04

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

NOTICE TO BIDDERS

AND

SPECIAL PROVISIONS

FOR CONSTRUCTION ON STATE HIGHWAY IN SONOMA COUNTY IN SANTA ROSA AT HEARN AVENUE OVERCROSSING

In District 04 On Route 101

Under

***Bid* book dated August 14, 2023**	***Standard Specifications* dated 2022**
Project plans approved May 2, 2023	***Standard Plans* dated 2022**

Identified by

Contract No. 04-4A1304

04-Son-101-18.5

Project ID 0400001106

Bids open Wednesday, October 4, 2023

Dated August 14, 2023

OSD

****

SPECIAL NOTICES

****

- See sections 2 and 3 for contractors' registration requirements.
- The Department advises bidders that potential claim records must be submitted by the contractor using the Department's Internet potential claim system.
- See section 2 for submittal requirements for DBE quotes, DVBE quotes, and Non–Small Business Subcontractor Preference.
- For work plan for local material from (1) a noncommercial source or (2) a source not regulated under California jurisdiction, see section 6-1.03B(1).
- See section 7-1.02K(3) for the requirements for electronic submittal of certified payroll records using LCPtracker Pro.
- The flagging and temporary traffic control requirements have been revised. See sections 7-1.03, 7-1.04, and 12.
- See section 14-11.14 for changes to the management of treated wood waste.
- See section 2-1.04 for mandatory prebid meeting requirements.

CONTRACT NO. 04-4A1304

The special provisions contained herein have been prepared by or under the direction of the following Registered/Licensed persons.

HIGHWAYS

M Sedghi 04/07/23

REGISTERED CIVIL ENGINEER DATE

STRUCTURES

David W. Harnagel 04/07/23

REGISTERED CIVIL ENGINEER DATE

ELECTRICAL

Khajag Derderian 04/07/2023

REGISTERED CIVIL ENGINEER DATE

LANDSCAPE

Leah Haygood 04/07/2023

LICENSED LANDSCAPE ARCHITECT DATE

TABLE OF CONTENTS

STANDARD PLANS LIST

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

A3A	Abbreviations (Sheet 1 of 3)
A3B	Abbreviations (Sheet 2 of 3)
A3C	Abbreviations (Sheet 3 of 3)
A10A	Legend - Lines and Symbols (Sheet 1 of 5)
A10B	Legend - Lines and Symbols (Sheet 2 of 5)
A10C	Legend - Lines and Symbols (Sheet 3 of 5)
A10D	Legend - Lines and Symbols (Sheet 4 of 5)
A10E	Legend - Lines and Symbols (Sheet 5 of 5)
RSP A10F	Legend - Soil (Sheet 1 of 2)
RSP A10G	Legend - Soil (Sheet 2 of 2)
RSP A20A	Pavement Markers and Traffic Lines - Typical Details
A20B	Pavement Markers and Traffic Lines - Typical Details
A20C	Pavement Markers and Traffic Lines - Typical Details
RSP A20D	Pavement Markers and Traffic Lines - Typical Details
RSP A20E	Traffic Lines - Typical Details for Contrast Striping
RSP A20F	Pavement Markers and Traffic Lines - Typical Details
RSP A20G	Exit Ramp with Enhanced Pavement Markers for Wrong Way Details
A24A	Pavement Markings - Arrows
A24B	Pavement Markings - Arrows and Symbols
A24C	Pavement Markings - Symbols and Numerals
A24D	Pavement Markings - Words
RSP A24E	Pavement Markings - Words
A24F	Pavement Markings - Crosswalks
RSP A24G	Pavement Markings - Yield Lines, Limit Lines, and Wrong Way Details
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
RSP A62DA	Excavation and Backfill - Concrete Pipe Culverts - Indirect Design Method
A62E	Excavation and Backfill - Cast-In-Place Reinforced Concrete Box and Arch Culverts
A62F	Excavation and Backfill - Metal and Plastic Culverts

A62G	Excavation and Backfill - Precast Reinforced Concrete Box Culvert
A73A	Object Markers
A73B	Markers
A73C	Delineators, Channelizers and Barricades
A76A	Concrete Barrier Type 60M
RSP A76B	Concrete Barrier Type 60M
A77L1	Midwest Guardrail System - Standard Railing Section (Wood Post with Wood Block)
A77M1	Midwest Guardrail System - Standard Hardware
RSP A77N1	Midwest Guardrail System - Wood Post and Wood Block Details
RSP A77N3	Midwest Guardrail System - Typical Line Post Embedment and Hinge Point Offset Details
RSP A77N4	Midwest Guardrail System - Typical Railing Delineation and Dike Positioning Details
A77N5	Minor Concrete Vegetation Control - Guardrail System
A77N6	Minor Concrete Vegetation Control - Guardrail System - For Terminal System End Treatments
A77N8	Minor Concrete Vegetation Control - Guardrail System - At Fixed Object
RSP A77Q1	Midwest Guardrail System - Typical Layouts for Structure Approach
RSP A77Q2	Midwest Guardrail System - Typical Layouts for Structure Approach and Between Structures
RSP A77R3	Midwest Guardrail System - Typical Layouts for Roadside Fixed Objects
RSP A77S1	Midwest Guardrail System - End Anchor Assembly (Type SFT - M)
A85	Chain Link Fence
A85A	Chain Link Fence Details
A85B	Chain Link Fence Details
A87A	Curbs and Driveways
A87B	Hot Mix Asphalt Dikes
A88A	Curb Ramp Details
A88B	Curb Ramp and Island Passageway Details
D71	Drainage Inlet Markers
D72B	CIP Drainage Inlets - Types G1, G2, G3, G4, G5 and G6
D72C	CIP Drainage Inlets - Types G1, G2, G3, G4, G5 and G6
D72D	CIP Drainage Inlets - Types GT1, GT2, GT3 and GT4
D72F	CIP Drainage Inlet Notes
D72G	CIP Drainage Inlet Tables
D73B	Precast Drainage Inlets - Types G1, G2, G3, G4, G5 and G6
D73C	Precast Drainage Inlets - Types G1, G2, G3, G4, G5 and G6
D73D	Precast Drainage Inlets - Types GT1, GT2, GT3 and GT4

