuts through roots 1/2 inch in diameter and larger must be sealed with tree trimmers' asphaltic emulsion. If trenches remain open more than 24 hours, the side of the trench adjacent to the tree must be shaded with burlap and kept damp. Materials must not be stockpiled within the drip line of trees.

Dewatering:

Groundwater is expected to be encountered during excavation operations. Site ground water levels are expected to differ from those shown on the boring logs and could be as high as 51.5. The static groundwater shall be drawn to a minimum of 2 feet below the bottom of the excavation.

One hundred percent standby pumping capacity shall be available on site at all times and shall be connected to the dewatering system piping to permit immediate use. Standby equipment shall include emergency power generation and automatic switchover to the emergency generator when normal power fails.

Shoring:

Shoring shall be used during excavation operations as required by CAL OSHA.

99-02220C(3) Structure Backfilling

Unless otherwise noted, all backfill for building work must be classified as structure backfill. Backfill must be placed and compacted in horizontal layers, not more than 6 inches thick prior to compaction, and to the lines and grades shown or to original ground.

Structure Backfill: After structures are in place and forms are removed, wood and other debris must be removed from excavations before placing structure backfill.

Select Backfill: At the locations and to the limits shown, materials below the bottom of footings or foundations must be removed and replaced with select backfill material under the placing requirements of structure backfill.

Backfilling Pipes and Conduits:

Backfill placed under pipe and conduits must be compacted sand, 4 inches minimum depth. Backfill material placed to a level 6 inches above tops of pipes and conduits must be sand or fine earth and particles must not exceed 1/2 inch in greatest dimension. For wrapped, coated, or plastic pipe or conduits, sand must be used for backfill. Backfill material placed higher than 6 inches above tops of pipes or conduits must consist of material free of stones or lumps exceeding 4 inches in greatest dimension except:

1. The top 12 inches of backfill under roads, walks or paving must consist of aggregate base material.
2. The top 6 inches of backfill in planted areas must consist of topsoil.

Unless otherwise shown, pipe under roads, with less than 2½ feet of cover over the top of pipe, must be backfilled with concrete to a level 4 inches above the top of pipe. Concrete for backfill must be commercial quality concrete containing not less than 590 pounds of cement per cubic yard.

99-02220C(4) Compaction

Relative compaction must be determined under California Test 216 or 231.

Unless otherwise noted below, all backfill must be compacted to a minimum relative compaction of 90 percent.

Unless authorized, compaction by jetting or ponding will not be permitted.

Compact Original Ground: Original ground surface under fill with surfacing of concrete and asphalt concrete must be compacted to a relative compaction of not less than 95 percent for a minimum depth of 6 inches.

Subgrade Preparation:

Preparation of subgrade material for placing aggregate base, surfacing, or slabs thereon must include fine grading, compaction, reworking as necessary. The upper 6 inches of the subgrade must have the same compaction as the fill to be placed over it.

The prism of backfill directly underneath the building foundation and sloping downward at 1:1 must be compacted to 95 percent.

Structure Backfill: Structure backfill must be compacted to not less than 95 percent relative compaction.

Select Backfill:

Select backfill must be compacted to not less than 95 percent relative compaction.

A relative compaction of not less than 95 percent must be obtained for a minimum depth of 6 inches below the bottom of the excavation before placing select backfill.

Trench Backfill: Trench backfill placed beneath slabs or paved areas must be compacted to a relative compaction of not less than 95 percent.

99-02220C(5) Disposal

Surplus Material: Surplus material from the excavation must be removed and disposed of.

99-02220C(6) Field Quality Control

Inspection: When the excavation is substantially completed to grade, the Contractor must notify the Engineer. No concrete must be placed until the foundation has been authorized by the Engineer.

Testing: The Department will conduct compaction tests during the backfilling and compacting operations.

99-02220D Payment

Full compensation for dewatering and shoring costs shall be included in the compensation for "Structural Excavation (Pumping Plant).

Full compensation for backfill including additional aggregate base necessary to provide a stable working surface shall be included in the compensation for "Structural Backfill (Pumping Plant).

99-3 CONCRETE AND REINFORCEMENT

99-03000 GENERAL

Section 99-3 includes specifications for performing concrete and reinforcement work for building construction.

99-03300 CAST-IN-PLACE CONCRETE

99-03300A General

99-03300A(1) Summary

Scope: This work consists of constructing cast-in-place concrete facilities.

Concrete:

Except for concrete designated by compressive strength, concrete must comply with section 90-2.

If the 28-day compressive strength described is 3,600 psi or greater, the concrete is designated by compressive strength and must comply with section 90-1.

Reinforcement: Reinforcement must comply with section 52, except you may use deformed bars complying with ASTM A 615/A 615M, Grade 60.

Bentonite Waterstops:

Bentonite waterstops shall contain 75% Sodium Bentonite and 25% Butyl Rubber Compound and shall have the following properties:

Property	Test	Results
Specific Gravity:	ASTM D71	1.57
Flash Point	ASTM D93-97	365 Degrees F
Penetration	ASTM D217	
	150 GTL	50
	300 GTL	85

99-03300A(2) Definitions

Not Used

99-03300A(3) Submittals

Product Data:

Manufacturer's descriptive data, installation and use instructions for admixtures, expansion joint material, vapor barrier, curing compound, hardener, and sealer must be submitted.

Descriptive data must be delivered to the Engineer at the job site.

Concrete Mix Designs: Submit copies of concrete mix designs when required.

Certificates of Compliance: Submit a certificate of compliance when required.

99-03300B Materials

99-03300B(1) Concrete Mixes

The amount of cementitious material used per cubic yard of concrete for each building element must comply with the following:

Type	Cementitious Material Content (Pounds/CY)
Concrete (Structural Work): Footings, foundation walls, floor slabs, building frame members, building walls	590 min. ^a
Concrete (Sewer Structures): For sewer structures, vehicle washracks and mudrinse slabs	658 min. ^b
Concrete (Minor Work): For concrete curbs, sidewalks, driveways, gutter depressions, new door openings, and collars	505 min.

Notes:

^aFor concrete designated by compressive strength, the maximum amount of cementitious material must be 800 pounds per cubic yard.

^bConcrete must be air entrained under section 90-1.02E. The air content at time of mixing and prior to placing must be 6 ± 1½ percent.

The amount of cementitious material used per cubic yard of concrete for each building element must comply with the following:

Type	Cementitious Material Content (Pounds/CY)
Concrete (Structural Work): Footings, foundation walls, floor slabs, building frame members, building walls	630 min. ^{a,c}
Concrete (Sewer Structures): For sewer structures, vehicle washracks and mudrinse slabs	658 min. ^b
Concrete (Minor Work): For concrete curbs, sidewalks, driveways, gutter depressions, new door openings, and collars	505 min.

Notes:

^aFor concrete designated by compressive strength, the maximum amount of cementitious material must be 800 pounds per cubic yard.

^bConcrete must be air entrained under section 90-1.02E. The air content at time of mixing and prior to placing must be 6 ± 1½ percent.

^cConcrete must be air entrained under section 90-1.02E. Unless otherwise specified, the air content at time of mixing and prior to placing must be 3 ± 1 percent.

99-03300B(3) Form Materials

Forms for Exposed Finish Concrete:

Forms for exposed surfaces must be plywood, metal or other panel type materials. Plywood must be not less than 5/8 inch thick and without scars, dents, and delaminations. Forms must be furnished in largest practical pieces to minimize number of joints.

Plywood must comply with the requirements of U. S. Product Standard PS-1 for Exterior B-B (Concrete Form) Class I.

Forms for edges of slabs must be nominal 2-inch solid stock lumber, plywood, or metal forms.

Forms for Unexposed Finish Concrete: Forms for unexposed finish concrete surfaces must be plywood, lumber, metal, or other acceptable material.

Forms for Cylindrical Columns or Supports: Forms for cylindrical columns must be metal, fiberglass reinforced plastic, paper, or fiber tubes. Paper or fiber tubes must be constructed of laminated plies using water-resistant adhesive with wax-impregnated exterior for protection against weather or moisture.

Form Ties: Form ties must be factory fabricated, removable or snapoff metal ties for use as necessary to prevent spreading of forms during concrete placement.

Form Oil: Form oil must be commercial quality form oil which will permit the ready release of the forms and will not discolor the concrete.

99-03300B(4) Reinforcement

Not Used

99-03300B(5) Epoxy

Epoxy must be furnished as 2 components which must be mixed together at the site of the work.

Epoxy Resin Adhesive: Epoxy resin adhesive must comply with State of California Specification No. 8040-21M-08 or other epoxy suitable for bonding new concrete to old.

Epoxy Mortars: Epoxy mortar and epoxy mortar surface treatment must consist of a commercial quality, trowelable mixture consisting of epoxy and sand. Epoxy must have a pull-off strength of not less than 1,000 psi and a 90-percent cure in 24 hours. Epoxy must be of the type that requires no primer as a bonding agent.

Sand:

Sand for use in epoxy mortars must be clean and must have a moisture content of not more than 0.50-percent when tested under California Test 226.

Sand for epoxy mortar surface treatment must be graded such that 100-percent passes the No. 100 sieve.

99-03300B(6) Related Materials

Anchor Bolts and Anchor Rods, Nuts and Washers:

Headed and Unheaded Anchor Bolts and Anchor Rods: Comply with ASTM F 1554. Use Grade 36 unless a higher grade is shown.

Nuts: Comply with ASTM A 563.

Washers:

1. Washers bearing on wood surfaces must be commercial quality.
2. Washers bearing on steel surfaces must comply with ASTM F 436, Type 1.
3. Plate washers must comply with ASTM A 36/A 36M.

Exposed anchor bolts and anchor rods, nuts and washers must be hot-dipped galvanized.

Expansion Joint Material: Expansion joint material must be commercial quality asphalt impregnated pressed fiber sheets, ½-inch minimum thickness.

Bond Breaker: Bond breaker must be Type I asphalt saturated organic felt or such other material authorized by the Engineer.

Nonskid Abrasive Aggregate: Nonskid abrasive aggregate must be commercial quality aluminum oxide, silicon carbide, or almandite garnet grit particles; screen size 12-30 or 14-36.

Type A Control Joints: Type A control joints must be commercial quality, preformed, T-shaped plastic strips with detachable top flange.

Keyed Construction Joint Forms: Keyed construction joint forms must be commercial quality, galvanized metal or plastic, factory fabricated construction joint forms. Forms must produce a rabbeted key type joint.

Divider and Edger Strips: Divider and edger strips must be foundation grade redwood.

Mortar: Mortar must consist of one part cement to 2 parts clean sand and only enough water to permit placing and packing.

Curing Compound: Curing compound must be a non-pigmented curing compound with fugitive dye complying with the requirements of ASTM C 309, Type 1-D, Class A.

Concrete Hardener: Concrete hardener must be commercial quality water borne penetrating type magnesium fluosilicate, zinc fluosilicate or combination thereof.

Concrete Sealer: Concrete sealer must be commercial quality VOC-compliant, silane type sealer with hydrophobic and oleophobic properties.

Splash Block: Splash blocks must be precast concrete splash blocks with depressed runoff trough. Splash blocks must be 12" x 24" x 3½" in size unless otherwise shown.

Nonsrink Grout:

Nonsrink grout must be metallic for concealed areas, nonmetallic for exposed areas.

Grout must be factory packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107; free of oxidizing catalysts and inorganic accelerators, used as dry or damp pack, or mixed to a 20-second flow (CRD C621), without segregation or bleeding at any temperature between 45 deg F and 90 deg F.

Working time of grout must be 30 minutes or more.

99-03300C Construction

99-03300C(1) Preparation

Existing Concrete Construction:

Where fresh concrete joins existing or previously placed concrete or masonry, the contact surfaces of the existing or previously placed material must be roughened, cleaned, flushed with water and allowed to dry to a surface dry condition immediately prior to placing the fresh concrete. The roughened surface must be no smoother than a wood trowelled surface. Cleaning of the contact surfaces must remove laitance, curing compounds, debris, dirt and such other substances or materials which would prevent bonding of the fresh concrete.

Abrasive blast methods must be used to clean horizontal construction joints to the extent that clean aggregate is exposed.

Exposed reinforcing steel located at the contact surfaces which is to be encased in the fresh concrete must be cleaned to remove any substance or material that would prevent bonding of the fresh concrete.

Forms:

Forms must be mortar tight, true to the dimensions, lines, and grades shown, securely fastened and supported, and of adequate rigidity to prevent distortion during placing of concrete.

Forms for exposed surfaces must be constructed with triangular fillets not less than 3/4" x 3/4" attached so as to prevent mortar runs and to produce smooth straight chamfers at all sharp edges of the concrete.

Form fasteners must be removable without chipping, spalling, heating or otherwise damaging the concrete surface. Form ties must be removed to a depth of at least one inch below the surface of the concrete.

The inside surfaces of forms must be cleaned of all dirt, mortar and foreign material. Forms must be thoroughly coated with form oil prior to use.

Forms must not be stripped until at least 40 hours after placing concrete, except soffit forms and supports must not be released or removed until at least 10 days after placing concrete.

Anchorage and embedded items must be placed and rigidly secured at their planned locations prior to placing concrete.

Reglets or embedded flashing must be installed on concrete forms before the concrete is placed.

Redwood dividers must have 16d galvanized nails partially driven into both vertical faces at 18 inches on center.

Set wire ties with ends directed into concrete, away from exposed concrete surfaces.

Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

Ground Bar: A continuous reinforcing steel bar must be installed in the building foundation at the location shown for the electrical ground bar. The use of epoxy coated reinforcing bar is not permitted. The end of the ground bar must extend beyond the concrete surface and must be protected from damage by construction operations.

Hydronic Tubing:

Hydronic tubing must be securely fastened to the bar reinforcing using nylon ties.

The hydronic heating system must be fully tested prior to placing concrete.

99-03300C(2) Placing Concrete

Concrete must be placed under section 51-1.03D.

Concrete must be deposited and consolidated in a continuous operation within limits of construction joints, until the placing of the panel or section is completed.

When concrete is to be placed in large areas requiring more than two pours, concrete must be placed in alternate long strips between construction joints and the final slab infilled.

99-03300C(3) Colored Concrete

When more than one concrete pump is used to place colored concrete, the Contractor must designate the pumps to receive colored concrete. The designated pumps must receive only colored concrete throughout the concrete placement operation.

Consistent finishing practices must be used to ensure uniformity of texture and color.

Surrounding exposed surfaces must be protected during placement, finishing, and curing operations of colored concrete.

99-03300C(4) Finishing Concrete Surfaces

Finishing Unformed Surfaces:

Slabs must be placed full thickness to finish elevation and leveled to screeds by use of long straightedges. The screeds must be set to grade at approximately 6-foot centers. After leveling, screeds must be removed and the surface must be floated with wooden floats.

Type A control joint strips must be inserted into the floated concrete so that the bottom of the top flange is flush with the finish elevation. Strips must be standard manufactured lengths and must be placed on an approximate straight line. The top flange of the strips must be removed after the concrete has set and cured.

The floated surface must be trowelled with steel trowels. Troweling must form a dense, smooth and true finish. Walkways, pedestrian ramps, stairs and outdoor slabs for pedestrian traffic must be given a non-slip broom finish unless a different finish is described.

The application of cement dust coat will not be permitted.

Steel trowel finish and broom finish will not be required for slabs to receive exposed aggregate finish nor for slabs to be covered with ceramic tile.

Concrete floor surfaces to receive ceramic tile must be floated to grade and then, before final set of the concrete, the floated surfaces must be roughened with stiff bristled brushes or rakes.

Finished surfaces of floor slabs must not deviate more than 1/8 inch from the lower edge of a 10-foot long straight edge.

Finishing Formed Surfaces:

Formed concrete surfaces must be finished by filling holes or depressions in the surface, repairing all rock pockets, and removing fins. All surfaces of formed concrete exposed to view must have stains and discolorations removed, unsightly bulges removed, and all areas which do not exhibit the required smooth, even surface of uniform texture and appearance must be sanded with power sanders or other authorized abrasive means until smooth, even surfaces of uniform texture and appearance are obtained.