D73F	Precast Drainage Inlet Notes
D73G	Precast Drainage Inlet Tables
D74	Drainage Inlet Details
D75B	Concrete Pipe Inlets
D75C	Pipe Inlets - Ladder and Trash Rack Details
D77A	Grate Details No. 1
D77B	Grate Details No. 2
RSP D86B	Pipe Culvert Headwalls, Endwalls and Warped Wingwalls
RSP D86C	Arch Culvert Headwalls, Endwalls and Warped Wingwalls
D87A	Corrugated Metal Pipe Downdrain Details
D87B	Plastic Pipe Downdrain Details
D87C	Cable Anchorage System
D87D	Overside Drains
D94A	Metal and Plastic Flared End Sections
D94B	Concrete Flared End Sections
D97A	Corrugated Metal Pipe Coupling Details No. 1 - Annular Coupling Band Bar and Strap and Angle Connections
D97C	Corrugated Metal Pipe Coupling Details No. 3 - Helical and Universal Couplers
D97D	Corrugated Metal Pipe Coupling Details No. 4 - Hugger Coupling Bands
D97E	Corrugated Metal Pipe Coupling Details No. 5 - Standard Joint
D97F	Corrugated Metal Pipe Coupling Details No. 6 - Positive Joint
D97G	Corrugated Metal Pipe Coupling Details No. 7 - Downdrain
D97H	Reinforced Concrete Pipe or Non-Reinforced Concrete Pipe - Standard and Positive Joints
D97I	Corrugated Polyvinyl Chloride Pipe with Smooth Interior - Standard and Positive Joints
D102	Underdrains
H1	Landscape and Erosion Control Symbols
H2	Landscape Details
H3	Landscape Details
H4	Landscape Details (Sprinkler Assembly)
RSP H5	Landscape Details (Swing Joint and Protector)
H6	Landscape Details
H7	Landscape Details
H8	Landscape Details
RSP H9	Landscape Details
H10	Irrigation Controller Enclosure Cabinet

H51	Erosion Control Details - Fiber Roll and Compost Sock
H52	Rolled Erosion Control Product
RSP T1A	Temporary Crash Cushion, Sand Filled (Unidirectional)
RSP T1A1	Temporary Crash Cushion, Sand Filled (Unidirectional)
RSP T1B	Temporary Crash Cushion, Sand Filled (Bidirectional)
RSP T2	Temporary Crash Cushion, Sand Filled (Shoulder Installations)
T3A	Temporary Railing (Type K)
T3B	Temporary Railing (Type K)
T9	Traffic Control System Tables for Lane and Ramp Closures
T10	Traffic Control System for Lane Closure on Freeways and Expressways
T10A	Traffic Control System for Lane Closure on Freeways and Expressways
T11	Traffic Control System for Lane Closure on Multilane Conventional Highways
T11A	Traffic Control System for Changeable Lane Closure on Multilane Conventional Highways and Expressways
T14	Traffic Control System for Ramp Closure
T18	Traffic Control System Construction Work Zone Speed Limit Reduction on Freeways and Expressways
T30	Temporary Pedestrian Access Routes - Typical Sidewalk Closure and Pedestrian Detour
T31	Temporary Pedestrian Access Routes - Typical Sidewalk Diversion Within Roadbed
T32	Temporary Pedestrian Access Routes - Typical Sidewalk/Crosswalk Closure and Pedestrian Detour
T33	Temporary Pedestrian Access Routes - Ramp
T34	Temporary Pedestrian Access Routes - Curb Ramp Options
T51	Temporary Water Pollution Control Details (Temporary Silt Fence)
T53	Temporary Water Pollution Control Details (Temporary Cover)
T56	Temporary Water Pollution Control Details (Temporary Fiber Roll)
T57	Temporary Water Pollution Control Details (Temporary Check Dam)
T58	Temporary Water Pollution Control Details (Temporary Construction Entrance)
T59	Temporary Water Pollution Control Details (Temporary Concrete Washout Facility)
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 High-Visibility Fence)
B0-1	Bridge Details
B0-3	Bridge Details
B0-5	Bridge Details

B0-13	Bridge Details
B2-5	Pile Details - Class 90 and Class 140
B2-8	Pile Details - Class 200
RSP B3-4A	Retaining Wall Type 5 (Case 1)
B3-5	Retaining Wall Details No. 1
B3-6	Retaining Wall Details No. 2
B6-10	Utility Openings - T-Beam
B6-21	Joint Seals (Maximum Movement Range = 2")
B7-6	Deck Drains - Types D-1 and D-2
B7-8	Deck Drainage Details
B7-11	Utility Details
B9-1	Structure Approach - Type N (30)
B9-6	Structure Approach - Drainage Details
B11-51	Tubular Handrailing
B11-58	Concrete Barrier Type 732SW (Sheet 1 of 2)
B11-59	Concrete Barrier Type 732SW (Sheet 2 of 2)
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
RS5	Roadside Sign-PSST Post-Typical Installation Details No. 1
RS6	Roadside Sign-PSST Post-Typical Installation Details No. 2
S1	Overhead Signs - Truss, Instructions and Examples
S2	Overhead Signs - Truss, Single Post Type - Post Types II through 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
S19	Overhead Signs - Truss, Sign Mounting Details - Laminated Panel - Type A
S81	Overhead Laminated Sign - Single or Multiple Panel (Type A, 1" Thick)
S85	Seam Closure, "H" Section Extrusion and Post Spacing Tables (Multi-Horizontal Laminated Panel Aluminum Signs)
S86	Laminated Panel Details (Extrusions for Type A, B and H Panels)
S87	Type A-1 Mounting Hardware for Overhead Laminated Type A Panel (Truss and Lightweight 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
ES-1A	Electrical Systems (Legend)
ES-1B	Electrical Systems (Legend)
ES-1C	Electrical Systems (Legend)
ES-2A	Electrical Systems (Service Equipment)
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-4A	Electrical Systems (Signal Head Mounting)
ES-4B	Electrical Systems (Pedestrian Signal Heads)
ES-4C	Electrical Systems (Signal Heads and Mountings)
ES-4D	Electrical Systems (Signal Head Mounting)
ES-4E	Electrical Systems (Signal Heads and Optical Detector Mounting)
ES-5A	Electrical Systems (Loop Detectors)
ES-5B	Electrical Systems (Detectors)
ES-5C	Electrical Systems (Accessible Pedestrian Signal and Push Button Assemblies)
ES-5D	Electrical Systems (Curb and Shoulder Termination, Trench, and Handhole Details)
ES-6A	Electrical Systems (Lighting Standard, Types 15 and 21)
ES-6B	Electrical Systems (Electrolier Anchorage and Grouting for Type 15 and Type 21 Barrier Rail Mounted)
ES-6E	Electrical Systems (Lighting Standard, Types 30 and 31)
ES-6F	Electrical Systems (Lighting Standard, Slip Base Plate)
ES-7A	Electrical Systems (Signal and Lighting Standard, Type TS, and Push Button Assembly Post)
ES-7B	Electrical Systems (Signal and Lighting Standard, Type 1 and Equipment Identification Characters)
ES-7D	Electrical Systems (Signal and Lighting Standard, Case 2 Signal Mast Arm Loading, Wind Velocity = 100 mph and Signal Mast Arm Lengths 15' to 30')
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-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)
ES-7Q	Electrical Systems (Pedestrian Barricades)
ES-7R	Electrical Systems (Signal and Lighting, Miscellaneous Attachment)
ES-8A	Electrical Systems (Non-Traffic Pull Box)

CANCELED STANDARD PLANS LIST

The standard plan sheets listed below are canceled and not applicable to this contract.

Plan No.	Date Canceled	Plan No.	Date Canceled	Plan No.	Date Canceled
A77L3	10-21-22				
A77U3	10-21-22				
A78G	10-21-22				
A78I	10-21-22				

NOTICE TO BIDDERS

Bids open Wednesday, October 4, 2023

Dated August 14, 2023

General work description: HMA, widen & replace Hearn Ave OC.

The Department will receive sealed bids for CONSTRUCTION ON STATE HIGHWAY IN SONOMA COUNTY IN SANTA ROSA AT HEARN AVENUE OVERCROSSING.

District-County-Route-Post Mile: 04-Son-101-18.5

Contract No. 04-4A1304

The Contractor must have either a Class A license or any combination of the following Class C licenses which constitutes a majority of the work: C-12, C-8.

The Department establishes no DVBE Contract goal but encourages bidders to obtain DVBE participation.

Bids must be on a unit price basis.

Complete the work, excluding plant establishment work, within 449 working days.

Complete the work, including plant establishment work, within 679 working days.

Complete the plant establishment work within 250 working days.

The estimated cost of the project is $26,000,000.

A mandatory prebid meeting is scheduled on September 19, 2023 at 2:00 p.m. at Virtual on Webex..

The Department will receive bids until 2:00 p.m. on the bid open date via Bid Express website. Bids received after this time will not be accepted. For more information refer to the Electronic Bidding Guide at the Office Engineer's website.

The Department will open and publicly read the bids through webcast/teleconference services immediately after the specified closing time.

For bid results go to:

http://ppmoe.dot.ca.gov/des/oe/contractor-info.html

Select *Electronic Bidding* under the *Bidding* tab.

District office addresses are provided in the *Standard Specifications*.

Present bidders' inquiries to the Department and view the Department's responses at:

http://ppmoe.dot.ca.gov/des/oe/bid-inquiries.php

Questions about alleged patent ambiguity of the plans, specifications, or estimate must be asked before bid opening. After bid opening, the Department does not consider these questions as bid protests.

Submit your bid with bidder's security equal to at least 10 percent of the bid.

Under Govt Code § 14835 et seq. and 2 CA Code of Regs § 1896 et seq., the Department gives preference to certified small businesses and non–small businesses who commit to 25 percent certified small business participation.

Under Pub Cont Code § 6107, the Department gives preference to a "California company," as defined, for bid comparison purposes over a nonresident contractor from any state that gives or requires a preference to be given to contractors from that state on its public entity construction contracts.

Prevailing wages are required on this Contract. The Director of the California Department of Industrial Relations determines the general prevailing wage rates. Obtain the wage rates at the DIR website, http://www.dir.ca.gov, or from the Department's Labor Compliance Office of the district in which the work is located.

The Department has made available Notices of Suspension and Proposed Debarment from the Federal Highway Administration. For a copy of the notices, go to http://www.dot.ca.gov/hq/esc/oe/contractor_info. Additional information is provided in the Excluded Parties List System at https://www.epls.gov.

Caltrans and the Construction Industry are committed to making partnering the way we do business. For more information, go to http://www.dot.ca.gov/hq/construc/partnering.html.

Department of Transportation

D04HA

BID ITEM LIST

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0001	070030	LEAD COMPLIANCE PLAN	LS	LUMP SUM
0002	080060	LEVEL 2 CRITICAL PATH METHOD SCHEDULE	LS	LUMP SUM
0003	090100	TIME-RELATED OVERHEAD (WDAY)	WDAY	449
0004	090140	RENEWABLE DIESEL REPORT	EA	7
0005	090205	DISPUTE RESOLUTION BOARD ON-SITE MEETING	EA	8
0006	090210	HOURLY OFF-SITE DISPUTE-RESOLUTION-BOARD-RELATED TASKS	HR	20
0007	100100	DEVELOP WATER SUPPLY	LS	LUMP SUM
0008	120090	CONSTRUCTION AREA SIGNS	LS	LUMP SUM
0009	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM
0010	120120	TYPE III BARRICADE	EA	49
0011	120149	TEMPORARY PAVEMENT MARKING (PAINT)	SQFT	3,100
0012	120159	TEMPORARY TRAFFIC STRIPE (PAINT)	LF	24,900
0013	120165	CHANNELIZER (SURFACE MOUNTED)	EA	320
0014	120198	PLASTIC TRAFFIC DRUMS	EA	97
0015	120204	PORTABLE RADAR SPEED FEEDBACK SIGN SYSTEM DAY	EA	898
0016	120300	TEMPORARY PAVEMENT MARKER	EA	600
0017	120320	TEMPORARY BARRIER SYSTEM	LF	11,900
0018	124000	TEMPORARY PEDESTRIAN ACCESS ROUTE	LS	LUMP SUM
0019	128652	PORTABLE CHANGEABLE MESSAGE SIGN (LS)	LS	LUMP SUM
0020	128654	TEMPORARY AUTOMATED END OF QUEUE WARNING SYSTEM (TYPE 1) DAY	EA	18

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0021	129100	TEMPORARY CRASH CUSHION MODULE	EA	170
0022	010022	ALTERNATIVE TEMPORARY CRASH CUSHION TL-2	EA	22
0023	130100	JOB SITE MANAGEMENT	LS	LUMP SUM
0024	130300	PREPARE STORM WATER POLLUTION PREVENTION PLAN	LS	LUMP SUM
0025	130310	RAIN EVENT ACTION PLAN	EA	96
0026	130320	STORM WATER SAMPLING AND ANALYSIS DAY	EA	41
0027	130330	STORM WATER ANNUAL REPORT	EA	2
0028	130570	TEMPORARY COVER	SQYD	10,900
0029	130610	TEMPORARY CHECK DAM	LF	1,070
0030	130620	TEMPORARY DRAINAGE INLET PROTECTION	EA	70
0031	130640	TEMPORARY FIBER ROLL	LF	1,530
0032	130680	TEMPORARY SILT FENCE	LF	2,190
0033	130710	TEMPORARY CONSTRUCTION ENTRANCE	EA	4
0034	130730	STREET SWEEPING	LS	LUMP SUM
0035	036022	TEMPORARY DEWATERING AND NON-STORM WATER DISCHARGE CONTROL SYSTEM	LS	LUMP SUM
0036	130900	TEMPORARY CONCRETE WASHOUT	LS	LUMP SUM
0037	141103	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	LF	4,360
0038	141109	ADL BURIAL LOCATION REPORT	LS	LUMP SUM
0039	141120	TREATED WOOD WASTE	LB	7,100
0040	148005	NOISE MONITORING	LS	LUMP SUM