Cement mortar, patching and finishing materials used to finish exposed surfaces of concrete must closely match the color of surrounding surfaces.

99-03300C(5) Curing Concrete

Freshly placed concrete must be protected from premature drying and excessive cold or hot temperatures.

Initial curing of floor slabs must start as soon as free water has disappeared from the concrete surface. The concrete must be kept continuously wet by application of water for not less than 7 days after the concrete has been placed.

Cotton mats, rugs, carpets, or sand blankets may be used as a curing medium to retain the moisture during the curing period. Curing materials that will stain or discolor concrete must not be used on surfaces exposed to view.

Prior to placing the curing medium, the entire surface of the concrete must be kept damp by applying water with a nozzle that so atomizes the flow that a mist and not a spray is formed, until the surface of the concrete is covered

with the curing medium. At the expiration of the curing period, the concrete surfaces must be cleared of all curing mediums.

Concrete surfaces, other than floor slabs, must be kept moist for a period of at least 5 days by leaving the forms in place or by covering the exposed surfaces using moist rugs, cotton mats or other curing materials authorized by the Engineer.

Concrete curbs, sidewalks, collars, and gutter depressions may be cured with a curing compound.

99-03300C(6) Protecting Concrete

Vehicles, equipment, or concentrated loads weighing more than 300 pounds individually and material stockpiles weighing more than 50 pounds per square foot will not be permitted on the concrete within 10 calendar days after placing.

99-03300C(7) Special Treatments

Concrete Hardener:

Chemical concrete hardener must be applied to the floor surfaces shown, prior to the application of concrete sealer. Surfaces must be clean and dry before the application of hardener.

The solution must be applied under the manufacturer's instructions.

After the hardener has dried, the surface must be mopped with water to remove encrusted salts.

Concrete Sealer: Concrete sealer must be applied to the concrete surfaces designated on the plans under the manufacturer's instructions for heavy duty use. The sealer must be applied to dry concrete surfaces.

Epoxy Resin Adhesive: Epoxy resin adhesive must be applied to concrete surfaces shown. Epoxy resin adhesive must be mixed and applied under the manufacturer's instructions.

Epoxy Mortars:

Epoxy for use as a binder in epoxy mortars must be thoroughly mixed together before the aggregate is added, and unless otherwise specified, the mix proportions must consist of one part binder to approximately 4 parts of aggregate, by volume.

All surfaces against which epoxy mortars are to be applied must be free of rust, paint, grease, asphalt, and loose or deleterious material.

99-03300D Payment

Excluding reinforcement full compensation for all concrete work including formwork, curing, and all other concrete work for the construction of the pumping plant, storage box, storage pipe, and existing storage basin extension shall be included in the compensation for "Structural Concrete (Pumping Plant)"

Full compensation for reinforcement including drill and bond dowels for the construction of the pumping plant, storage box, storage pipe, and existing storage basin extension shall be included in the compensation for "Bar Reinforcing Steel (Pumping Plant)"

99-03603 DRILL AND BOND DOWELS

99-03603A General

99-03603A(1) Summary

Scope: This work consists of drilling holes in existing concrete and installing and bonding bar reinforcing steel dowels into such drilled holes in existing concrete.

99-03603A(2) Definitions

Not Used

99-03603A(3) Submittals

Not Used

99-03603A(4) Quality Control and Assurance

Not Used

99-03603B Materials

Bonding Material: The bonding material must be magnesium phosphate concrete, either single component (water activated) or dual component (with a prepackaged liquid activator), as authorized by the Engineer.

Dowels: Dowels must be bar reinforcing steel, under section 99-03300.

99-03603C Construction

Installation:

The holes must be drilled by methods that will not shatter or damage the concrete adjacent to the holes. The diameter of drilled holes must be 1/2 inch larger than the nominal diameter of the dowels unless otherwise shown.

Immediately prior to placing the dowels, the holes must be cleaned of dust and other deleterious materials, and the holes must be dry.

Sufficient bonding material must be placed in the hole so that no voids remain after the dowels are inserted.

Dowels which fail to bond or are damaged before new concrete is placed must be removed and replaced.

Magnesium phosphate concrete must be formulated for minimum initial set time of 15 minutes and minimum final set time of 25 minutes at 70°F. The materials, prior to use, must be stored in a cool, dry environment.

Mix water used with water activated material must be free from oil and impurities and contain not more than 2,000 parts per million as Cl nor more than 1,500 parts per million of sulfate as SO4.

The quantity of water for single component type or liquid activator for dual component type to be blended with the dry component, must be within the limits recommended by the manufacturer and must be the least amount required to produce a pourable mix.

Magnesium phosphate concrete must not be mixed in containers or worked with tools containing zinc, cadmium, aluminum, or copper metals.

The surface of any dowel coated with zinc or cadmium must be coated with a colored lacquer before installation of the dowel. The lacquer must be allowed to dry thoroughly before embedment of said dowels.

99-03603D Payment

Full compensation for reinforcement including drill and epoxy dowels for the construction of the pumping plant, storage box, storage pipe, and existing storage basin extension shall be included in the compensation for "Bar Reinforcing Steel (Pumping Plant)"

Not Used

99-5 METALS

99-05000 GENERAL

Section 99-5 includes specifications for performing metal work for building construction

99-05120 STRUCTURAL STEEL FOR BUILDINGS

99-05120A General

99-05120A(1) Summary

This work consists of fabricating, assembling, and erecting structural steel.

99-05120A(2) Definitions

Structural Steel

Structural steel items and materials shall be as specified below:

Material	Specification
Structural bars, plates, and similar items	ASTM A36
Structural angles, channels, and similar items	ASTM A36

Structural wide flange shapes

ASTM A992

Steel bolts, hex head nuts and washers

ASTM A307, Grade A or ASTM A325

As shown

Shop Drawings:

Submit shop drawings that include the following:

1. A comprehensive list of all structural steel elements to be used as described under AISC 303, section 2.1, "Definition of Structural Steel."
2. Sequence of shop and field assembly and erection, welding sequence and procedures, and welding nondestructive testing (NDT) sequence and procedures.
3. Identification of welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld.
4. Location of butt welded splices on a layout drawing of the entire structure.
5. Location and details of any temporary supports that are to be used.
6. Type, size, and length of bolts, distinguishing between shop and field bolts. Identify high-strength bolted connections.
7. Identification of members and connections of the seismic-load-resisting system.
8. Identification of locations and dimensions of protected zones.
9. Identification of demand critical welds.
10. Any changes proposed in the work, details of connections and joints exposed to the weather, and details for connections not dimensioned on the plans. If changes are proposed or connections are designed, submit design calculations stamped and signed by an engineer who is registered as a Civil or Structural Engineer in the State of California. The expiration date of the registration must be shown.

Shop Drawings for Falsework: Submit shop drawings and calculations for falsework for use during the erection of structural steel. Design and construct the falsework to provide the necessary rigidity, and to support the applied loads. Shop drawings and calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State.

Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Submit WPSs and PQRs under AWS D1.1/D1.1M for each welded joint whether prequalified or qualified by testing, including the following:

1. Power source (constant current or constant voltage).
2. Electrode manufacturer and trade name, for demand critical welds.

Qualification Data: Submit fabricator and welder qualifications.

Certificates of Compliance: Submit a certificate of compliance for structural steel products. Include mill test certificates for each heat number of steel used in the work.

99-05120A(4) Quality Control and Assurance

Fabricate, assemble, and erect structural steel under AISC 303, 325, 341, and 360.

Welding: Weld under AWS D1.1/D1.1M and AWS D1.8/D1.8M.

Welding Qualifications:

Qualify procedures and personnel under AWS D1.1/D1.1M.

Welders and welding operators performing work on bottom-flange, demand-critical welds must pass the supplemental welder qualification testing, under AWS D1.8/D1.8M. FCAW-S and FCAW-G must be considered separate processes for welding personnel qualification.

99-05120A(5) Delivery, Storage, and Handling

Load, transport, unload, and store structural materials so they are kept clean and undamaged. Store materials to permit access for inspection and identification.

Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Provide covers for protection of materials.

99-05120B Materials

99-05120B(1) General

Steel Bars, Plates, Channels, Angles, and Shapes (other than W-shapes): For each yield stress shown, comply with the following:

1. ASTM A 36/A 36M, when minimum yield stress is 36 ksi.
2. ASTM A 572/A 572M, Grade 50, when minimum yield stress is 50 ksi.

W-shapes: Comply with ASTM A 992/A 992M.

Pipe: Comply with ASTM A 53/A 53M, Grade B, standard weight, unless otherwise shown.

Hollow Structural Sections: For each yield stress shown, comply with the following:

1. ASTM A 501, when minimum yield stress is 36 ksi.
2. ASTM A 500/A 500M, Grade B, when minimum yield stress is 42 ksi for round shapes, and when minimum yield stress is 46 ksi for square and rectangular shapes.
3. ASTM A 500/A 500M, Grade C, when minimum yield stress is 46 ksi for round shapes, and when minimum yield stress is 50 ksi for square and rectangular shapes.

99-05120B(2) Bolts, Connectors, and Anchors

Stud Connectors: Comply with ASTM A 108, AISI Grades 1018 through 1020, cold drawn, either semi- or fully kilned.

Anchor Bolts and Anchor Rods, Nuts and Washers:

Headed and Unheaded Anchor Bolts and Anchor Rods: Comply with ASTM F 1554. Use Grade 36 unless a higher grade is shown.

Nuts: Comply with ASTM A 563.

Washers:

1. Washers bearing on wood surfaces must be commercial quality.
2. Washers bearing on steel surfaces must comply with ASTM F 436, Type 1.
3. Plate washers must comply with ASTM A 36/A 36M.

Exposed anchor bolts and anchor rods, nuts and washers must be hot-dipped galvanized.

Machine Bolts, Nuts, and Washers:

Machine Bolts: Comply with ASTM A 307.

Nuts: Comply with ASTM A 563.

Washers: Commercial quality.

High Strength (HS) Fastener Assemblies:

HS Bolts: Comply with ASTM A 325 or A 490 when shown.

Nuts: Comply with ASTM A 563.

Washers: Comply with ASTM F 436, Type 1.

Direct Tension Indicators: Comply with ASTM F 959.

Tension Control Bolts: Comply with ASTM F 1852.

99-05120B(3) Mortar

Mortar: Use one part cement, measured by volume, to 2 parts clean sand and only enough water to permit placing and packing.

99-05120B(4) Shop Fabrication

Shop Fabrication and Assembly:

1. Cuts must not deviate more than 1/16 inch from the intended line. Remove roughness, notches, and gouges.
2. At points of loading, bearing stiffeners must be square with the web. At least 75 percent of the stiffener must be in contact with the flanges.
3. Finished members must be true to line and be free from twists, kinks, warps, dents, and open joints. Finished members must have square corners and smooth bends
4. Exposed edges and ends of metal must be dressed smooth, with no sharp edges, and with corners slightly rounded.
5. Mark and match-mark materials for field assembly.
6. Complete structural steel assemblies, including welding of units, before shop-priming operations.

Connections:

1. Clean abutting surfaces at connections.
2. Do not cut or weld at the job site, except as shown on the authorized shop drawings or authorized by the Engineer.
3. Cut, drill, or punch holes perpendicular to steel surfaces. Finished holes for bolts must be cylindrical. Sub-punch and sub-drill holes ¼ inch smaller in diameter than the diameter specified for the finished hole.

Bolted Connections:

Fabricate steel to steel bolted connections with machine bolts or HS fastener assemblies when shown.

Machine Bolts: Snug tighten.

HS Fastener Assemblies:

60. If high strength bolts are required, plans must show the high strength grades
Galvanize HS fastener assemblies, or equivalent fasteners, by mechanically deposited coating
process.

The bolt head type and head location must be consistent within a joint.

Install nuts on side of member least exposed to view.

Welded Connections: Assemble and weld built-up sections by methods that will maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

Holes for Other Work: Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarged holes by burning. Drill holes in bearing plates.

99-05120B(5) Shop Finishes

Shop prime structural steel members, except those to receive sprayed-fireproofing.

Clean and coat steel surfaces of shop primed members under section 99-09900.

HS Bolted Connections: Contact surfaces of HS bolted connections and ungalvanized anchorage assemblies must be coated before assembly. The total thickness of primer on each faying surface of slip-critical joints must be between 1 mil and the maximum allowable dry film thickness determined under the RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

99-05120B(6) Source Quality Control

Welded Connections: Test and inspect welded connections under AWS D1.1/D1.1M and the following:

Inspection:

1. Comply with AISC 341, section Q5.2, except for CJP groove welds not receiving ultrasonic testing, perform magnetic particle testing on 100% of each root weld pass and each final weld pass of these welds.
2. Perform magnetic particle testing on 25% of each PJP groove weld. The Engineer will select the locations for testing. The cover pass must be ground smooth before testing.

Acceptance Criteria:

1. Ultrasonic Testing: Comply with AWS D1.1/D1.1M, Table-6.2 for statically loaded nontubular connections.
2. Magnetic Particle Testing: Comply with AWS D1.1/D1.1M, Clause 6, Part C.

Repairs:

1. If repairs are required, perform NDT on the repaired portion and re-inspect the weld by performing additional NDT on the entire length of the unrepaired portion of the weld under "Source Quality Control."
2. NDT of repaired work must be performed at your expense.

99-05120C Construction

99-05120C(1) Erection

Set structural steel accurately in locations and to elevations indicated.

Setting Bases and Bearing Plates:

Clean concrete and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

Set base plates and bearing plates for structural members on wedges or other adjusting devices.

Snug-tighten anchor bolts when no specific joint type is shown after supported members have been positioned and plumbed. Do not remove wedges or shims except, if protruding, cut off flush with edge of plate before packing with mortar.

Solidly pack mortar between bearing surfaces and base or bearing plates so there are no voids. Neatly finish exposed surfaces and allow to cure.

Field Splices:

Field splices must be made only at the locations shown on authorized shop drawings or authorized by the Engineer.

Accurately assemble parts in their final position as shown and in true alignment with related and adjoining work before final fastening.

Support parts to provide a vibration free, rigid, and secure installation.

99-05120C(2) Field Connections

Assembly and installation of bolted connections must comply with "Bolted Connections" under "Shop Fabrication."

99-05120C(3) Field Quality Control

Testing and inspection of field-welded connections must comply with "Welded Connections" under "Source Quality Control."

99-05120C(4) Field Finishes

Touch-up Painting: After erection, clean field welds, bolted connections, and abraded areas of shop paint under SSPC-SP 2 or SSPC-SP 3. Apply one coat of the same coating as applied for shop painting to the cleaned areas.

After touch-up painting, coat all surfaces with a second prime coat, and finish coats when specified, to comply with section 99-09900.

99-05120D Payment

Full compensation for structural steel for the construction of the pumping plant, storage box, storage pipe, and existing storage basin extension shall be included in the compensation for "Structural Steel (Pumping Plant)"

99-05500 BUILDING MISCELLANEOUS METAL**99-05500A General****99-05500A(1) Summary**

Scope: This work consists of fabricating and installing building miscellaneous metal.

Building miscellaneous metal consists of the following:

1. Ladders
2. Grating and Embeds
3. Handrail and Handrailing
4. Chain Guards

Including all anchors, fastenings, hardware, accessories, and other supplementary parts necessary to complete the work.

99-05500A(2) References

Codes and Standards: Welding of steel must comply with AWS D 1.1, "Structural Welding Code - Steel" and D 1.3, "Structural Welding Code - Sheet Steel."

99-05500A(3) Definitions

Not Used

99-05500A(4) Submittals

Product Data: Submit manufacturer's specifications, anchor details, and installation instructions for products used in miscellaneous metal fabrications.

Shop Drawings: Shop drawings of fabricated items must be submitted.

99-05500A(5) Quality Control and Assurance

Shop Assembly: Preassemble items in shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark all units for reassembly and installation.

Inspection and Tests: Materials and fabrication procedures must be subject to inspection and tests by the Engineer, in mill, shop, and field.

99-05500B Materials**99-05500B(1) General**

Steel Bars, Plates, and Hot-rolled Shapes: Steel bars, plates, and hot-rolled shapes must comply with ASTM A 36/A 36M.

Galvanized Sheet Steel: Galvanized sheet steel must comply with ASTM A 653/A 653M. Galvanizing must be G60.

Checkered Floor Plates: Checkered floor plates must be commercial quality steel with standard raised pattern.

Pipe: Pipe must be commercial quality standard steel pipe.

Hollow Structural Sections: Hollow structural sections must comply with ASTM A 500/A 500M, Grade B, or A 501.

Bolts, Studs, Threaded Rods, Nuts, and Washers:

Bolts, studs, and threaded rods for general application must comply with ASTM A 307 or F 1554, Grade 36.

Nuts must comply with ASTM A 563.

Washers bearing on wood surfaces must be commercial quality. Washers bearing on steel surfaces must comply with ASTM F 844 or F 436.

Fittings: Brackets, bolt, threaded studs, nuts, washers, and other fittings for railings and handrailings must be commercial quality pipe and fittings.

Expansion Anchors: Expansion anchors must be ICC approved for the purpose intended, integral stud type anchor or internally threaded type with independent stud, hex nut, and washer.

Powder Driven Anchors: Powder driven anchors must be plated, spring steel alloy drive pin or threaded stud type anchors for use in concrete or steel. Spring steel must comply with ASTM A 227, Class 1. The diameter, length, and type of shank and the number and type of washer must be as recommended by the manufacturer for the types and thickness of material being anchored or fastened.

Resin Capsule Anchors: Stud anchors for resin capsule anchors must comply with ASTM A 307 or F 1554, Grade 36, threaded steel rod with hex nut and washer and sealed glass capsule or cartridge containing an adhesive composed of unsaturated polyester resin and benzol peroxide coated quartz sand. Resin capsule must be Hilti; Molly; or equal.

Drainage Grates: Drainage grates must be fabricated from steel bars as specified herein; ductile iron castings complying with ASTM A 536, Grade 65-45-12; or carbon steel castings complying with ASTM A 27, Grade 65-35.

Mortar: Mortar must consist of one part cement, measured by volume, to 2 parts clean sand and only enough water to permit placing and packing.

99-05500B(2) Shop Fabrication

Workmanship and Finish:

Workmanship and finish must be equal to the best general practice in modern shops.

Miscellaneous metal must be clean and free from loose mill scale, flake rust and rust pitting, and must be well formed and finished to shape and size with sharp lines and angles. Bends from shearing or punching must be straightened.

The thickness of metal and details of assembly and support must give ample strength and stiffness.

Built-up parts must be true to line and without sharp bends, twists, and kinks. Exposed ends and edges of metal must be milled or ground smooth, with corners slightly rounded.

Joints exposed to the weather must be made up to exclude water.

Galvanizing: Items indicated on the plans to be galvanized must be hot-dip galvanized after fabrication. The weight of galvanized coating must be at least 1½ ounces per square foot of surface area, except drainage grates must have at least 2 ounces per square foot of surface area.

Painting: Building miscellaneous metal items that are not galvanized must be cleaned and coated with 1 prime coat prior to erection under section 99-09900. After erection, surfaces must be coated with a second prime coat, and finish coats when specified, to comply with the requirements specified under section 99-09900.

Loose Bearing and Leveling Plates: Loose bearing and leveling plates must be provided for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Plates must be drilled to receive anchor bolts. Galvanize after fabrication.

Drainage Pipes, Frames and Grates:

Drain piping must have connections sealed watertight.

Drainage grates must have end bars of the same cross section as support bars. Connections between end bars and support bars of structural steel must be welded all around.

Drainage frames must be angles and plates as shown.

Drainage grates and frames must be match marked.

Steel Pipe Railings and Handrailings:

Pipe handrailing must consist of handrailing elements supported by metal brackets (wall type) or handrailing elements supported by tubular steel posts (post type).

Ends of railing pipe must be closed, except for a 1/8-inch diameter weep hole at the low point.

All corners on railings must be rounded. Simple and compound curves must be formed by bending pipe in jigs to produce uniform curvature; maintain cylindrical cross-section of pipe throughout the bend without buckling, twisting or otherwise deforming exposed surfaces of the pipe.

Wall brackets, end closures, flanges, miscellaneous fitting and anchors must be provided for interconnections of pipe and attachment of railings and handrails to other work. Inserts and other anchorage devices must be provided for connecting railings and handrails to concrete or masonry.

Steel railing must be galvanized after fabrication. After galvanizing, all elements of the railing must be free of fins, abrasions, rough or sharp edges, and other surface defects and must not be kinked, twisted, or bent.

99-05500C Construction

99-05500C(1) General

Anchorage:

Anchorage devices and fasteners must be provided for securing miscellaneous metal in-place construction; including threaded fasteners for concrete and masonry inserts, toggle bolts, through bolts, lag bolts, wood screws, and other connectors.

Cutting, drilling, and fitting must be performed as required for installation of miscellaneous metal fabrications. Work is to set accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels.

Loose Leveling and Bearing Plates: Plates must be set on wedges or other adjustable devices. Anchor bolts must be snug tightened after the plates have been positioned and plumbed. Mortar must be packed solidly between bearing surfaces and plates to ensure that no voids remain.

Steel Pipe Railings and Handrailings:

Railings must be adjusted prior to anchoring to ensure matching alignment at abutting joints. Secure posts and railing ends to building construction.

Resin capsule anchors must not to be used for anchoring railings and handrailings.

Powder Driven Anchors: Powder driven anchors must be installed with low velocity powder actuated equipment to comply with the manufacturer's instructions and State and Federal OSHA regulations.

Resin Capsule Anchors: Resin capsule anchors must be installed in compliance with the manufacturer's instructions.

Bolted connections not otherwise specified or shown on drawings must be snug-tightened.

99-05500C(2) Damaged Surfaces

Galvanized surfaces that are abraded or damaged must be repaired by thoroughly wire brushing the damaged areas and removing all loose and cracked coating. The clean areas must then be painted with 2 spot applications of a coating complying with the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI) and listed on MPI List Number 18, Primer, Zinc Rich, Organic, and meeting the requirements under section 99-09900.

99-05500D Payment

Full compensation for miscellaneous building metal for the construction of the pumping plant, storage box, storage pipe, and existing storage basin extension shall be included in the compensation for "Building Miscellaneous Metal"

Not Used

Not Used

99-9 FINISHES

99-09000 GENERAL

Section 99-9 includes specifications for performing finishing work for building construction.

99-09900 PAINTING

99-09900A General

99-09900A(1) Summary

Scope: This work consists of preparing surfaces to receive coatings and applying coatings.

The coatings specified in this section are in addition to any factory finishes, shop priming, or surface treatment described.

99-09900A(2) Definitions

Detergent Wash: Removal of dirt and water-soluble chemicals by scrubbing with a solution of detergent and water, and removal of all solution and residues with clean water.

Hand Cleaning: Removal of dirt, loose rust, mill scale, excess base material, filler, aluminum oxide, chalking paint, peeling paint, or paint that is not firmly bonded to the surfaces by using hand or powered wire brushes, hand scraping tools, power grinders, or sandpaper and removal of all loose particles and dust prior to coating.

Mildew Wash: Removal of mildew by scrubbing with a solution of detergent, hypochlorite-type household bleach, and warm water, and removal of all solution and residues with clean water.

Abrasive Blasting:

Removal of loosely adhering paint, dirt, rust, mill scale, efflorescence, weak concrete, or laitance, must be by the use of airborne abrasives. Loose particles, dust, and abrasives must be removed by blasting with clean, oil-free air.

Abrasives must be limited to mineral grit, steel grit, or steel shot, and must be graded to produce the surface profile recommended in the manufacturer's data sheet.

Steam Cleaning: Removal of oil, grease, dirt, or other foreign matter by using steam generated by commercial steam cleaning equipment, from a solution of water and steam cleaning compounds, and removal of all residues and cleaning compounds with clean water.

TSP Wash: Removal of oil, grease, dirt, paint gloss, and other foreign matter by scrubbing with a solution of trisodium phosphate and warm water, and removal of all solution and residues with clean water.

Water Blasting: Removal of dirt, loose scale, chalking, or peeling paint by low-pressure water cleaning. Water blasting must be performed under SSPC-SP12 and must produce a surface cleanliness meeting SSPC-SP12-WJ4. Equipment used must have a minimum flow rate of 1.5 gpm. If a detergent solution is used, it must be biodegradable and must be removed from all surfaces with clean water.

99-09900A(3) Submittals

Product Data:

Manufacturer's descriptive data, a materials list, and color samples must be submitted.

Product descriptive data must include product description, manufacturer's instructions for product mixing, thinning, tinting, handling, site environmental requirements, product application, and drying time.

Materials list must include manufacturer's name, trade name, and product numbers for each type coating to be applied.

Samples: Submit color samples. Samples must be manufacturer's color cards, nominally 2 by 3 inches for each color of coating shown. Color samples for stains must be submitted on wood of the same species, color, and texture as the wood to receive the stain.

Certificates of Compliance: Submit certificates of compliance for products required to comply with SSPC standards.

99-09900A(4) Quality Control and Assurance

Regulatory Requirements: Coatings and applications must comply with the rules for control of VOC emissions adopted by the Air Pollution Control District in the air basin in which the coatings are applied.

99-09900A(5) Site Environmental Requirements

Coatings must be applied under the environmental constraints specified in the manufacturer's instructions. These conditions must be maintained until the coating has cured and is ready for recoat.

Continuous ventilation must be provided during application of the coatings.

Adequate lighting must be provided while surfaces are being prepared for coatings and during coating applications.

99-09900A(6) Maintenance Stock

Upon completion of coating work, deliver a full one-gallon container of each type and color of finish coat and stain used to the Engineer. Containers must be tightly sealed, have the manufacturer's standard product label, and be labeled with color, texture, and room locations where used.

99-09900B Materials

99-09900B(1) General

Products for each coating system must be from a single manufacturer and must comply with the Detailed Performance Standards of the Master Painters Institute (MPI). Each product must be shown on the MPI Approved Products List unless otherwise specified.

99-09900B(2) Delivery, Storage, and Handling

Products must be delivered to the site in sealed, labeled containers and stored in a well-ventilated area at an ambient air temperature of at least 45 degrees F. Container labeling must include manufacturer's name, type of coating, trade name, color designation, drying time, and instructions for tinting, mixing, and thinning.

99-09900C Construction

99-09900C(1) Inspection

Coatings must not be applied until surface preparation has been authorized by the Engineer. Notify the Engineer at least 3 business days before application of coatings.

99-09900C(2) Surface Preparation

Prepare surfaces for coating under the coating manufacturer's instructions unless otherwise specified.

Remove hardware, cover plates, light fixture trim, and similar items before preparing surfaces for coating. Following the application of the finish coating, the removed items must be reset in their original locations.

Galvanized Metal:

New surfaces must be roughened by hand sanding or light abrasive blasting. Galvanizing must not be removed during cleaning or roughening.

Damaged or corroded areas must be cleaned and given 2 spot applications of a coating that complies with the Detailed Performance Standards of the MPI, and listed on MPI List "Number 18, Primer, Zinc Rich, Organic."

Steel and Other Ferrous Metals: Surface must be cleaned under SSPC-SP 1. Surface profile must be as required for the coating system specified.

Aluminum and Other Non-ferrous Metals: Surface must be cleaned under SSPC-SP 1.

Concrete and Concrete Masonry Unit: New material must be cleaned and prepared under SSPC-SP 13. Cracks and voids must be filled with cement mortar patching material. Concrete must be cured until the surface moisture is below the level specified in the coating manufacturer's instructions.

Previously Coated Surfaces:

Dirt, oil, grease, or other surface contaminants must be removed by water blasting, steam cleaning, or TSP wash. Minor surface imperfections must be filled as specified for new work. Mildew must be removed by mildew wash. Chalking paint must be removed by hand cleaning. The surfaces of existing hard or glossy coatings must be abraded to dull the finish by hand cleaning or light abrasive blasting. Abrasive blasting must not be used on wood or non-ferrous metal surfaces.

Chipped, peeling, blistered, or loose coatings must be removed by hand cleaning, water blasting, or abrasive blasting. Bare areas must be pretreated and primed as specified for new work.

99-09900C(3) Application

Coatings must be applied under the manufacturer's instructions and at the application rates recommended by the manufacturer to achieve the dry film thickness stated in the coating technical data sheet.

Mixing, thinning and tinting must comply with the manufacturer's instructions. After thinning, the coating must comply with the regulatory requirements.

Coatings must be applied only when surfaces are dry and properly prepared.

Cleaning and painting must be scheduled so that dust and other contaminants from the cleaning process do not fall on wet, newly coated surfaces.

Materials required to be coated must have coatings applied to all exposed surfaces, including the tops and bottoms of wood and metal doors, the insides of cabinets, and other surfaces not normally visible from eye level.

Surface Finish Application:

Each coat must be applied to a uniform finish. Finished surfaces must be free of surface deviations and imperfections such as skips, cloudiness, spotting, holidays, laps, brush marks, runs, sags, curtains, ropiness, improper cutting in, overspray, drips, ridges, waves, and variations in color and texture.

Each application of a multiple application finish system must closely resemble the final color coat, except each application must provide enough contrast in shade to distinguish the separate applications.

Work Required Between Applications:

Each application of material must be cured under the coating manufacturer's instructions before applying the next coating.

Enamels and clear finishes must be lightly sanded, dusted, and wiped clean between applications.

Stain blocking primer must be spot applied whenever bleeding substances are visible through the previous application of a coating.

Timing of Applications: The first application of the coating system must be during the same work shift that the final surface preparation was performed. Additional coats must be applied as soon as the required drying time of the preceding coat, specified in the coating manufacturer's instructions, has been met.

Application Methods:

Coatings must be applied by brush, roller or spray. Rollers must not leave a stippled texture in the paint film. Extension handles for rollers must not be greater than 6 feet in length.

If spray methods are used, surface deviations and imperfections such as overspray, thickness deviations, lap marks, and orange peel must be considered as evidence the work is unsatisfactory and the Contractor must apply the remainder of the coating by brush or roller, as authorized by the Engineer.

Back Priming: The first application of the coating system must be applied to all wood surfaces (face, back, edges, and ends) of wood materials that are not factory coated, immediately upon delivery to the job site. Surfaces of interior finish woodwork that adjoin concrete or masonry must be coated with one application of exterior wood primer before installation.

Patches in Previously Coated Surfaces: Where patches are made on surfaces of previously coated walls or ceilings, the entire surface to corners on every side of the patch must be coated with at least 1 application of the finish coat.

Finishing Mechanical and Electrical Components:

Shop primed mechanical and electrical components must be finish coated under the coating system specified for the substrate material. Louvers, grilles, covers, and access panels on mechanical and electrical components must be removed and coated separately.

Interior surfaces of air ducts which are visible through grilles or louvers must be coated with one application of flat black enamel, to the limit of the sight line.

Conduit, piping, and other mechanical and electrical components visible in the finished work must be painted.

Both sides and all surfaces, including edges and back of wood mounting panels for electrical and telephone equipment must be finish coated before installing equipment.

99-09900C(4) Cleaning

Upon completion of all operations, the coated surfaces must be thoroughly cleaned of dust, dirt, grease, or other unsightly materials or substances.

Surfaces marred or damaged as a result of your operations must be repaired, to match the condition of the surfaces before the beginning of your operations.

99-09900C(4) Protection

Provide protective devices, such as tarps, screens or covers, as necessary to prevent damage to the work and to other property or persons from all cleaning and painting operations.

Paint or paint stains on surfaces not designated to be painted must be removed at your expense and the original surface must be restored.