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0041	160110	TEMPORARY HIGH-VISIBILITY FENCE	LF	2,210
0042	170103	CLEARING AND GRUBBING (LS)	LS	LUMP SUM
0043	190101	ROADWAY EXCAVATION	CY	8,380
0044	190139	ROADWAY EXCAVATION (UNSUITABLE MATERIAL)	CY	90
0045	190163	ROADWAY EXCAVATION (TYPE R-1) (AERIALLY DEPOSITED LEAD)	CY	8,230
0046	192020	(F) - STRUCTURE EXCAVATION (TYPE D)	CY	2,713
0047	048428	(F) - STRUCTURE EXCAVATION (RETAINING WALL, TYPE D)	CY	1,060
0048	192502	SAND BEDDING	CY	14
0049	193003	(F) - STRUCTURE BACKFILL (BRIDGE)	CY	1,476
0050	193013	(F) - STRUCTURE BACKFILL (RETAINING WALL)	CY	1,403
0051	193031	(F) - PERVIOUS BACKFILL MATERIAL (RETAINING WALL)	CY	103
0052	194001	DITCH EXCAVATION	CY	310
0053	198010	IMPORTED BORROW (CY)	CY	39,800
0054	200002	ROADSIDE CLEARING	LS	LUMP SUM
0055	200123	CULTIVATION	SQYD	15
0056	202006	SOIL AMENDMENT	CY	2.2
0057	202027	RELOCATE WATER METER	EA	1
0058	202038	PACKET FERTILIZER	EA	30
0059	202039	SLOW-RELEASE FERTILIZER	LB	2
0060	204038	PLANT (GROUP U)	EA	15

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0061	204045	SOD	SQYD	15
0062	204096	MAINTAIN EXISTING PLANTED AREAS	LS	LUMP SUM
0063	204099	PLANT ESTABLISHMENT WORK	LS	LUMP SUM
0064	205033	GRAVEL MULCH	SQFT	750
0065	205035	WOOD MULCH	CY	1.4
0066	205051	FOLIAGE PROTECTOR	EA	15
0067	205061	ROOT PROTECTOR	EA	15
0068	206400	CHECK AND TEST EXISTING IRRIGATION FACILITIES	LS	LUMP SUM
0069	206402	OPERATE EXISTING IRRIGATION FACILITIES	LS	LUMP SUM
0070	206405	REMOVE IRRIGATION FACILITY	LS	LUMP SUM
0071	206559	CONTROL AND NEUTRAL CONDUCTORS (ARMOR-CLAD)	LS	LUMP SUM
0072	206562	1" REMOTE CONTROL VALVE	EA	3
0073	206564	1 1/2" REMOTE CONTROL VALVE	EA	5
0074	206631	1" WYE STRAINER ASSEMBLY	EA	1
0075	206634	2" WYE STRAINER ASSEMBLY	EA	1
0076	206751	12 STATION IRRIGATION CONTROLLER (WALL MOUNTED)	EA	1
0077	208416	CERTIFY EXISTING BACKFLOW PREVENTERS	LS	LUMP SUM
0078	037631	FLOW SENSOR CABLE	LS	LUMP SUM
0079	208442	FLOW SENSOR	EA	1
0080	208445	TREE WELL SPRINKLER ASSEMBLY	EA	30

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0081	208447	POP-UP SPRINKLER ASSEMBLY (GEAR DRIVEN)	EA	26
0082	208575	2" GATE VALVE	EA	1
0083	208588	3" GATE VALVE	EA	1
0084	208594	(F) - 3/4" PLASTIC PIPE (SCHEDULE 40) (SUPPLY LINE)	LF	800
0085	208595	(F) - 1" PLASTIC PIPE (SCHEDULE 40) (SUPPLY LINE)	LF	740
0086	208596	(F) - 1 1/4" PLASTIC PIPE (SCHEDULE 40) (SUPPLY LINE)	LF	280
0087	208597	(F) - 1 1/2" PLASTIC PIPE (SCHEDULE 40) (SUPPLY LINE)	LF	400
0088	208598	(F) - 2" PLASTIC PIPE (SCHEDULE 40) (SUPPLY LINE)	LF	80
0089	208605	(F) - 2" PLASTIC PIPE (CLASS 315) (SUPPLY LINE)	LF	630
0090	208607	(F) - 3" PLASTIC PIPE (CLASS 315) (SUPPLY LINE)	LF	700
0091	208649	QUICK COUPLING VALVE	EA	2
0092	208683	BALL VALVE	EA	3
0093	208690	(F) - PVC PIPE CONDUIT (SLEEVE)	LF	180
0094	208738	8" CORRUGATED HIGH DENSITY POLYETHYLENE PIPE CONDUIT	LF	110
0095	210010	MOVE-IN/MOVE-OUT (EROSION CONTROL)	EA	3
0096	210280	ROLLED EROSION CONTROL PRODUCT (BLANKET)	SQFT	20,600
0097	210300	HYDROMULCH	SQFT	107,000
0098	210350	FIBER ROLLS	LF	6,800
0099	210430	HYDROSEED	SQFT	128,000
0100	210610	COMPOST (CY)	CY	400

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0101	210630	INCORPORATE MATERIALS	SQFT	107,000
0102	250201	CLASS 2 AGGREGATE SUBBASE	CY	3,620
0103	260203	CLASS 2 AGGREGATE BASE (CY)	CY	3,550
0104	390132	HOT MIX ASPHALT (TYPE A)	TON	5,800
0105	390137	RUBBERIZED HOT MIX ASPHALT (GAP GRADED)	TON	2,320
0106	390402	RUBBERIZED HOT MIX ASPHALT-OPEN GRADED (OPEN GRADED FRICTION COURSE)	TON	69
0107	394073	PLACE HOT MIX ASPHALT DIKE (TYPE A)	LF	36
0108	397005	TACK COAT	TON	10
0109	398200	COLD PLANE ASPHALT CONCRETE PAVEMENT	SQYD	10,200
0110	477020	(F) - MECHANICALLY STABILIZED EMBANKMENT	SQFT	4,764
0111	048429	FURNISH PILING (CLASS 90, ALTERNATIVE X)	LF	3,682
0112	048430	DRIVE PILE (CLASS 90, ALTERNATIVE X)	EA	105
0113	048431	FURNISH PILING (CLASS 140, ALTERNATIVE X)	LF	2,339
0114	048432	DRIVE PILE (CLASS 140, ALTERNATIVE X)	EA	50
0115	048433	FURNISH PILING (CLASS 200, ALTERNATIVE X)	LF	9,986
0116	048434	DRIVE PILE (CLASS 200, ALTERNATIVE X)	EA	191
0117	498052	60" CAST-IN-DRILLED-HOLE CONCRETE PILE (SIGN FOUNDATION)	LF	50
0118	500020	PRESTRESSING PRECAST GIRDER	LS	LUMP SUM
0119	510051	(F) - STRUCTURAL CONCRETE, BRIDGE FOOTING	CY	663
0120	510053	(F) - STRUCTURAL CONCRETE, BRIDGE	CY	863