99-09900C(5) Coating System

The surfaces to be coated must be as described. When a coating system is not described for a surface to be finish coated, use the coating system as specified below for the substrate material. The number of applications specified for each coating system specified is a minimum. Additional coats must be applied if necessary to obtain a uniform color, texture, appearance, or required dry film thickness.

SYSTEM 1 - ALUMINUM AND OTHER NON-FERROUS METALS

2 Finish Coats:

- Flat: Latex, exterior, MPI Gloss Level 1, MPI List Number 10
- Eggshell-like: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 3, MPI List Number 161
- Semi-Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 5, MPI List Number 163
- Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 6, MPI List Number 164

SYSTEM 2 - CONCRETE

2 Finish Coats:

- Flat: Latex, Exterior, MPI Gloss Level 1, MPI List Number 10
- Semi-Gloss: Latex, Exterior, MPI Gloss Level 5, MPI List Number 11

SYSTEM 3 - GALVANIZED METAL

2 Finish Coats:

- Flat: Latex, Exterior, MPI Gloss Level 1, MPI List Number 10
- Eggshell-like: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 3, MPI List Number 161
- Semi-Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 5, MPI List Number 163
- Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 6, MPI List Number 164

SYSTEM 4 - PREVIOUSLY COATED EXTERIOR SURFACES

2 Finish Coats:

- Flat: Latex, Exterior, MPI Gloss Level 1, MPI List Number 10
- Low Sheen: Latex, Exterior, MPI Gloss Level 3/4, MPI List Number 15
- Semi-Gloss: Latex, Exterior, MPI Gloss Level 5, MPI List Number 11
- Gloss: Latex, Exterior, MPI Gloss Level 6, MPI List Number 119

SYSTEM 5 - PREVIOUSLY COATED INTERIOR SURFACES

2 Finish Coats:

- Flat: Latex, Interior, MPI Gloss Level 1, MPI List Number 53
- Eggshell-like: Latex, Interior, MPI Gloss Level 3, MPI List Number 52
- Semi-Gloss: Latex, Interior, MPI Gloss Level 5, MPI List Number 54
- Gloss: Latex, Interior, MPI Gloss Level 6, MPI List Number 114

SYSTEM 6 - STEEL AND OTHER FERROUS METALS, NON-CORROSIVE ENVIRONMENT

VISIBLE IN FINISHED WORK:

2 Prime Coats:

- Shop Primer: Coating meeting the requirements of SSPC-Paint 15
- Field Primer: Rust Inhibitive, Water Based, MPI List Number 107

2 Finish Coats:

- Flat: Latex, Exterior, MPI Gloss Level 1, MPI List Number 10
- Eggshell-like: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 3, MPI List Number 161
- Semi-Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 5, MPI List Number 163
- Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 6, MPI List Number 164

NOT VISIBLE IN FINISHED WORK:

2 Prime Coats:

- Shop Primer: Coating meeting the requirements of SSPC-Paint 15
- Field Primer: Rust Inhibitive, Water Based, MPI List Number 107

SYSTEM 7 - STEEL AND OTHER FERROUS METALS, SEMI-CORROSIVE ENVIRONMENT

VISIBLE IN FINISHED WORK:

2 Prime Coats:

- Primer: Rust Inhibitive, Water Based, MPI List Number 107

2 Finish Coats:

- Flat: Latex, Exterior, MPI Gloss Level 1, MPI List Number 10
- Eggshell-like: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 3, MPI List Number 161
- Semi-Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 5, MPI List Number 163
- Gloss: Light Industrial coating, Water Based, Exterior, MPI Gloss Level 6, MPI List Number 164

NOT VISIBLE IN FINISHED WORK:

2 Prime Coats:

- Primer: Rust Inhibitive, Water Based, MPI List Number 107

99-09900C(6) Color Schedule

Colors must be as shown.

99-09900D Payment

Not Used

**REVISED STANDARD SPECIFICATIONS
APPLICABLE TO THE 2010 EDITION
OF THE STANDARD SPECIFICATIONS**

REVISED STANDARD SPECIFICATIONS PUBLISHED ON 04-20-12

Revised standard specifications 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*. A date under a main-section heading is the date of the latest revision to the section.

Each revision to the *Standard Specifications* begins with a revision clause that describes a revision to the *Standard Specifications* or introduces a revision to the *Standard Specifications*. For a revision clause that describes a revision, the date on the right above the clause is the publication date of the revision. For a revision clause that introduces a revision, the date on the right above a revised term, phrase, clause, paragraph, or section is the publication date of the revised term, phrase, clause, paragraph, or section. For a multiple-paragraph or multiple-section revision, the date on the right above a paragraph or section is the publication date of the paragraphs or sections that follow.

Any paragraph added 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*.

DIVISION I GENERAL PROVISIONS

1 GENERAL

04-20-12

Replace "current" in the 2nd paragraph of section 1-1.05 with:

most recent

04-20-12

Add to the 4th paragraph of section 1-1.05:

Any reference directly to a revised standard specification section is for convenience only. Lack of a direct reference to a revised standard specification section does not indicate a revised standard specification for the section does not exist.

04-20-12

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

Add to the table in section 1-1.11:

01-20-12

Office Engineer–All Projects Currently Advertised	http://www.dot.ca.gov/hq/esc/oe/weekly_ads/all_advertised.php	--	--
---	---	----	----

9 PAYMENT

04-20-12

04-20-12

Delete ", Huntington Beach," in the 3rd paragraph of section 9-1.07A.

Replace the formula in section 9-1.07B(2) with:

04-20-12

$$Qh = HMATT \times Xa$$

Replace "weight of dry aggregate" in the definition of the variable *Xa* in section 9-1.07B(2) with:

04-20-12

total weight of HMA

Replace the formula in section 9-1.07B(3) with:

04-20-12

$$Qrh = RHMATT \times 0.80 \times Xarb$$

Replace "weight of dry aggregate" in the definition of the variable *Xarb* in section 9-1.07B(3) with:

04-20-12

total weight of rubberized HMA

Replace the heading of section 9-1.07B(4) with:

04-20-12

Hot Mix Asphalt with Modified Asphalt Binder

Add between "in" and "modified" in the introductory clause of section 9-1.07B(4):

04-20-12

HMA with

Replace the formula in section 9-1.07B(4) with:

04-20-12

$$Qmh = MHMATT \times [(100 - Xam) / 100] \times Xmab$$

Replace "weight of dry aggregate" in the definition of the variable *Xmab* in section 9-1.07B(4) with:

04-20-12

total weight of HMA

Replace the formula in section 9-1.07B(5) with:

04-20-12

$$Qrap = HMATT \times Xaa$$

Add to section 19-3.01A(3)(b):

01-20-12

For soil nail walls, wall zones are specified in the special provisions.

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 the 1st paragraph of section 19-3.03E(3) with:

01-20-12

Compact structure backfill behind lagging of soldier pile walls by hand tamping, mechanical compaction, or other authorized means.

Replace the 2nd paragraph of section 19-3.03F with:

01-20-12

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.

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 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.

AA

21 EROSION CONTROL

04-20-12

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 section 21-1.02J with:

21-1.02J Reserved

04-20-12

Replace section 21-1.03I with:

21-1.03I Reserved

04-20-12

AA

DIVISION IV SUBBASES AND BASES

29 TREATED PERMEABLE BASES

04-20-12

Replace "section 68-4.02C" in the 6th paragraph of section 29-1.03A with:

section 64-4.03

04-20-12

AA

Replace section 30 with:

04-20-12

30 RECLAIMED PAVEMENTS

04-20-12

30-1 GENERAL

30-1.01 GENERAL

Section 30 includes specifications for reclaiming the pavement section and constructing a base.

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.) 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 ^a
		13.0	13.0	18.0–23.0 ^a
Voids filled with asphalt (%) No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367	65.0–75.0	65.0–75.0	Note c
		65.0–75.0	65.0–75.0	
		65.0–75.0	65.0–75.0	
		65.0–75.0	65.0–75.0	
Dust proportion No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 367	0.6–1.2	0.6–1.2	Note c
		0.6–1.2	0.6–1.2	
Stabilometer value (min.) ^b No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 366	30	30	--
		37	35	23

^a Voids in mineral aggregate for RHMA-G must be within this range.

^b California Test 304, Part 2C.12.

^c Report this value in the JMF submittal.

Replace item 4 in the list in the 1st paragraph of section 39-1.03C with:

01-20-12

4. JMF renewal on a *Caltrans Job Mix Formula Renewal* form, if applicable

Replace the 2nd paragraph of section 39-1.03E with:

04-20-12

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.

Add between the 3rd and 4th paragraphs of section 39-1.03E:

04-20-12

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:

$$\text{Asphalt Binder Set Point} = \frac{\frac{BC_{OBC}}{\left(1 - \frac{BC_{OBC}}{100}\right)} \cdot R_{RAP} \left\{ \frac{BC_{RAP}}{\left(1 - \frac{BC_{RAP}}{100}\right)} \right\}}{100 + \frac{BC_{OBC}}{\left(1 - \frac{BC_{OBC}}{100}\right)}}$$

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:

04-20-12

4. HMA quality specified in the table titled "HMA Mix Design Requirements" except:
 - 4.1. Air void content, design value ± 2.0 percent
 - 4.2. Voids filled with asphalt, report only
 - 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.

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 ± 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 "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.

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.

Replace the 15th paragraph of section 39-1.11 with:

01-20-12

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.

Replace the 17th paragraph of section 39-1.11 with:

01-20-12

Do not open new HMA pavement to public traffic until its mid-depth temperature is below 160 degrees F.

Replace "3 inches per 0.1-mile section" in the 5th paragraph of section 39-1.12C with:

01-20-12

2.5 inches per 0.1-mile section

Replace "6 inches per 0.1-mile section" in the 6th paragraph of section 39-1.12C with:

01-20-12

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:

04-20-12

6.4

Replace "6.0" in item 3 in the list in the 4th paragraph of section 39-1.14 with:

04-20-12

5.7

Replace "6.8" in the 1st paragraph of section 39-1.15B with:

04-20-12

6.4

Replace "6.0" in the 1st paragraph of section 39-1.15B with:

04-20-12

5.7

Replace the 1st paragraph of section 39-2.02B with:

04-20-12

Perform sampling and testing at the specified frequency for the quality characteristics shown in the following table:

Minimum Quality Control—Standard Construction Process

Quality characteristic	Test method	Minimum sampling and testing frequency	HMA type			
			A	B	RHMA-G	OGFC
Aggregate gradation ^a	California Test 202	1 per 750 tons and any remaining part at the end of the project	JMF ± Tolerance ^b	JMF ± Tolerance ^b	JMF ± Tolerance ^b	JMF ± Tolerance ^b
Sand equivalent (min) ^c	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) ^{d,e}	QC plan	2 per business day (min.)	91–97	91–97	91–97	--
Stabilometer value (min) ^{c,f} No. 4 and 3/8" gradings 1/2" and 3/4" gradings	California Test 366	One per 4,000 tons or 2 per 5 business days, whichever is greater	30	30	--	--
			37	35	23	--
Air void content (%) ^{c,g}	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 ^h	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
			70	20	70	90
Los Angeles Rattler (% max) Loss at 100 rev.	California Test 211		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)	California Test 234		45	45	45	--
Voids filled with asphalt (%) ⁱ 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) ^j 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 ^k 18.0–23.0 ^k	--
Dust proportion ^j 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	--
Smoothness	Section 39-1.12	--	12-foot straight-edge, must grind, and PI ₀	12-foot straight-edge, must grind, and PI ₀	12-foot straight-edge, must grind, and PI ₀	12-foot straight-edge, must grind, and PI ₀
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

^a Determine combined aggregate gradation containing RAP under California Test 367.

^b The tolerances must comply with the allowable tolerances in section 39-1.02E.

^c Report the average of 3 tests from a single split sample.

^d 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.

^e 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.

^f California Test 304, Part 2C.12.

^g Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

^h For adjusting the plant controller at the HMA plant.

ⁱ 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.

^j Report only.

^k Voids in mineral aggregate for RHMA-G must be within this range.

Replace the 1st paragraph of section 39-2.03A with:

04-20-12

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^a	California Test 202	JMF ± tolerance ^c	JMF ± tolerance ^c	JMF ± tolerance ^c	JMF ± tolerance ^c			
Sieve						3/4"	1/2"	3/8"
1/2"						X ^b		
3/8"							X	
No. 4								X
No. 8						X	X	X
No. 200						X	X	X
Sand equivalent (min) ^d	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) ^{e, f}	California Test 375	91–97	91–97	91–97	--			
Stabilometer value (min) ^{d, g}	California Test 366	30	30	--	--			
No. 4 and 3/8" gradings								
1/2" and 3/4" gradings		37	35	23	--			
Air void content (%) ^{d, h}	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	90	25	--	90			
		75	--	90	75			
		70	20	70	90			
Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve.) One fractured face	California Test 211	12	--	12	12			
		45	50	40	40			
Fine aggregate angularity (% min) ⁱ	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 (%) ^j No. 4 grading 3/8" grading 1/2" grading 3/4" grading	California Test 367	65.0–75.0	65.0–75.0	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					
Voids in mineral aggregate (% min) ^j No. 4 grading	California Test 367	17.0	17.0	--	--			

3/8" grading 1/2" grading 3/4" grading		15.0 14.0 13.0	15.0 14.0 13.0	-- 18.0–23.0 ^k 18.0–23.0 ^k	
Dust proportion ^j 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	--
Smoothness	Section 39-1.12	12-foot straight- edge, must grind, and PI ₀	12-foot straight- edge, must grind, and PI ₀	12-foot straight- edge, must grind, and PI ₀	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

^a The Engineer determines combined aggregate gradations containing RAP under California Test 367.

^b "X" denotes the sieves the Engineer tests for the specified aggregate gradation.

^c The tolerances must comply with the allowable tolerances in section 39-1.02E.

^d The Engineer reports the average of 3 tests from a single split sample.

^e 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.

^f 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.

^g California Test 304, Part 2C.12

^h The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

ⁱ 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.

^j Report only.

^k Voids in mineral aggregate for RHMA-G must be within this range.

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:

04-20-12

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 ^a	California Test 202	JMF ± tolerance ^b	JMF ± tolerance ^b	JMF ± tolerance ^b	JMF ± tolerance ^b
Sand equivalent (min) ^c	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) ^{c, d} 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 (%) ^{c, e}	California Test 367	4 ± 2	4 ± 2	TV ± 2	--
Fine aggregate angularity (% min)	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 (%) ^g 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) ^g 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 ^h 18.0–23.0 ^h	--
Dust proportion ^g 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	--
Smoothness	Section 39-1.12	12-foot straight-edge and	12-foot straight-edge and	12-foot straight-edge and	12-foot straight-edge and

		must-grind	must-grind	must-grind	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

^a The Engineer determines combined aggregate gradations containing RAP under California Test 367.

^b The tolerances must comply with the allowable tolerances in section 39-1.02E.

^c The Engineer reports the average of 3 tests from a single split sample.

^d California Test 304, Part 2C.12.

^e The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

^f 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.

^g Report only.

^h Voids in mineral aggregate for RHMA-G must be within this range.

Replace "280 degrees F" in item 2 in the list in the 6th paragraph of section 39-3.04 with:

01-20-12

285 degrees F

Replace the 8th paragraph of section 39-4.02C with:

04-20-12

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 reporting time allowance
			A	B	RHMA-G		
Aggregate gradation ^a	California Test 202	1 per 750 tons	JMF ± tolerance ^b	JMF ± tolerance ^b	JMF ± tolerance ^b	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) ^{c,d}	QC plan		92–96	92–96	91–96	QC plan	
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants ^e	California Test 226 or 370	2 per day during production	--	--	--	Stock-piles or cold feed belts	--
Sand equivalent (min) ^f	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) ^{f,g}	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 (%) ^{f,h}	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
Fine aggregate (% min) (Passing no. 4 sieve and retained on no. 8 sieve.): One fractured face			75	--	90		
Los Angeles Rattler (% max): Loss at 100 rev. Loss at 500 rev.	California Test 211		12	--	12	California Test 125	
Fine aggregate angularity (% min) ⁱ	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 (%) ⁱ : 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.) ^j : 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 ^k 18.0–23.0 ^k		

Dust proportion ^j :	California Test 367						
No. 4 and 3/8" gradings			0.6-1.2	0.6-1.2	Report only		
1/2" and 3/4" gradings			0.6-1.2	0.6-1.2			
Smoothness	Section 39-1.12	--	12-foot straight-edge, must-grind, and PI ₀	12-foot straight-edge, must-grind, and PI ₀	12-foot straight-edge, must-grind, and PI ₀	--	
Asphalt rubber binder viscosity @ 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

^a Determine combined aggregate gradation containing RAP under California Test 367.