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0121	510054	(F) - STRUCTURAL CONCRETE, BRIDGE (POLYMER FIBER)	CY	678
0122	510060	(F) - STRUCTURAL CONCRETE, RETAINING WALL	CY	459
0123	510072	(F) - STRUCTURAL CONCRETE, BARRIER SLAB	CY	218
0124	510086	(F) - STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	CY	261
0125	510094	(F) - STRUCTURAL CONCRETE, DRAINAGE INLET	CY	139
0126	510502	(F) - MINOR CONCRETE (MINOR STRUCTURE)	CY	0.5
0127	511015	CONCRETE SURFACE TEXTURE (FRACTURED RIB)	SQFT	9,148
0128	047166	CONCRETE SURFACE TEXTURE (FORMED RELIEF)	SQFT	552
0129	048543	FURNISH PRECAST PRESTRESSED CONCRETE WIDE FLANGE GIRDER (120'-130')	EA	10
0130	048544	FURNISH PRECAST PRESTRESSED CONCRETE WIDE FLANGE GIRDER (130'-140')	EA	10
0131	512500	ERECT PRECAST PRESTRESSED CONCRETE GIRDER	EA	20
0132	519088	JOINT SEAL (MR 1")	LF	207
0133	520102	(F) - BAR REINFORCING STEEL (BRIDGE)	LB	463,529
0134	520103	(F) - BAR REINFORCING STEEL (RETAINING WALL)	LB	90,813
0135	560218	(F) - FURNISH SIGN STRUCTURE (TRUSS)	LB	45,960
0136	560219	(F) - INSTALL SIGN STRUCTURE (TRUSS)	LB	45,960
0137	568046	REMOVE SIGN STRUCTURE (EA)	EA	3
0138	600097	BRIDGE REMOVAL	LS	LUMP SUM
0139	610108	18" ALTERNATIVE PIPE CULVERT	LF	2,430
0140	610112	24" ALTERNATIVE PIPE CULVERT	LF	62

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0141	610300	(F) - CONCRETE BACKFILL (PIPE TRENCH)	CY	38
0142	012409	(F) - CONCRETE BACKFILL (PIPE TRENCH) (RAPID STRENGTH CONCRETE)	CY	21
0143	610401	12" TEMPORARY CULVERT	LF	150
0144	610403	18" TEMPORARY CULVERT	LF	210
0145	011337	BIORETENTION	CY	1,370
0146	650014	18" REINFORCED CONCRETE PIPE	LF	78
0147	650026	36" REINFORCED CONCRETE PIPE	LF	5
0148	665016	18" CORRUGATED STEEL PIPE (.064" THICK)	LF	140
0149	682042	(F) - CLASS 2 PERMEABLE MATERIAL (BLANKET)	CY	92
0150	700617	DRAINAGE INLET MARKER	EA	48
0151	705307	12" ALTERNATIVE FLARED END SECTION	EA	1
0152	705311	18" ALTERNATIVE FLARED END SECTION	EA	7
0153	710102	ABANDON CULVERT (LF)	LF	180
0154	710136	REMOVE PIPE (LF)	LF	530
0155	710150	REMOVE INLET	EA	8
0156	710152	REMOVE HEADWALL	EA	1
0157	710196	ADJUST INLET	EA	16
0158	710208	ADJUST FRAME AND COVER TO GRADE	EA	2
0159	710370	SAND BACKFILL	CY	12
0160	721810	SLOPE PAVING (CONCRETE)	CY	100

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0161	723095	ROCK SLOPE PROTECTION (20 LB, CLASS I, METHOD B) (CY)	CY	27
0162	729011	ROCK SLOPE PROTECTION FABRIC (CLASS 8)	SQYD	260
0163	730020	MINOR CONCRETE (CURB) (CY)	CY	200
0164	730070	DETECTABLE WARNING SURFACE	SQFT	290
0165	731518	MINOR CONCRETE (BRUSHED CONCRETE)	SQFT	9,970
0166	731521	MINOR CONCRETE (SIDEWALK)	CY	100
0167	731710	REMOVE CONCRETE CURB (LF)	LF	310
0168	731780	REMOVE CONCRETE SIDEWALK (SQYD)	SQYD	520
0169	731840	REMOVE CONCRETE (CURB AND GUTTER)	LF	1,670
0170	750001	(F) - MISCELLANEOUS IRON AND STEEL	LB	16,841
0171	015311	TEMPORARY STEEL COVER	EA	8
0172	750505	(F) - BRIDGE DECK DRAINAGE SYSTEM	LB	1,441
0173	015314	WATER MAIN CASING	LF	30
0174	770030	SIGNAL AND LIGHTING (CITY STREET LOCATION 1)	LS	LUMP SUM
0175	770070	SIGNAL AND LIGHTING (CITY STREET LOCATION 3)	LS	LUMP SUM
0176	015326	TEMPORARY SIGNAL AND LIGHTING (CITY STREET LOCATION 1)	LS	LUMP SUM
0177	015327	TEMPORARY SIGNAL AND LIGHTING (CITY STREET LOCATION 3)	LS	LUMP SUM
0178	015328	SIGNAL INTERCONNECT (CITY STREET)	LS	LUMP SUM
0179	770090	LIGHTING (CITY STREET)	LS	LUMP SUM
0180	780254	ADJUST ACCESS BOX FRAME AND COVER (UTILITY)	EA	5

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0181	780258	ADJUST MANHOLE FRAME AND COVER (UTILITY)	EA	3
0182	780433	PAINT CURB (2-COAT)	SQFT	30
0183	780460	(F) - ANTI-GRAFFITI COATING	SQFT	14,464
0184	800360	CHAIN LINK FENCE (TYPE CL-6)	LF	190
0185	015315	CHAIN LINK FENCE (TYPE CL-8, MINI MESH)	LF	300
0186	015312	8' CHAIN LINK GATE (TYPE CL-8, MINI MESH)	EA	2
0187	803020	REMOVE FENCE	LF	520
0188	810120	REMOVE PAVEMENT MARKER	EA	1,470
0189	810170	DELINEATOR (CLASS 1)	EA	20
0190	810230	PAVEMENT MARKER (RETROREFLECTIVE)	EA	690
0191	820130	OBJECT MARKER	EA	11
0192	820250	REMOVE ROADSIDE SIGN	EA	15
0193	820300	REMOVE ROADSIDE SIGN (STRAP AND SADDLE BRACKET METHOD)	EA	4
0194	820310	REMOVE ROADSIDE SIGN PANEL	EA	10
0195	820710	FURNISH LAMINATED PANEL SIGN (1"-TYPE A)	SQFT	490
0196	820750	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063"-UNFRAMED)	SQFT	220
0197	820760	FURNISH SINGLE SHEET ALUMINUM SIGN (0.080"-UNFRAMED)	SQFT	240
0198	820780	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063"-FRAMED)	SQFT	94
0199	820820	METAL (BARRIER MOUNTED SIGN)	LB	327
0200	820840	ROADSIDE SIGN - ONE POST	EA	18

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0201	820850	ROADSIDE SIGN - TWO POST	EA	8
0202	820860	INSTALL SIGN (STRAP AND SADDLE BRACKET METHOD)	EA	3
0203	820900	INSTALL ROADSIDE SIGN PANEL ON EXISTING POST	EA	8
0204	832007	MIDWEST GUARDRAIL SYSTEM (WOOD POST)	LF	220
0205	832070	VEGETATION CONTROL (MINOR CONCRETE)	SQYD	160
0206	833088	(F) - TUBULAR HANDRAILING	LF	711
0207	839514	(F) - HANDRAILING	LF	74
0208	048437	(F) - ORNAMENTAL RAILING	LF	593
0209	839580	END ANCHOR ASSEMBLY (TYPE SFT-M)	EA	2
0210	015299	ALTERNATIVE IN-LINE TERMINAL TL-3	EA	2
0211	047051	(F) - CONCRETE BARRIER (TYPE 60R)	LF	177
0212	048395	CONCRETE BARRIER (TYPE 732SW MODIFIED)	LF	1,357
0213	839752	REMOVE GUARDRAIL	LF	410
0214	839774	REMOVE CONCRETE BARRIER	LF	590
0215	839782	REMOVE CRASH CUSHION	EA	11
0216	840516	THERMOPLASTIC PAVEMENT MARKING (ENHANCED WET NIGHT VISIBILITY)	SQFT	3,510
0217	015334	GREEN THERMOPLASTIC PAVEMENT MARKING	SQFT	2,900
0218	015325	6" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 2-2)	LF	230
0219	840615	6" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 18-12)	LF	3,100
0220	840617	6" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 6-1)	LF	1,250

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity
0221	840619	6" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 12-3)	LF	41
0222	840621	6" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 17-7)	LF	1,880
0223	014765	6" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 9-3)	LF	980
0224	846007	6" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY)	LF	8,890
0225	846008	6" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 8-4)	LF	380
0226	846009	8" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY)	LF	2,760
0227	846010	8" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 12-3)	LF	520
0228	846013	12" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY)	LF	950
0229	846030	REMOVE THERMOPLASTIC TRAFFIC STRIPE	LF	15,600
0230	846035	REMOVE THERMOPLASTIC PAVEMENT MARKING	SQFT	2,710
0231	847077	8" TRAFFIC STRIPE TAPE WITH CONTRAST (WARRANTY) (BROKEN 12-3)	LF	40
0232	847218	6" TRAFFIC STRIPE TAPE WITH CONTRAST (WARRANTY)	LF	650
0233	847221	6" TRAFFIC STRIPE TAPE WITH CONTRAST (WARRANTY) (BROKEN 17-7)	LF	610
0234	847224	8" TRAFFIC STRIPE TAPE WITH CONTRAST (WARRANTY)	LF	340
0235	870009	MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION	LS	LUMP SUM
0236	870200	LIGHTING SYSTEM	LS	LUMP SUM
0237	015329	SIGNAL AND LIGHTING (LOCATION 2)	LS	LUMP SUM
0238	015434	TEMPORARY SIGNAL AND LIGHTING (LOCATION 2)	LS	LUMP SUM
0239	999990	MOBILIZATION	LS	LUMP SUM

SPECIAL PROVISIONS

ORGANIZATION

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

Each special provision begins with a revision clause that describes or introduces a revision to the *Standard Specifications*.

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

^^

DIVISION I GENERAL PROVISIONS

1 GENERAL

Add to section 1-1.01:

++Bid Items and Applicable Sections

Item code	Item description	Applicable section
090205	DISPUTE RESOLUTION BOARD ON-SITE MEETING	5
090210	HOURLY OFF-SITE DISPUTE-RESOLUTION-BOARD-RELATED TASKS	5
010022	ALTERNATIVE TEMPORARY CRASH CUSHION (TL-2)	12
036022	TEMPORARY DEWATERING AND NON-STORM WATERING DISCHARGE CONTROL SYSTEM	13
048428	STRUCTURE EXCAVATION (RETAINING WALL) (TYPE D)	19
037631	FLOW SENSOR CABLE	20
048429	FURNISH PILING (CLASS 90) (ALTERNATIVE "X")	49
048430	DRIVE PILE (CLASS 90) (ALTERNATIVE "X")	49
048431	FURNISH PILING (CLASS 140) (ALTERNATIVE "X")	49
048432	DRIVE PILE (CLASS 140) (ALTERNATIVE "X")	49
048433	FURNISH PILING (CLASS 200) (ALTERNATIVE "X")	49
048434	DRIVE PILE (CLASS 200) (ALTERNATIVE "X")	49
047166	CONCRETE SURFACE TEXTURE (FORMED RELIEF)	51
048543	FURNISH PRECAST PRESTRESSED CONCRETE WIDE FLANGE GIRDER (120'-130')	51
048544	FURNISH PRECAST PRESTRESSED CONCRETE WIDE FLANGE GIRDER (130'-140')	51
012409	CONCRETE BACKFILL (PIPE TRENCH) (RAPID STRENGTH CONCRETE)	61
011337	BIORETENTION	62
015311	TEMPORARY STEEL COVER	75
015314	WATER MAIN CASING	77
015326	TEMPORARY SIGNAL AND LIGHTING (CITY STREET LOCATION 1)	77
015327	TEMPORARY SIGNAL AND LIGHTING (CITY STREET LOCATION 3)	77
015328	SIGNAL INTERCONNECT (CITY STREET)	77
015315	CHAIN LINK FENCE (TYPE CL-8, MINI MESH)	80
015312	8' CHAIN LINK GATE (TYPE CL-8, MINI MESH)	80
048437	ORNAMENTAL RAILING	83
015299	ALTERNATIVE IN-LINE TERMINAL TL-3	83
047051	CONCRETE BARRIER (TYPE 60R)	83
048395	CONCRETE BARRIER (TYPE 732SW MODIFIED)	83
015334	GREEN THERMOPLASTIC PAVEMENT MARKING	84
015325	6" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 2-2)	84
014765	6" THERMOPLASTIC TRAFFIC STRIPE (ENHANCED WET NIGHT VISIBILITY) (BROKEN 9-3)	84
015329	SIGNAL AND LIGHTING (LOCATION 2)	87
015434	TEMPORARY SIGNAL AND LIGHTING (LOCATION 2)	87

^^

2 BIDDING

Replace section 2-1.04 with:

2-1.04 MANDATORY VIRTUAL PREBID OUTREACH MEETING

The Department will conduct a mandatory virtual prebid meeting to provide small businesses, including DVBEs and DBEs, the opportunity to meet and interact with prospective bidders in an effort to increase their participation in the performance of contracts.

The virtual prebid meeting will be a video conference meeting using Cisco Webex.

Each bidder must attend the virtual meeting. The bidder's representative must be a company officer, project superintendent, or project estimator. For a joint venture, one of the parties must attend the virtual meeting.

The Department does not accept a bid from a bidder who did not attend the virtual meeting.

Bidders and small businesses must register a minimum of 1 hour before the meeting with:

DUTY SENIOR, DISTRICT 4 OFFICE
111 GRAND AVENUE
OAKLAND, CA 94612
TELEPHONE: (510) 286-5209
E-MAIL: D4.Construction.Duty.Senior@dot.ca.gov
An electronic sign-in sheet will be used to identify the attendees. Each bidder must include the name and title of the company representative attending the virtual meeting.