^b The tolerances must comply with the allowable tolerances in section 39-1.02E.

^c 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.

^d 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.

^e For adjusting the plant controller at the HMA plant.

^f Report the average of 3 tests from a single split sample.

^g California Test 304, Part 2C, 12.

^h Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

ⁱ 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.

^j Report only.

^k Voids in mineral aggregate for RHMA-G must be within this range.

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:

04-20-12

The Engineer samples for acceptance testing and tests for the following quality characteristics:

HMA Acceptance—QC/QA Construction Process

Index (i)	Quality characteristic				Weighting factor (w)	Test method	HMA type		
							A	B	RHMA-G
		Aggregate gradation ^a				California Test 202	JMF ± Tolerance ^c		
	Sieve	3/4"	1/2"	3/8"					
1	1/2"	X ^b	--	--	0.05				
1	3/8"	--	X	--	0.05				
1	No. 4	--	--	X	0.05				
2	No. 8	X	X	X	0.10				
3	No. 200	X	X	X	0.15				
4	Asphalt binder content (%)				0.30	California Test 379 or 382	JMF±0.40	JMF±0.40	JMF ± 0.40
5	Field compaction (% max. theoretical density) ^{d, e}				0.40	California Test 375	92–96	92–96	91–96
	Sand equivalent (min) ^f					California Test 217	47	42	47
	Stabilometer value (min) ^{f, g} No. 4 and 3/8" gradings 1/2" and 3/4" gradings					California Test 366	30 37	30 35	-- 23
	Air void content (%) ^{f, h}					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
	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) ⁱ					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) ^j 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	(Note k) -- -- 18.0–23.0 18.0–23.0

	Voids filled with asphalt (%) ^j 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 ^j 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
	Smoothness		Section 39-1.12	12-foot straight-edge, must grind, and PI ₀	12-foot straight-edge, must grind, and PI ₀	12-foot straight-edge, must grind, and PI ₀
	Asphalt binder		Various	Section 92	Section 92	Section 92
	Asphalt rubber binder		Various	--	--	Section 92-1.01D(2) and section 39-1.02D
	Asphalt modifier		Various	--	--	Section 39-1.02D
	CRM		Various	--	--	Section 39-1.02D

^a The Engineer determines combined aggregate gradations containing RAP under California Test 367.

^b "X" denotes the sieves the Engineer tests for the specified aggregate gradation.

^c The tolerances must comply with the allowable tolerances in section 39-1.02E.

^d 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 and less than 0.20 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

^e 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.

^f The Engineer reports the average of 3 tests from a single split sample.

^g California Test 304, Part 2C.12.

^h The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

ⁱ 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.

^j Report only.

^k Voids in mineral aggregate for RHMA-G must be within this range.

Replace the 3rd paragraph of section 39-4.04A with:

01-20-12

The Department 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 0.20 and any layer is less than 0.20 foot.

Replace the 2nd and 3rd paragraphs in section 40-1.01D(13)(a) with:

01-20-12

Pavement smoothness may be accepted based on the Department's testing. A single test represents no more than 0.1 mile.

Acceptance of modulus of rupture, thickness, dowel bar and tie bar placement, coefficient of friction, smoothness, and air content, does not constitute final concrete pavement acceptance.

Delete item 4 in the list in the 2nd paragraph in section 40-1.01D(13)(c)(2).

01-20-12

Replace items 1 and 2 in the list in the 2nd paragraph in 40-1.01D(13)(d) with:

01-20-12

1. For tangents and horizontal curves having a centerline radius of curvature 2,000 feet or more, the PI_0 must be at most 2-1/2 inches per 0.1-mile section.
2. For horizontal curves having a centerline radius of curvature from 1,000 to 2,000 feet including concrete pavement within the superelevation transitions of those curves, the PI_0 must be at most 5 inches per 0.1-mile section.

Replace the 1st and 2nd variables in the equation in section 40-1.01D(13)(f) with:

01-20-12

n_c = Number of your quality control tests (minimum of 6 required)
 n_v = Number of verification tests (minimum of 2 required)

Replace "Your approved third party independent testing laboratory" in the 4th paragraph of section 40-1.01D(13)(f) with:

01-20-12

The authorized laboratory

Replace item 2 in the list in the 2nd paragraph of section 40-1.01D(13)(g):

01-20-12

2. One test for every 4,000 square yards of concrete pavement with tie bars or remaining fraction of that area. Each tie bar test consists of 2 cores with 1 on each tie-bar-end to expose both ends and allow measurement.

Replace section 40-1.01D(13)(h) with:

01-20-12

40-1.01D(13)(h) Bar Reinforcement

Bar reinforcement is accepted based on inspection before concrete placement.

Replace the paragraph in section 40-1.02B(2) with:

01-20-12

PCC for concrete pavement must comply with section 90-1 except as otherwise specified.

Replace the paragraphs in section 40-1.02D with:

01-20-12

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

Replace the paragraphs in section 40-1.02E with:

01-20-12

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, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, 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, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.

Fabricate, sample, and handle epoxy-coated tie bars under ASTM D 3963/D 3963M, section 52-2.02C, or section 52-2.03C.

Do not bend tie bars.

Replace the 1st, 2nd, and 3rd paragraphs in section 40-1.02F with:

01-20-12

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, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, 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, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.

Replace the paragraphs in section 40-1.02G with:

01-20-12

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, pickled, and polished 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 52-2.02B or 52-2.03B.

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.

Replace the 1st paragraph in section 40-1.02H with:

01-20-12

Chemical adhesive for drilling and bonding dowels and tie bars must be on the Authorized Material List. The Authorized Material List indicates the appropriate chemical adhesive system for the concrete temperature and installation conditions.

Replace section 40-1.02I(2) with:

01-20-12

40-1.02I(2) Silicone Joint Sealant

Silicone joint sealant must be on the Authorized Material List.

Replace the last sentence in section 40-1.02I(4) with:

01-20-12

Show evidence that the seals are compressed from 30 to 50 percent for the joint width at time of installation.

Replace the paragraph in section 40-1.02L with:

01-20-12

Water for core drilling may be obtained from a potable water source, or submit proof that it does not contain:

1. More than 1,000 parts per million of chlorides as Cl

2. More than 1,300 parts per million of sulfates as SO_4
3. Impurities that cause pavement discoloration or surface etching

Replace the paragraph in section 40-1.03B with:

01-20-12

Before placing concrete pavement, develop enough water supply for the work under section 17.

Replace the last paragraph in section 40-1.03D(1) with:

01-20-12

Removal of grinding residue must comply with section 42-1.03B.

Replace the 1st and 2nd paragraphs in section 40-1.03E(6)(c) with:

01-20-12

Install preformed compressions seals in isolation joints if specified in the special provisions.

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 widenings 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, splicing must comply with the manufacturer's written instructions.

Replace the last 2 paragraphs in section 40-1.03G with:

01-20-12

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.

Replace the 1st paragraph in section 40-1.03I with:

01-20-12

Place tie bars in compliance with the tolerances shown in the following table:

Tie Bar Tolerance

Dimension	Tolerance
Horizontal and vertical skew	10 degrees maximum
Longitudinal translation	± 2 inch maximum
Horizontal offset (embedment)	± 2 inch maximum
Vertical depth	1. Not less than 1/2 inch below the saw cut depth of joints 2. When measured at any point along the bar, not less than 2 inches clear of the pavement's surface and bottom

Replace item 4 in the list in the 2nd paragraph in section 40-1.03I with:

01-20-12

4. Use 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.

Replace "The maximum distance below the depth shown must be 0.05 foot." in the table in section 40-1.03J with:

01-20-12

The maximum distance below the depth shown must be 5/8 inch.

Replace sections 40-1.03L and 40-1.03M with:

01-20-12

40-1.03L Finishing

40-1.03L(1) General

Reserved

40-1.03L(2) Preliminary Finishing

40-1.03L(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 ± 5 feet from the transverse construction joint formed at each day's start of paving and 1 ± 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 more water to the pavement surface than can evaporate before float finishing and texturing are completed.

40-1.03L(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 40-1.03P. 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.

40-1.03L(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.

40-1.03L(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 ravels.

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 under section 40-1.03L(2) using the hand method. Hand-constructed grooves must comply with the specifications for machine-constructed grooves.

Initial and final texturing must produce a coefficient of friction of at least 0.30 when tested under California Test 342. Notify the Engineer when the pavement is scheduled to be opened to traffic to allow at least 25 days for the Department to schedule testing for coefficient of friction. 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 550 psi

The Department tests for coefficient of friction within 7 days of receiving notification that the pavement is ready for testing.

Do not open the pavement to traffic unless the coefficient of friction is at least 0.30.

40-1.03M Reserved

Replace the 4th paragraph of 40-1.03P with:

01-20-12

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.

published version of *ADSC Standard Mitigation Plan 'B' - Grouting Repair* without exception or modification.

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:

01-20-12

Grout used to backfill casings must comply with section 50-1.02C, except:

1. Grout must consist of cementitious material and water, and may contain an admixture if authorized. Cementitious material must comply with section 90-1.02B, except SCMs are not required. The minimum cementitious material content of the grout must not be less than 845 lb/cu yd of grout.
2. Aggregate must be used to extend the grout as follows:
 - 2.1. Aggregate must consist of at least 70 percent fine aggregate and approximately 30 percent pea gravel, by weight.
 - 2.2. Fine aggregate must comply with section 90-1.02C(3).
 - 2.3. Size of pea gravel must be such that 100 percent passes the 1/2-inch sieve, at least 90 percent passes the 3/8-inch sieve, and not more than 5 percent passes the no. 8 sieve.
3. California Test 541 is not required.
4. Grout is not required to pass through a sieve with a 0.07-inch maximum clear opening before being introduced into the grout pump.

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 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.

AA

50 PRESTRESSING CONCRETE

04-20-12

Replace "diameter" in item 9 in the list in the 1st paragraph of section 50-1.02D with:

04-20-12

cross-sectional area

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.

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.

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.

AA

51 CONCRETE STRUCTURES

04-20-12

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*.

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.

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.

For bridge widenings, texture the deck surface longitudinally by longitudinal tining. Grinding and grooving is not allowed.

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.

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 the 2nd paragraph of section 51-2.02E(1)(e) with:

08-05-11

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.

04-20-12

Delete the 2nd paragraph of section 51-4.01A.

Replace the 3rd paragraph of section 51-4.01C(2) with:

04-20-12

For segmental or spliced-girder construction, shop drawings must include the following additional information:

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 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.

AA

86 ELECTRICAL SYSTEMS

01-20-12

Replace section 86-2.06 with:

01-20-12

86-2.06 PULL BOXES

86-2.06A General

86-2.06A(1) Cover Marking

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-Rated Pull Boxes

Reserved

86-2.06C Traffic Pull Boxes

Traffic pull box and cover must comply with ASTM C857, "Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures," for HS20-44 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.

AA

88 GEOSYNTHETICS

01-20-12

Replace the row for hydraulic bursting strength in the table in the 2nd paragraph of section 88-1.02B with:

01-20-12

Puncture strength, lb min	ASTM D 6241	600
------------------------------	----------------	-----

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 ⁻¹ 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 ⁻¹ 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

AA

DIVISION X MATERIALS
90 CONCRETE

08-05-11

Replace the 3rd paragraph of section 90-1.01C(7) with:

08-05-11

Submit weighmaster certificates in printed form or, if authorized, in electronic media. Present electronic media in a tab-delimited format on a CD or DVD. Captured data for the ingredients represented by each batch must be line feed carriage return and one line separate record with sufficient fields for the specified data.

Replace the 3rd paragraph of section 90-3.01C(5) with:

08-05-11

Production data must be input by hand into a pre-printed form or captured and printed by the proportioning device. Present electronic media containing recorded production data in a tab-delimited format on a CD or DVD. Each capture of production data must be followed by a line feed carriage return with sufficient fields for the specified data.

AA

92 ASPHALTS

01-20-12

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

APPENDIX

1. PERMITS

- 1) Encroachment Permit

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
ENCROACHMENT PERMIT
 TR-0120 (REV. 2/98)

Permit No. 1012 - NMC - 0508	
Dist/Co/Rte/PM 10-STA-99-22.0/23.0 10-STA-219-0.00/0.50	
Date September 4, 2012	
Fee Paid \$ Exempt	Deposit \$
Performance Bond Amount (1) \$	Payment Bond Amount (2) \$
Bond Company	
Bond Number (1)	Bond Number (2)

In compliance with (Check one):

- Your application of 08/28/2012
- Utility Notice No. _____ of _____
- Agreement No. _____ of _____
- R/W Contract No. _____ of _____

EA # 10-0L3301

TO: _____
 Stanislaus County Department of Public Works
 1716 Morgan Road
 Modesto, CA 95358

Attn : Chris Brady
 TEL : (209) 525-4130

, PERMITTEE

and subject to the following, PERMISSION IS HEREBY GRANTED to:

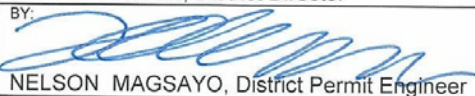
Replace/reconstruct the existing compact diamond interchange of State Highway 99/219 with wider bridge and approaches to SR 219 from Salida Boulevard and Sisk Road will be widened. Auxilliary lanes will be added for both northbound and southbound between Kiernan and Pelandale. All traffic signals at the ramps will be replaced. All work shall be done in accordance with the approved plans and and as agreed in the Cooperative Agreement.

In accordance with General Provision No. 6, **SEVEN WORKING DAYS PRIOR** to the

<p>The following attachments are also included as part of this permit (Check applicable):</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No General Provisions</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Utility Maintenance Provisions</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Special Provisions T</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No A Cal-OSHA permit required prior to beginning work;</p> <p># _____</p>	<p>In addition to fee, the permittee will be billed actual costs for:</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Review</p> <p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Inspection</p> <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Field Work</p> <p>(If any Caltrans effort expended)</p>
<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No The information in the environmental documentation has been reviewed and is considered prior to approval of this permit.</p>	

This permit expires on June 30, 2016.

This permit is to be strictly construed and no other work other than specifically mentioned is hereby authorized.
 No project work shall be commenced until all other necessary permits and environmental clearances have been obtained.

1 - Permittee 1 - R. Afzal 1 - Maintenance 1 - PIO 1 - C. Hibbard 1 - File Pete	1 - Renee Sutti APPROVED: CARRIE BOWEN, District Director BY:  NELSON MAGSAYO, District Permit Engineer
---	---

9/4/2012

FM 91 1436

start of this work, Permittee shall notify the State Representative **Renee Sutti**, at (209) 607-8741, 952 Goodwin Drive, Ripon, CA 95366. All work under this permit must meet with the approval of the State Representative.

Failure on the Permittee's part to comply with any provision will be cause for revocation of this permit.

IMMEDIATELY FOLLOWING COMPLETION OF WORK PERMITTED HEREIN, PERMITTEE SHALL FILL OUT AND MAIL NOTICE OF COMPLETION PROVIDED BY GRANTOR.

Permittee's attention is directed to Section 6, "CONTROL OF MATERIALS", of the State Standard Specifications Reference to Engineer in the State Standard Specifications shall include State Representative.

Permittee is directed to Standard Specification section 7-1.11 Preservation of Property, and Business and Professions Code, Section 8771. Permittee shall physically inspect the work site and locate survey monuments prior to work commencement. Monuments shall be referenced or reset in accordance with Business and Professions Code.