The successful bidder is required to report each small business hired to work on this Contract as a result of the meeting.

Add between the 1st and 2nd paragraphs of section 2-1.06B:

The Department makes the following supplemental project information available:

Supplemental Project Information

Means	Description
Included in the *Information Handout*	1. United States Army Corps of Engineers 404 Permit 2. California Regional Water Quality Control Board 401 Certification 3. Stormwater Information Handout 4. Water Efficient Landscape Worksheet 5. Maintaining Existing Traffic Management System Elements During Construction Information Handout 6. Warranty Bond (TOTE-1 Form) 7. Geotechnical Design and Materials Report 8. Foundation Report, Hearn Avenue Overcrossing (Replace), dated October 21, 2019 9. Foundation Report, Retaining Walls No. 201, No. 202A and No. 202B, dated October 21, 2019 10. Hazardous Materials Investigation Final Report
Available as specified in the *Standard Specifications*	Cross Sections Bridge as-built drawings
Included with the project plans	Logs of test borings

^^

5 CONTROL OF WORK

Replace the 2nd and 3rd paragraphs of section 5-1.09A with:

Professionally facilitated project partnering is required.

Replace section 5-1.13B with:

5-1.13B Disadvantaged Business Enterprises

5-1.13B(1) General

Section 5-1.13B applies to a federal-aid contract.

Use each DBE as listed on the DBE Commitment form unless you receive Department prior authorization for termination under section 5-1.13B(2)(c). Ensure that all subcontracts and agreements with DBEs to supply labor or materials are performed under 49 CFR 26.

Maintain records of subcontracts made with DBE subcontractors and records of materials purchased from DBE suppliers. Include in the records:

1. Name and business address of each DBE subcontractor, DBE vendor, and DBE trucking company, regardless of tier
2. Date of payment and total amount paid to each DBE business

If you are a DBE contractor, include the date of work performed by your own forces and the corresponding value of the work.

Before the 15th day of each month for the previous month's work, submit:

1. Monthly DBE Trucking Verification form
2. Monthly DBE Payment form

If a DBE is decertified before completing its work, the business must notify you in writing of the decertification date within 15 days of decertification. Notify the Engineer and submit the DBE's decertification notice within 2 business days of your receipt. Upon work completion, complete a Disadvantage Business Enterprises (DBE) Certification Status Change form and submit within 10 days of Contract acceptance.

Upon work completion, complete a Final Report – Utilization of Disadvantaged Business Enterprises (DBE), First-Tier Subcontractors form and submit within 10 days of Contract acceptance. The Department withholds the greater of 10 percent of the DBE commitment or $10,000 until the form is submitted. The Department releases the withhold upon submission of the completed form. If additional payments are made to a DBE after submittal of the completed form, submit an updated form to reflect such payments.

Failure to carry out requirements of 49 CFR 26 is a material breach of the Contract, which may result in the termination of the Contract or other remedy as the Department deems appropriate, such as:

1. Withholding monthly progress payments
2. Assessing sanctions
3. Applying liquidated damages
4. Disqualification from future bidding as nonresponsive

5-1.13B(2) Disadvantaged Business Enterprises

5-1.13B(2)(a) General

Section 5-1.13(B)(2) applies if a DBE goal is shown on the *Notice to Bidders*.

Certification as a DBE identifies if the business has the means to perform its work under assigned North American Industry Classification System codes and work codes applicable to the type of work the DBE will perform on the Contract. Certification does not ensure the DBE will perform a commercially useful function on the Contract.

You are responsible for ensuring each DBE listed on the DBE Commitment form performs:

1. The description and value of the subcontracted work or material supplied as committed
2. A commercially useful function under 49 CFR 26.55 for committed work or materials

For DBE committed work, the Department only pays for work performed or supplied by the listed DBE and if a commercially useful function was performed by the listed DBE.

You are responsible to remediate noncompliant DBE work to meet your DBE commitment. Submit a DBE commitment remediation plan within 5 business days of the Engineer's request.

Pay your DBEs in conformance with section 5-1.13E.

Failure to promptly pay DBEs may result in a withholds corresponding to the value of the DBE's committed work from future progress payments. In addition, unpaid DBE amounts will not count towards your DBE commitment, which may result in equivalent withholds or deductions and a 2 percent penalty on the unpaid amount for every month payment is not made.

5-1.13B(2)(b) Commercially Useful Function

DBEs must perform a commercially useful function under 49 CFR 26.55 when performing work or supplying materials listed on the DBE Commitment form. The DBEs value of work will only count toward the DBE commitment if the DBE performs a commercially useful function under 49 CFR 26.55.

Provide written notification to the Engineer at least 15 days in advance of each DBE's initial performance of work or supplying materials for the Contract. Include the DBE's name, contract work to be performed, and the location, date, and time of where their work will take place.

Within 10 days of a DBE initially performing work or supplying materials on the Contract, submit your initial evaluation and validation of their performance of a commercially useful function using DBE Commercially Useful Function Evaluation form. Include the following supporting information with your submittal:

1. Subcontract agreement with the DBE
2. Purchase orders
3. Bills of lading
4. Invoices
5. Proof of payment

Monitor your DBEs' performance of commercially useful function with quarterly evaluations and validations throughout their duration of work on the Contract using DBE Commercially Useful Function Evaluation form. Submit your quarterly evaluation and validation DBE Commercially Useful Function Evaluation forms by the 5th of the month for the previous three month's work. Include any additional supplemental supporting information with your submittal. If your DBE's work-start and -end dates for the Contract exceed a three-month period, regardless of time not on the Contract, quarterly evaluations and validations are required.

Notify the Engineer immediately if you believe the DBE may not be performing a commercially useful function.

The Department will verify your DBEs performance of commercially useful functions by reviewing your initial and quarterly DBE Commercially Useful Function Evaluation forms, your submitted supporting information, field observations, and through select Department evaluations. The Department may evaluate DBEs and their commercially useful function performance at any time during the Contract. In such instances, the Department will provide written notice to you and your DBE at least 2 business days prior to the evaluation. You and your DBE must participate in the evaluation. Upon completing the evaluation, the Department will share the evaluation results with you and your DBE. The evaluation results may include items that must be remedied upon your receipt. If the Department determines the DBE is not performing a commercially function you must suspend performance of the noncompliant work.

You and your DBEs must submit any additional commercially useful function related records and documents within 5 business days of Department request such as:

1. Proof of ownership or lease and rental agreements for equipment
2. Tax records
3. Employee rosters
4. Certified payroll records
5. Inventory rosters

Failure to submit required DBE Commercially Useful Function Evaluation forms or requested records and documents will result in withhold of payment for the value of work completed by the DBE.