A **pre-job conference** with the Permittee, Contractor, and State Representative may be required prior to start of work. Permittee shall contact the State Representative and arrange the meeting. This meeting may be waived at the discretion of the State Representative.

Notwithstanding General Provision #4, your contractor is required to apply for and obtain an encroachment permit prior to start of work.

Permittee shall, prior to commencement of any work, provide the State Representative with the **name and phone number** of the **person in responsible charge** of the work to be performed under this permit.

Permittee/contractor shall work with the State representative to request the necessary lane closure needed. Request shall be the week prior to the actual work. The State representative shall submit closure through the Lane Closure System (LCS) for Traffic Management Center (TMC) approval by Wednesday afternoon of the week prior.

All Lane closures shall be called in by either the contractor to the TMC when the closure begins (10-97), ends (10-98), or is cancelled (10-22). The TMC can be reached (24-7) at (209) 948-7556 or 7551.

Use proper traffic control devices throughout the duration of the project as per Caltrans Standard Specifications.

All night-time work requires COZEEP and shall be coordinated with the permittee or contractor. The State representative shall advise permittee that COZEEP must be present since night-time work is only allowed per lane chart.

Before commencing work, permittee must obtain written concurrence from the State Highway Resident Engineer on the scheduling of the proposed work.

This permit is not valid until permittee has obtained permission from adjacent property owners, Irrigation Districts, Cities, Counties or other interested parties to perform the proposed work.

Except when necessary, as determined by the State Representative, no installation, construction equipment or personal vehicles shall operate or park within the traveled way.

All work shall be conducted in such a manner that the excavation, excavated earth, materials and equipment will not cause any inconvenience to the highway traffic or to traffic entering the highway from any public or private approach.

No earth or construction materials are to be dragged or scraped across the highway pavement. No excavated earth shall be placed or allowed to remain at a location where it can be tracked onto the highway traveled way or any public or private approach by the Permittee's construction equipment, or by traffic entering or leaving the highway traveled way. Any excavated earth or mud so tracked onto the highway pavement or public or private approach shall be immediately removed by the Permittee.

The initial turn-on of the signal light shall be made between 9:00 a.m. and 2:00 p.m., and functional tests shall start on Tuesday, Wednesday, or Thursday only. No work will be allowed on any of the days if preceded by a legal holiday. The State Representative shall be notified a minimum of 48 hours prior to the initial turn-on.

Traffic stripes and pavement markings shall be removed by any method that does not materially damage the existing pavement. Pavement marking images shall be removed in such a manner that the old message cannot be identified. Where grinding is used, the pavement marking image shall be removed by grinding a rectangular area. The minimum dimensions of the rectangular shall be the height and width of the pavement marking. Residue resulting from removal operations shall be removed from pavement surfaces by sweeping or vacuuming before the residue is blown by the action of traffic or wind, migrates across lanes or shoulders or enters into drainage facilities.

All K-rail installations need to be consistent with 1994 Caltrans Memorandum regarding temporary railing (Type K). K-rail runs of less than 100' on tangent will need to be anchored to the pavement. Both blunt ends of K-rail may need to be shielded if they are within the clear recovery zone of either approaching travelled way.

The State of California, Department of Transportation makes no assurance or expressed warranty that the plans are completed or that the planned construction fits field conditions. Should additional work or modifications of the work be required in order to meet established Department Standards or in order to fit field conditions, the work shall be performed by Permittee as directed by the State's Inspector.

In accordance with General Provision No. 22, **AS-BUILT PLANS** shall be provided upon completion of construction of the authorized work.

Permittee shall fully conform to the requirements of the Caltrans statewide **NPDES Storm Water Permit, Order No. 99-06-DWQ, NPDES No. CAS000003, adopted by the State Water Resources Control Board on July 15, 1999.** The Permittee shall

also conform to the requirements of the General NPDES Permit for construction Activities and any subsequent General Permit in effect at the time of issuance of this Encroachment Permit. These permits regulate storm water discharges associated with year-round construction or special event encroachment activities.

For all projects of 1 acre or more the Permittee shall develop, implement, and maintain a **Storm Water Pollution Prevention Plan (SWPPP)** and for projects less than 1 acre a **Water Pollution Control Program (WPCP)**. Either the Plan or Program shall also conform to the requirements of the Caltrans Storm Water Quality Handbook, Construction Contractor's Guide and Specifications and Caltrans Specification Section 7-1-.01G and subsequent revisions.

No lane closures, shoulder closures or other traffic restrictions shall be allowed on the following day(s): January 1 – New Years Day, Martin Luther King Jr. Day, Washington's Birthday, Cesar Chavez Day, Memorial Day, July 4 – Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Friday Day after Thanksgiving, December 25 - Christmas Day. When a holiday falls on a Sunday, it is observed on the following Monday.

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION
ENCROACHMENT PERMIT GENERAL PROVISIONS
TR-0045 (REV. 05/2007)

1. **AUTHORITY:** The Department's authority to issue encroachment permits is provided under, Div. 1, Chpt. 3, Art. 1, Sect. 660 to 734 of the Streets and Highways Code.
2. **REVOCAION:** Encroachment permits are revocable on five days notice unless otherwise stated on the permit and except as provided by law for public corporations, franchise holders, and utilities. These General Provisions and the Encroachment Permit Utility Provisions are subject to modification or abrogation at any time. Permittees' joint use agreements, franchise rights, reserved rights or any other agreements for operating purposes in State highway right of way are exceptions to this revocation.
3. **DENIAL FOR NONPAYMENT OF FEES:** Failure to pay permit fees when due can result in rejection of future applications and denial of permits.
4. **ASSIGNMENT:** No party other than the permittee or permittee's authorized agent is allowed to work under this permit.
5. **ACCEPTANCE OF PROVISIONS:** Permittee understands and agrees to accept these General Provisions and all attachments to this permit, for any work to be performed under this permit.
6. **BEGINNING OF WORK:** When traffic is not impacted (see Number 35), the permittee shall notify the Department's representative, two (2) days before the intent to start permitted work. Permittee shall notify the Department's Representative if the work is to be interrupted for a period of five (5) days or more, unless otherwise agreed upon. All work shall be performed on weekdays during regular work hours, excluding holidays, unless otherwise specified in this permit.
7. **STANDARDS OF CONSTRUCTION:** All work performed within highway right of way shall conform to recognized construction standards and current Department Standard Specifications, Department Standard Plans High and Low Risk Facility Specifications, and Utility Special Provisions. Where reference is made to "Contractor and Engineer," these are amended to be read as "Permittee and Department representative."
8. **PLAN CHANGES:** Changes to plans, specifications, and permit provisions are not allowed without prior approval from the State representative.
9. **INSPECTION AND APPROVAL:** All work is subject to monitoring and inspection. Upon completion of work, permittee shall request a final inspection for acceptance and approval by the Department. The local agency permittee shall not give final construction approval to its contractor until final acceptance and approval by the Department is obtained.
10. **PERMIT AT WORKSITE:** Permittee shall keep the permit package or a copy thereof, at the work site and show it upon request to any Department representative or law enforcement officer. If the permit package is not kept and made available at the work site, the work shall be suspended.
11. **CONFLICTING ENCROACHMENTS:** Permittee shall yield start of work to ongoing, prior authorized, work adjacent to or within the limits of the project site. When existing encroachments conflict with new work, the permittee shall bear all cost for rearrangements, (e.g., relocation, alteration, removal, etc.).
12. **PERMITS FROM OTHER AGENCIES:** This permit is invalidated if the permittee has not obtained all permits necessary and required by law, from the Public Utilities Commission of the State of California (PUC), California Occupational Safety and Health Administration (Cal-OSHA), or any other public agency having jurisdiction.
13. **PEDESTRIAN AND BICYCLIST SAFETY:** A safe minimum passageway of 4' shall be maintained through the work area at existing pedestrian or bicycle facilities. At no time shall pedestrians be diverted onto a portion of the street used for vehicular traffic. At locations where safe alternate passageways cannot be provided, appropriate signs and barricades shall be installed at the limits of construction and in advance of the limits of construction at the nearest crosswalk or intersection to detour pedestrians to facilities across the street. Attention is directed to Section 7-1.09 Public Safety of the Department Standard Specifications.
14. **PUBLIC TRAFFIC CONTROL:** As required by law, the permittee shall provide traffic control protection warning signs, lights, safety devices, etc., and take all other measures necessary for traveling public's safety. While providing traffic control, the needs and control of all road users [motorists, bicyclists and pedestrians, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA)] shall be an essential part of the work activity.

Day and night time lane closures shall comply with the California Manual on Uniform Traffic Control Devices (Part 6, Temporary Traffic Control), Standard Plans, and Standard Specifications for traffic control systems. These General Provisions are not intended to impose upon the permittee, by third parties, any duty or standard of care, greater than or different from, as required by law.
15. **MINIMUM INTERFERENCE WITH TRAFFIC:** Permittee shall plan and conduct work so as to create the least possible inconvenience to the traveling public; traffic shall not be unreasonably delayed. On conventional highways, permittee shall place properly attired flagger(s) to stop or warn the traveling public in compliance with the California Manual on Uniform Traffic Control Devices (Chapter 6E, Flagger Control).
16. **STORAGE OF EQUIPMENT AND MATERIALS:** The storage of equipment or materials is not allowed within State highway right-of-way, unless specified within the Special Provisions of this specific encroachment permit. If Encroachment Permit Special Provisions allow for the storage of equipment or materials within the State right of way, the equipment and material storage shall comply with Standard Specifications, Standard Plans, Special Provisions, and the Highway Design Manual. The clear recovery zone widths must be followed and are the minimum desirable for the type of facility indicated below: freeways and expressways - 30', conventional highways (no curbs) - 20', conventional highways (with curbs) - 1.5'. If a fixed object cannot be eliminated, moved outside the clear recovery zone, or modified to be made yielding, it should be shielded by a guardrail or a crash cushion.
17. **CARE OF DRAINAGE:** Permittee shall provide alternate drainage for any work interfering with an existing drainage facility in compliance with the Standard Specifications, Standard Plans and/or as directed by the Department's representative.
18. **RESTORATION AND REPAIRS IN RIGHT OF WAY:** Permittee is responsible for restoration and repair of State highway right of way resulting from permitted work (State Streets and Highways Code, Sections 670 et. seq.).

19. **RIGHT OF WAY CLEAN UP:** Upon completion of work, permittee shall remove and dispose of all scraps, brush, timber, materials, etc. off the right of way. The aesthetics of the highway shall be as it was before work started.
20. **COST OF WORK:** Unless stated in the permit, or a separate written agreement, the permittee shall bear all costs incurred for work within the State right of way and waives all claims for indemnification or contribution from the State.
21. **ACTUAL COST BILLING:** When specified in the permit, the Department will bill the permittee actual costs at the currently set hourly rate for encroachment permits.
22. **AS-BUILT PLANS:** When required, permittee shall submit one (1) set of folded as-built plans within thirty (30) days after completion and approval of work in compliance with requirements listed as follows:
1. Upon completion of the work provided herein, the permittee shall send one vellum or paper set of As-Built plans, to the State representative. Mylar or paper sepia plans are not acceptable.
 2. All changes in the work will be shown on the plans, as issued with the permit, including changes approved by Encroachment Permit Rider.
 3. The plans are to be stamped or otherwise noted AS-BUILT by the permittee's representative who was responsible for overseeing the work. Any original plan that was approved with a State stamp, or Caltrans representative signature, shall be used for producing the As-Built plans.
 4. If As-Built plans include signing or striping, the dates of signing or striping removal, relocation, or installation shall be shown on the plans when required as a condition of the permit. When the construction plans show signing and striping for staged construction on separate sheets, the sheet for each stage shall show the removal, relocation or installation dates of the appropriate staged striping and signing.
 5. As-Built plans shall contain the Permit Number, County, Route, and Post Mile on each sheet.
 6. Disclaimer statement of any kind that differ from the obligations and protections provided by Sections 6735 through 6735.6 of the California Business and Professions Code, shall not be included on the As-Built plans. Such statements constitute non-compliance with Encroachment Permit requirements, and may result in the Department of Transportation retaining Performance Bonds or deposits until proper plans are submitted. Failure to comply may also result in denial of future permits, or a provision requiring a public agency to supply additional bonding.
23. **PERMITS FOR RECORD PURPOSES ONLY:** When work in the right of way is within an area under a Joint Use Agreement (JUA) or a Consent to Common Use Agreement (CCUA), a fee exempt permit is issued to the permittee for the purpose of providing a notice and record of work. The Permittee's prior rights shall be preserved without the intention of creating new or different rights or obligations. "Notice and Record Purposes Only" shall be stamped across the face of the permit.
24. **BONDING:** The permittee shall file bond(s), in advance, in the amount set by the Department. Failure to maintain bond(s) in full force and effect will result in the Department stopping of all work and revoking permit(s). Bonds are not required of public corporations or privately owned utilities, unless permittee failed to comply with the provision and conditions under a prior permit. The surety company is responsible for any latent defects as provided in California Code of Civil Procedures, Section 337.15. Local agency permittee shall comply with requirements established as follows: In recognition that project construction work done on State property will not be directly funded and paid by State, for the purpose of protecting stop notice claimants and the interests of State relative to successful project completion, the local agency permittee agrees to require the construction contractor furnish both a payment and performance bond in the local agency's name with both bonds complying with the requirements set forth in Section 3-1.02 of State's current Standard Specifications before performing any project construction work. The local agency permittee shall defend, indemnify, and hold harmless the State, its officers and employees from all project construction related claims by contractors and all stop notice or mechanic's lien claimants. The local agency also agrees to remedy, in a timely manner and to State's satisfaction, any latent defects occurring as a result of the project construction work.
25. **FUTURE MOVING OF INSTALLATIONS:** Permittee understands and agrees to relocate a permitted installation upon notice by the Department. Unless under prior property right or agreement, the permittee shall comply with said notice at his sole expense.
26. **ARCHAEOLOGICAL/HISTORICAL:** If any archaeological or historical resources are revealed in the work vicinity, the permittee shall immediately stop work, notify the Department's representative, retain a qualified archaeologist who shall evaluate the site, and make recommendations to the Department representative regarding the continuance of work.
27. **PREVAILING WAGES:** Work performed by or under a permit may require permittee's contractors and subcontractors to pay appropriate prevailing wages as set by the Department of Industrial Relations. Inquiries or requests for interpretations relative to enforcement of prevailing wage requirements are directed to State of California Department of Industrial Relations, 525 Golden Gate Avenue, San Francisco, California 94102.
28. **RESPONSIBILITY FOR DAMAGE:** The State of California and all officers and employees thereof, including but not limited to the Director of Transportation and the Deputy Director, shall not be answerable or accountable in any manner for injury to or death of any person, including but not limited to the permittee, persons employed by the permittee, persons acting in behalf of the permittee, or for damage to property from any cause. The permittee shall be responsible for any liability imposed by law and for injuries to or death of any person, including but not limited to the permittee, persons employed by the permittee, persons acting in behalf of the permittee, or for damage to property arising out of work, or other activity permitted and done by the permittee under a permit, or arising out of the failure on the permittee's part to perform his obligations under any permit in respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work, or other activity or at any subsequent time, work or other activity is being performed under the obligations provided by and contemplated by the permit.
- The permittee shall indemnify and save harmless the State of California, all officers, employees, and State's contractors, thereof, including but not limited to the Director of Transportation and the Deputy Director, from all claims, suits or actions of every name, kind and description brought for or on account of injuries to or death of any person, including but not limited to the permittee, persons employed by the permittee, persons acting in behalf of the permittee and the public, or damage to property resulting from the performance of work or other activity under the permit, or arising out of the failure on the permittee's part to perform his obligations under any permit in respect to maintenance or any other obligations, or resulting from defects or obstructions, or from any cause whatsoever during the progress of the work, or other activity or at any subsequent time, work or other activity is being performed under the obligations provided by and contemplated by the permit, except as otherwise provided by statute.

The duty of the permittee to indemnify and save harmless includes the duties to defend as set forth in Section 2778 of the Civil Code. The permittee waives any and all rights to any type of expressed or implied indemnity against the State, its officers, employees, and State contractors. It is the intent of the parties that the permittee will indemnify and hold harmless the State, its officers, employees, and State's contractors, from any and all claims, suits or actions as set forth above regardless of the existence or degree of fault or negligence, whether active or passive, primary or secondary, on the part of the State, the permittee, persons employed by the permittee, or acting on behalf of the permittee.

For the purpose of this section, "State's contractors" shall include contractors and their subcontractors under contract to the State of California performing work within the limits of this permit.

29. **NO PRECEDENT ESTABLISHED:** This permit is issued with the understanding that it does not establish a precedent.
30. **FEDERAL CIVIL RIGHTS REQUIREMENTS FOR PUBLIC ACCOMMODATION:**
A. The permittee, for himself, his personal representative, successors in interest, and assigns as part of the consideration hereof, does hereby covenant and agree that:
1. No person on the grounds of race, color, or national origin shall be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.
2. That in connection with the construction of any improvements on said lands and the furnishings of services thereon, no discrimination shall be practiced in the selection and retention of first-tier subcontractors in the selection of second-tier subcontractors.
3. That such discrimination shall not be practiced against the public in their access to and use of the facilities and services provided for public accommodations (such as eating, sleeping, rest, recreation), and operation on, over, or under the space of the right of way.
4. That the permittee shall use the premises in compliance with all other requirements imposed pursuant to Title 15, Code of Federal Regulations, Commerce and Foreign Trade, Subtitle A. Office of the Secretary of Commerce, Part 8 (15 C.F.R. Part 8) and as said Regulations may be amended.
5. That in the event of breach of any of the above nondiscrimination covenants, the State shall have the right to terminate the permit and to re-enter and repossess said land and the land and the facilities thereon, and hold the same as if said permit had never been made or issued.
31. **MAINTENANCE OF HIGHWAYS:** The permittee agrees, by acceptance of a permit, to properly maintain any encroachment. This assurance requires the permittee to provide inspection and repair any damage, at permittee's expense, to State facilities resulting from the encroachment.
32. **SPECIAL EVENTS:** In accordance with subdivision (a) of Streets and Highways Code Section 682.5, the Department of Transportation shall not be responsible for the conduct or operation of the permitted activity, and the applicant agrees to defend, indemnify, and hold harmless the State and the city or county against any and all claims arising out of any activity for which the permit is issued.

Permittee understands and agrees that it will comply with the obligations of Titles II and III of the Americans with Disabilities Act of 1990 in the conduct of the event, and further agrees to indemnify and save harmless the State of California, all officers and employees thereof, including but not limited to the Director of Transportation, from any claims or liability arising out of or by virtue of said Act.

33. **PRIVATE USE OF RIGHT OF WAY:** Highway right of way shall not be used for private purposes without compensation to the State.

The gifting of public property use and therefore public funds is prohibited under the California Constitution, Article 16.

34. **FIELD WORK REIMBURSEMENT:** Permittee shall reimburse State for field work performed on permittee's behalf to correct or remedy hazards or damaged facilities, or clear debris not attended to by the permittee.
35. **NOTIFICATION OF DEPARTMENT AND TMC:** The permittee shall notify the Department's representative and the Transportation Management Center (TMC) at least 7 days before initiating a lane closure or conducting an activity that may cause a traffic impact. A confirmation notification should occur 3 days before closure or other potential traffic impacts. In emergency situations when the corrective work or the emergency itself may affect traffic, TMC and the Department's representative shall be notified as soon as possible.
36. **SUSPENSION OF TRAFFIC CONTROL OPERATION:** The permittee, upon notification by the Department's representative, shall immediately suspend all lane closure operations and any operation that impedes the flow of traffic. All costs associated with this suspension shall be borne by the permittee.
37. **UNDERGROUND SERVICE ALERT (USA) NOTIFICATION:** Any excavation requires compliance with the provisions of Government Code Section 4216 et. seq., including, but not limited to notice to a regional notification center, such as Underground Service Alert (USA). The permittee shall provide notification at least 48 hours before performing any excavation work within the right of way.

NOTES: 1. California code are designated by (CA). Otherwise, Federal (UNITED) codes are shown.

2. Only one road work sign, or sign, or sign, shall be placed in any one area within a larger project's limits.

3. Unless otherwise specified in the special provisions, a minimum of 3 cones shall be placed transversely across each closed lane and every 2000 ft shown on the Lane Closure Detail. The placement of the cones or other devices to form the transverse alignment of the cones or other devices to provide access to the work, shifted from the transverse alignment to provide access to the work.

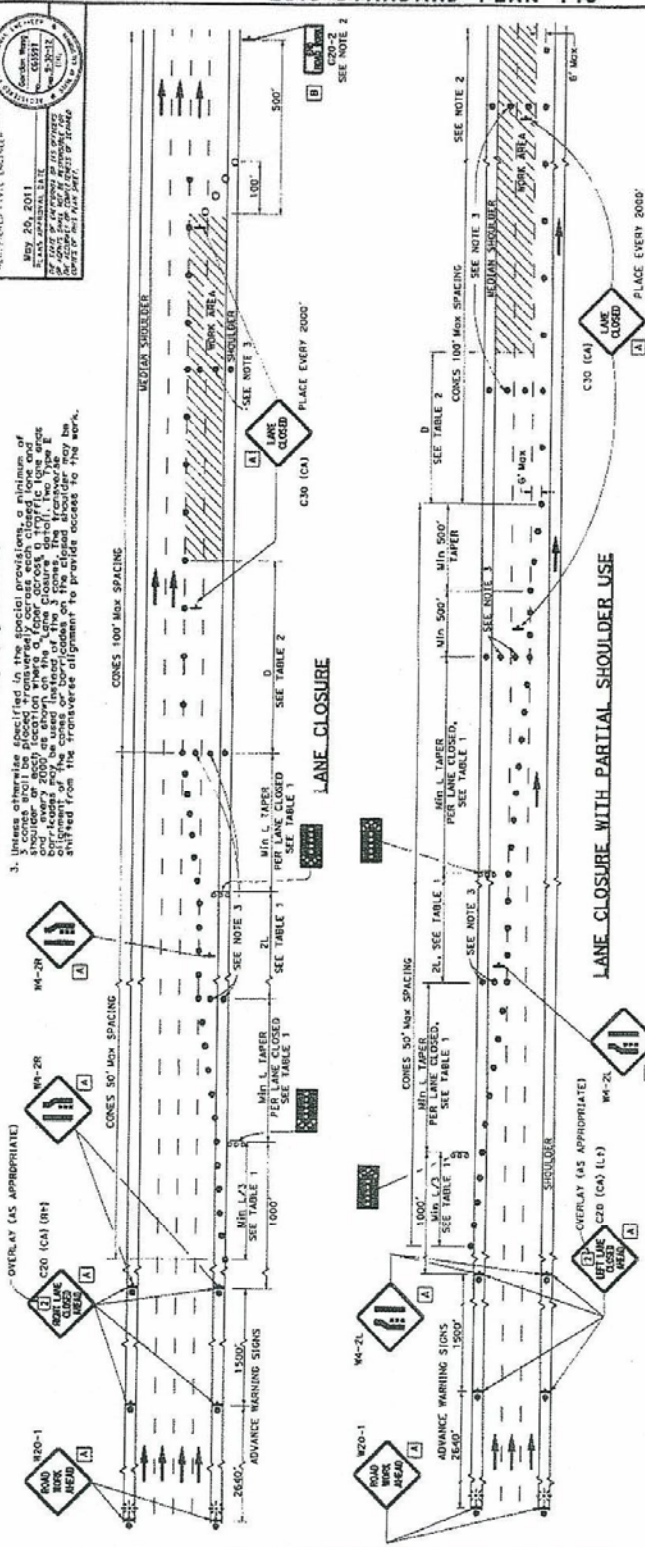


TABLE 2

APPROACH SPEED	MIN	D	MIN	DOWNGRADE	MIN D *
55	75	75	75	4%	75
60	80	80	80	5%	80
65	85	85	85	6%	85
70	90	90	90	7%	90
75	95	95	95	8%	95
80	100	100	100	9%	100
85	105	105	105	10%	105
90	110	110	110	11%	110
95	115	115	115	12%	115
100	120	120	120	13%	120

* USE L FOR LANE WIDTHS LESS THAN OR EQUAL TO 12'.
 PERCENT AND LONGER THAN 1, WILL.

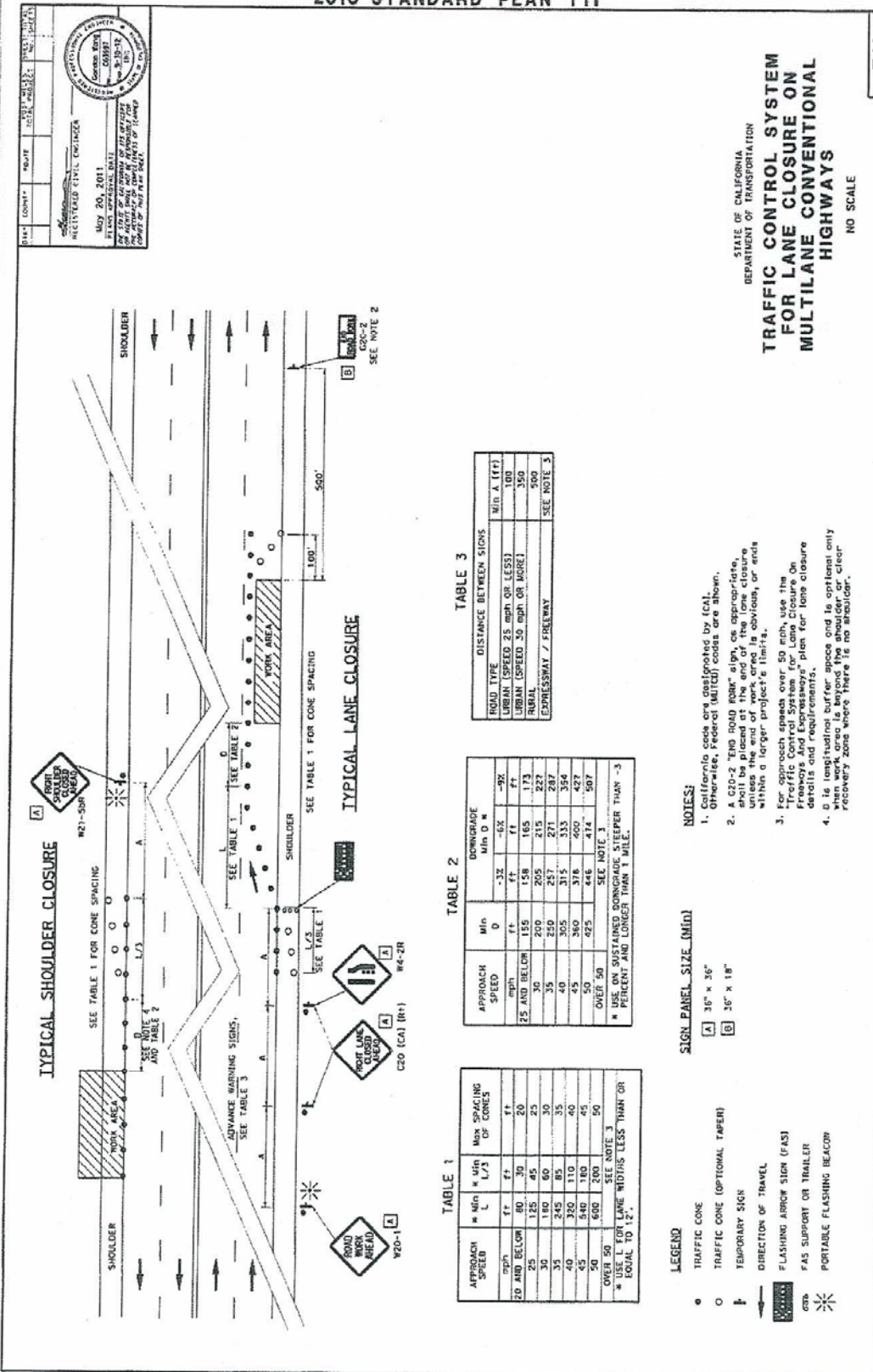
TABLE 1

APPROACH SPEED	MIN	L	ZL	L/2	L/3	MIN
55	75	75	75	75	75	75
60	80	80	80	80	80	80
65	85	85	85	85	85	85
70	90	90	90	90	90	90
75	95	95	95	95	95	95
80	100	100	100	100	100	100
85	105	105	105	105	105	105
90	110	110	110	110	110	110
95	115	115	115	115	115	115
100	120	120	120	120	120	120

* USE L FOR LANE WIDTHS LESS THAN OR EQUAL TO 12'.

- LEGEND
- TRAFFIC CONE
 - TRAFFIC CONE (OPTIONAL TAPER)
 - ↑ TEMPORARY SIGN
 - ▲ FLASHING ARROW SIGN (FAS)
 - ▲ FAS SUPPORT OR TRAILER
 - DIRECTION OF TRAVEL
 - ☼ PORTABLE FLASHING BEACON
 - SIGN PANEL SIZE (MID)

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**TRAFFIC CONTROL SYSTEM
 FOR LANE CLOSURE ON
 FREEWAYS AND EXPRESSWAYS**
 NO SCALE
T10



COUNTY: _____ PROJECT: _____ CONTRACT NO.: _____

REGISTERED CIVIL ENGINEER

MAY 20, 2011

EXPIRES: _____

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS

NO SCALE

TABLE 3

DISTANCE BETWEEN SIGNS

ROAD TYPE	MIN. A. (FT)
URBAN (SPEED 25 mph OR LESS)	100
URBAN (SPEED 30 mph OR MORE)	350
RURAL	500
EXPRESSWAY / FREEWAY	SEE NOTE 5

TABLE 2

APPROACH SPEED

APPROACH SPEED	MIN	DOWNGRADE
0	0	-3%
15	15	-4%
20	20	-5%
25	25	-6%
30	30	-7%
35	35	-8%
40	40	-9%
45	45	-10%
50	50	-11%
55	55	-12%
60	60	-13%
65	65	-14%
70	70	-15%
75	75	-16%
80	80	-17%
85	85	-18%
90	90	-19%
95	95	-20%
100	100	-21%
OVER 50	SEE NOTE 3	

* USE ON SUSTAINED DOWNGRADE STEEPER THAN -3 PERCENT AND LONGER THAN 1 MILE.

TABLE 1

TRAFFIC CONE SPACING

APPROACH SPEED	MIN. C	MIN. L	MIN. U	MIN. W	MIN. X	MIN. Y	MIN. Z	MIN. AA	MIN. AB	MIN. AC	MIN. AD	MIN. AE	MIN. AF	MIN. AG	MIN. AH	MIN. AI	MIN. AJ	MIN. AK	MIN. AL	MIN. AM	MIN. AN	MIN. AO	MIN. AP	MIN. AQ	MIN. AR	MIN. AS	MIN. AT	MIN. AU	MIN. AV	MIN. AW	MIN. AX	MIN. AY	MIN. AZ	MIN. BA	MIN. BB	MIN. BC	MIN. BD	MIN. BE	MIN. BF	MIN. BG	MIN. BH	MIN. BI	MIN. BJ	MIN. BK	MIN. BL	MIN. BM	MIN. BN	MIN. BO	MIN. BP	MIN. BQ	MIN. BR	MIN. BS	MIN. BT	MIN. BU	MIN. BV	MIN. BW	MIN. BX	MIN. BY	MIN. BZ	MIN. CA	MIN. CB	MIN. CC	MIN. CD	MIN. CE	MIN. CF	MIN. CG	MIN. CH	MIN. CI	MIN. CJ	MIN. CK	MIN. CL	MIN. CM	MIN. CN	MIN. CO	MIN. CP	MIN. CQ	MIN. CR	MIN. CS	MIN. CT	MIN. CU	MIN. CV	MIN. CW	MIN. CX	MIN. CY	MIN. CZ	MIN. DA	MIN. DB	MIN. DC	MIN. DD	MIN. DE	MIN. DF	MIN. DG	MIN. DH	MIN. DI	MIN. DJ	MIN. DK	MIN. DL	MIN. DM	MIN. DN	MIN. DO	MIN. DP	MIN. DQ	MIN. DR	MIN. DS	MIN. DT	MIN. DU	MIN. DV	MIN. DW	MIN. DX	MIN. DY	MIN. DZ	MIN. EA	MIN. EB	MIN. EC	MIN. ED	MIN. EE	MIN. EF	MIN. EG	MIN. EH	MIN. EI	MIN. EJ	MIN. EK	MIN. EL	MIN. EM	MIN. EN	MIN. EO	MIN. EP	MIN. EQ	MIN. ER	MIN. ES	MIN. ET	MIN. EU	MIN. EV	MIN. EW	MIN. EX	MIN. EY	MIN. EZ	MIN. FA	MIN. FB	MIN. FC	MIN. FD	MIN. FE	MIN. FF	MIN. FG	MIN. FH	MIN. FI	MIN. FJ	MIN. FK	MIN. FL	MIN. FM	MIN. FN	MIN. FO	MIN. FP	MIN. FQ	MIN. FR	MIN. FS	MIN. FT	MIN. FU	MIN. FV	MIN. FW	MIN. FX	MIN. FY	MIN. FZ	MIN. GA	MIN. GB	MIN. GC	MIN. GD	MIN. GE	MIN. GF	MIN. GG	MIN. GH	MIN. GI	MIN. GJ	MIN. GK	MIN. GL	MIN. GM	MIN. GN	MIN. GO	MIN. GP	MIN. GQ	MIN. GR	MIN. GS	MIN. GT	MIN. GU	MIN. GV	MIN. GW	MIN. GX	MIN. GY	MIN. GZ	MIN. HA	MIN. HB	MIN. HC	MIN. HD	MIN. HE	MIN. HF	MIN. HG	MIN. HH	MIN. HI	MIN. HJ	MIN. HK	MIN. HL	MIN. HM	MIN. HN	MIN. HO	MIN. HP	MIN. HQ	MIN. HR	MIN. HS	MIN. HT	MIN. HU	MIN. HV	MIN. HW	MIN. HX	MIN. HY	MIN. HZ	MIN. IA	MIN. IB	MIN. IC	MIN. ID	MIN. IE	MIN. IF	MIN. IG	MIN. IH	MIN. II	MIN. IJ	MIN. IK	MIN. IL	MIN. IM	MIN. IN	MIN. IO	MIN. IP	MIN. IQ	MIN. IR	MIN. IS	MIN. IT	MIN. IU	MIN. IV	MIN. IW	MIN. IX	MIN. IY	MIN. IZ	MIN. JA	MIN. JB	MIN. JC	MIN. JD	MIN. JE	MIN. JF	MIN. JG	MIN. JH	MIN. JI	MIN. JJ	MIN. JK	MIN. JL	MIN. JM	MIN. JN	MIN. JO	MIN. JP	MIN. JQ	MIN. JR	MIN. JS	MIN. JT	MIN. JU	MIN. JV	MIN. JW	MIN. JX	MIN. JY	MIN. JZ	MIN. KA	MIN. KB	MIN. KC	MIN. KD	MIN. KE	MIN. KF	MIN. KG	MIN. KH	MIN. KI	MIN. KJ	MIN. KK	MIN. KL	MIN. KM	MIN. KN	MIN. KO	MIN. KP	MIN. KQ	MIN. KR	MIN. KS	MIN. KT	MIN. KU	MIN. KV	MIN. KW	MIN. KX	MIN. KY	MIN. KZ	MIN. LA	MIN. LB	MIN. LC	MIN. LD	MIN. LE	MIN. LF	MIN. LG	MIN. LH	MIN. LI	MIN. LJ	MIN. LK	MIN. LL	MIN. LM	MIN. LN	MIN. LO	MIN. LP	MIN. LQ	MIN. LR	MIN. LS	MIN. LT	MIN. LU	MIN. LV	MIN. LW	MIN. LX	MIN. LY	MIN. LZ	MIN. MA	MIN. MB	MIN. MC	MIN. MD	MIN. ME	MIN. MF	MIN. MG	MIN. MH	MIN. MI	MIN. MJ	MIN. MK	MIN. ML	MIN. MM	MIN. MN	MIN. MO	MIN. MP	MIN. MQ	MIN. MR	MIN. MS	MIN. MT	MIN. MU	MIN. MV	MIN. MW	MIN. MX	MIN. MY	MIN. MZ	MIN. NA	MIN. NB	MIN. NC	MIN. ND	MIN. NE	MIN. NF	MIN. NG	MIN. NH	MIN. NI	MIN. NJ	MIN. NK	MIN. NL	MIN. NM	MIN. NN	MIN. NO	MIN. NP	MIN. NQ	MIN. NR	MIN. NS	MIN. NT	MIN. NU	MIN. NV	MIN. NW	MIN. NX	MIN. NY	MIN. NZ	MIN. OA	MIN. OB	MIN. OC	MIN. OD	MIN. OE	MIN. OF	MIN. OG	MIN. OH	MIN. OI	MIN. OJ	MIN. OK	MIN. OL	MIN. OM	MIN. ON	MIN. OO	MIN. OP	MIN. OQ	MIN. OR	MIN. OS	MIN. OT	MIN. OU	MIN. OV	MIN. OW	MIN. OX	MIN. OY	MIN. OZ	MIN. PA	MIN. PB	MIN. PC	MIN. PD	MIN. PE	MIN. PF	MIN. PG	MIN. PH	MIN. PI	MIN. PJ	MIN. PK	MIN. PL	MIN. PM	MIN. PN	MIN. PO	MIN. PP	MIN. PQ	MIN. PR	MIN. PS	MIN. PT	MIN. PU	MIN. PV	MIN. PW	MIN. PX	MIN. PY	MIN. PZ	MIN. QA	MIN. QB	MIN. QC	MIN. QD	MIN. QE	MIN. QF	MIN. QG	MIN. QH	MIN. QI	MIN. QJ	MIN. QK	MIN. QL	MIN. QM	MIN. QN	MIN. QO	MIN. QP	MIN. QQ	MIN. QR	MIN. QS	MIN. QT	MIN. QU	MIN. QV	MIN. QW	MIN. QX	MIN. QY	MIN. QZ	MIN. RA	MIN. RB	MIN. RC	MIN. RD	MIN. RE	MIN. RF	MIN. RG	MIN. RH	MIN. RI	MIN. RJ	MIN. RK	MIN. RL	MIN. RM	MIN. RN	MIN. RO	MIN. RP	MIN. RQ	MIN. RR	MIN. RS	MIN. RT	MIN. RU	MIN. RV	MIN. RW	MIN. RX	MIN. RY	MIN. RZ	MIN. SA	MIN. SB	MIN. SC	MIN. SD	MIN. SE	MIN. SF	MIN. SG	MIN. SH	MIN. SI	MIN. SJ	MIN. SK	MIN. SL	MIN. SM	MIN. SN	MIN. SO	MIN. SP	MIN. SQ	MIN. SR	MIN. SS	MIN. ST	MIN. SU	MIN. SV	MIN. SW	MIN. SX	MIN. SY	MIN. SZ	MIN. TA	MIN. TB	MIN. TC	MIN. TD	MIN. TE	MIN. TF	MIN. TG	MIN. TH	MIN. TI	MIN. TJ	MIN. TK	MIN. TL	MIN. TM	MIN. TN	MIN. TO	MIN. TP	MIN. TQ	MIN. TR	MIN. TS	MIN. TT	MIN. TU	MIN. TV	MIN. TW	MIN. TX	MIN. TY	MIN. TZ	MIN. UA	MIN. UB	MIN. UC	MIN. UD	MIN. UE	MIN. UF	MIN. UG	MIN. UH	MIN. UI	MIN. UJ	MIN. UK	MIN. UL	MIN. UM	MIN. UN	MIN. UO	MIN. UP	MIN. UQ	MIN. UR	MIN. US	MIN. UT	MIN. UY	MIN. UZ	MIN. VA	MIN. VB	MIN. VC	MIN. VD	MIN. VE	MIN. VF	MIN. VG	MIN. VH	MIN. VI	MIN. VJ	MIN. VK	MIN. VL	MIN. VM	MIN. VN	MIN. VO	MIN. VP	MIN. VQ	MIN. VR	MIN. VS	MIN. VT	MIN. VU	MIN. VV	MIN. VW	MIN. VX	MIN. VY	MIN. VZ	MIN. WA	MIN. WB	MIN. WC	MIN. WD	MIN. WE	MIN. WF	MIN. WG	MIN. WH	MIN. WI	MIN. WJ	MIN. WK	MIN. WL	MIN. WM	MIN. WN	MIN. WO	MIN. WP	MIN. WQ	MIN. WR	MIN. WS	MIN. WT	MIN. WU	MIN. WV	MIN. WW	MIN. WX	MIN. WY	MIN. WZ	MIN. XA	MIN. XB	MIN. XC	MIN. XD	MIN. XE	MIN. XF	MIN. XG	MIN. XH	MIN. XI	MIN. XJ	MIN. XK	MIN. XL	MIN. XM	MIN. XN	MIN. XO	MIN. XP	MIN. XQ	MIN. XR	MIN. XS	MIN. XT	MIN. XU	MIN. XV	MIN. XW	MIN. XX	MIN. XY	MIN. XZ	MIN. YA	MIN. YB	MIN. YC	MIN. YD	MIN. YE	MIN. YF	MIN. YG	MIN. YH	MIN. YI	MIN. YJ	MIN. YK	MIN. YL	MIN. YM	MIN. YN	MIN. YO	MIN. YP	MIN. YQ	MIN. YR	MIN. YS	MIN. YT	MIN. YU	MIN. YV	MIN. YW	MIN. YX	MIN. YZ	MIN. ZA	MIN. ZB	MIN. ZC	MIN. ZD	MIN. ZE	MIN. ZF	MIN. ZG	MIN. ZH	MIN. ZI	MIN. ZJ	MIN. ZK	MIN. ZL	MIN. ZM	MIN. ZN	MIN. ZO	MIN. ZP	MIN. ZQ	MIN. ZR	MIN. ZS	MIN. ZT	MIN. ZU	MIN. ZV	MIN. ZW	MIN. ZX	MIN. ZY	MIN. ZZ
----------------	--------	--------	--------	--------	--------	--------	--------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------	---------

* USE FOR LANE WIDTHS LESS THAN OR EQUAL TO 12'.

- LEGEND**
- TRAFFIC CONE
 - TRAFFIC CONE (OPTIONAL TAPER)
 - ⬇ TEMPORARY SIGN
 - DIRECTION OF TRAVEL
 - ⚡ FLASHING ARROW SIGN (FAS)
 - ⚡ FAS SUPPORT OR TRAILER
 - ⚡ PORTABLE FLASHING BEACON
- SIGN PANEL SIZE (Min)**
- A 36" x 36"
 - B 36" x 18"

- NOTES:**
1. Other panel sizes are authorized by Caltrans.
 2. All signs shall be placed at indicated locations unless otherwise noted.
 3. For approach speeds over 50 mph, use the Traffic Control System for Lane Closure on Freeways and Expressways plan for lane closure details and requirements.
 4. When longitudinal buffer space and its optional only recovery zone where there is no abutment.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM
FOR LANE CLOSURE ON
MULTILANE CONVENTIONAL
HIGHWAYS**

NO SCALE

3 - 1 CHART - REVISE DATE 05/20/11

REGISTERED CIVIL ENGINEER
 DATE: MAY 20, 2011
 PROJECT: 2010 STANDARD PLAN T12
 PROJECT NO. 9207

TABLE 3
DISTANCE BETWEEN SIGNS

ROAD TYPE	MIN A (ft)	MIN B (ft)	MIN C (ft)
URBAN (SPEED 25 MPH OR LESS)	100	100	100
URBAN (SPEED 30 MPH OR MORE)	350	350	350
EXPRESSWAY / FREEWAY	1000	1500	2540

TABLE 2

APPROACH SPEED	DOWNGRADE	
	MIN D	MAX D
25 AND BELOW	44	32
30	156	115
35	200	151
40	251	211
45	305	271
50	360	333
55	425	414
60	500	514
65	570	638
70	645	778
75	720	935

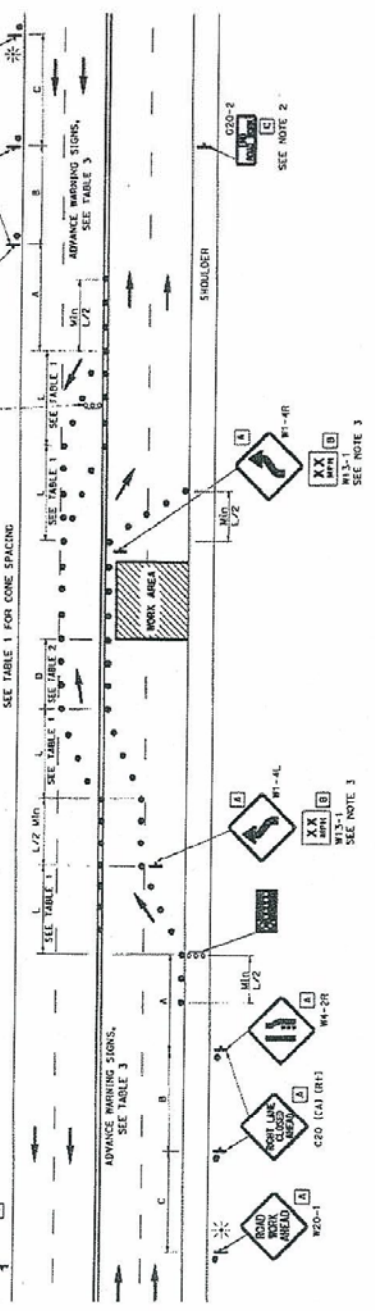
* USE MINIMUM DOWNGRADE STEEPER THAN -3 PERCENT AND LONGER THAN 1 MILE.

TABLE 1

APPROACH SPEED	MIN L		MAX SPACING OF CONES
	L	L/2	
20 AND BELOW	60	40	71
25	123	65	10
30	160	90	12
35	245	125	17
40	320	160	20
45	400	210	22
50	460	240	23
55	540	300	27
60	620	360	30
65	760	390	32

* USE L FOR LANE WIDTHS LESS THAN OR EQUAL TO 12'.

TYPICAL CLOSING OF HALF ROADWAY



- LEGEND**
- TRAFFIC CONE
 - † TEMPORARY SIGN
 - DIRECTION OF TRAVEL
 - ⚡ FLASHING AHEAD SIGN (FAS)
 - ☁ FAS SUPPORT OR TRAILER
 - ⚡ PORTABLE FLASHING BEACON
- SIGN PANEL SIZE (MIN)**
- A 48" x 48" - SPEED 45 MPH OR MORE
 - B 36" x 36" - SPEED LESS THAN 45 MPH
 - C 24" x 24" - SPEED 45 MPH OR MORE
 - D 24" x 30" - SPEED LESS THAN 45 MPH
 - E 48" x 18" - SPEED 45 MPH OR MORE
 - F 36" x 18" - SPEED LESS THAN 45 MPH
- NOTES:**
1. California code are designated by (CA). Otherwise, Federal (FHWA) codes are shown.
 2. A "ROAD WORK" sign, as appropriate, shall be placed at the end of the lane closure within a larger project's limits, or ends within a larger project's limits.
 3. Advisory speed will be determined by the Engineer. The W13-1 sign will not be required when advisory speed is more than the posted or maximum speed limit.

TRAFFIC CONTROL SYSTEM FOR HALF ROAD CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS AND EXPRESSWAYS

NO SCALE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