If you and or the Department determine a listed DBE is not performing a commercially useful function in performance of their DBE committed work, suspend performance of the noncompliant portion of the work. Submit a corrective action plan within 5 days of the noncompliant commercially useful function determination. The plan must identify how you will remediate when feasible or demonstrate commercially useful function compliance for the remaining portion of the DBE's work. Allow 5 days for plan review. The corrective actions must be implemented within 5 days of Engineer's authorization of your plan and prior to resumption of the noncompliant portion of the DBE's committed work.

If corrective actions cannot be accomplished to assure the DBE will perform a commercially useful function on the Contract, you may have good cause to request termination of the DBE under section 5-1.13B(2)(c).

5-1.13B(2)(c) Termination

Termination of a DBE may be allowable for good cause reasons under 49 CFR 26.53(f)(3) with prior written authorization from the Department. You must provide documentation supporting good cause reasoning with your termination request. If the termination request is authorized by the Department, you must then either replace the DBE with another DBE or demonstrate good faith efforts to do so under 5-1.13B(2)(d).

Use the following procedure to request the termination of a DBE or portion of their work:

1. Provide written notice to the DBE of your intent to use other forces or material sources and include one or more of the good cause reasons under 49 CFR 26.53(f)(3). Simultaneously send a copy of this written notice to the Engineer. Your written notice to the DBE must request they provide any response to both you and the Engineer.
2. Provide the DBE with 5 business days to respond to your written notice by either acknowledging their agreement or documenting their reasoning as to why the use of other forces or sources of materials should not occur. If the DBE does not respond within 5 business days, you may move forward with the request process as if the DBE had agreed to your written notice.
3. Submit your DBE termination request by written letter to the Engineer and include:
    3.1. One or more good cause reasons identified under 49 CFR 26.53(f)(3) along with supporting documentation.
    3.2. Your written notice to the DBE regarding the request, including proof of transmission and tracking documentation of your written notice.
    3.3. The DBE's response to your written notice, if received. If a written response was not provided, provide a statement to that effect.

The Department will respond to your complete DBE termination request as follows:

1. Where the DBE has agreed in writing or fails to timely respond to your written notice, the Department will respond within 2 business days from receipt of your request.
2. Where the DBE has disagreed in writing with your written notice, the Department will meet with you and the DBE within 5 business days from receipt of your request. The Department will respond to your request within 5 business days from this meeting.
3. If you fail to provide a complete request for DBE termination the Department will identify deficiencies within 5 business days from receipt of your request.

If the Department authorizes your DBE termination request it will do so in writing.

Work performed by a firm other than the committed DBE or authorized replacement DBE without first obtaining Department authorization for termination will be a violation of these specifications and DBE federal regulations. Such violations will result in payment deductions for the value of the work associated with the noncompliant DBE commitment. In addition, if the committed DBE is also a listed subcontractor, the Department applies an additional penalty up to 10 percent of the value of the subject work as a permanent deduction.

5-1.13B(2)(d) Replacement

After receiving Department written authorization of your DBE termination request, you must obtain separate Department authorization of your replacement plan.

Your replacement plan must identify DBE replacement firms to perform the work or demonstrate that you have made a good faith effort to use DBE replacement firms. DBE replacement firms must:

1. Perform at least the same dollar amount of work as the terminated DBE to the extent needed to meet the DBE commitment
2. Possess certifications for the most specific available North American Industry Classification System codes and work codes applicable to the work the firm will perform on the Contract
3. Perform a commercially useful function under 49 CFR 26.55

Use the following procedure to request authorization of your replacement plan:

1. Submit a request to replace a DBE with other forces or material sources by written letter to the Department which must include:
    1.1. Description of remaining uncommitted item work made available for replacement DBE solicitation and participation.
    1.2. The proposed DBE replacement firm's business information, the work they have agreed to perform, and the following:
        1.2.1. Quote for bid item work and description of work to be performed
        1.2.2. Proposed subcontract agreement and written confirmation of agreement to perform on the Contract
        1.2.3. Revised Subcontracting Request form
2. If you have not identified a DBE replacement firm, submit documentation of your good faith efforts to use DBE replacement firms within 7 days of Department's authorization to terminate the DBE. You may request the Department's approval to extend this submittal period to a total of 14 days. The Department considers your documented actions taken to identify a DBE replacement firm in determining whether a good faith effort was made under 49 CFR 26 app A. Submit documentation of actions taken to find a DBE replacement firm, such as:
    2.1. Search results of certified DBEs available to perform the original DBE work identified and or other work you had intended to self-perform, to the extent needed to meet your DBE commitment
    2.2. Solicitations of DBEs for performance of work identified in 2.1
    2.3. Correspondence with interested DBEs that may have included contract details and requirements
    2.4. Negotiation efforts with DBEs that reflect why an agreement was not reached

2.5. If a DBE's quote was rejected, provide your reasoning for the rejection, such as why the DBE was unqualified for the work, or why the price quote was unreasonable or excessive
2.6. Copies of each DBE's and non-DBE's price quotes for work identified in 2.1, as the Department may contact the firms to verify solicitation efforts and determine if the DBE quotes are substantially higher
2.7. Additional documentation that you believe supports your good faith effort

The Department will respond to your complete replacement plan as follows:

1. If a DBE replacement firm has been identified and required documentation has been provided, the Department will respond within 2 business days from receipt of your plan
2. If a DBE replacement firm has not been identified, but good faith effort documents have been provided, the Department will respond within 5 business days from receipt of your plan
3. If you fail to provide a complete replacement plan, the Department will return your request and identify deficiencies within 5 business days from receipt of your plan

If the Department authorizes your replacement plan it will do so in writing.

Submit a revised Subcontracting Request form if your replacement plan is authorized.

DBE committed work performed by a nonauthorized firm, will be a violation of these specifications and DBE federal regulations. Such violations will result in payment deductions for the value of the work associated with the DBE commitment. The Department will take a permanent deduction for the value of the DBE work that was not performed by the authorized DBE. In addition, if the associated work was also to be performed by a listed subcontractor, the Department applies an additional penalty up to 10 percent of the value of the subject work as a permanent deduction.

5-1.13B(3) Use of Joint Checks

You may use a joint check between the Contractor or lower-tier subcontractor and a DBE subcontractor purchasing materials from a material supplier if you obtain prior approval from the Department for your proposed use of joint checks upon submittal of a DBE Joint Check Agreement Request form.

To use a joint check, the following conditions must be met:

1. All parties, including the Contractor, must agree in writing to the use of a joint check
2. Entity issuing the joint check acts solely to guarantee payment
3. DBE must release the check to the material supplier
4. Department must authorize the request before implementation
5. Any party to the agreement must provide requested documentation within 10 days of the Department's request for the documentation
6. Agreement to use a joint check must be short-term, not to exceed 1 year, allowing sufficient time needed to establish or increase a credit line with the material supplier

A request for a joint check agreement may be initiated by any party.

If a joint check is used, the DBE remains responsible for all elements of 49 CFR 26.55(c)(1).

Failure to comply with section 5-1.13B(3) disqualifies DBE participation and results in no credit and no payment to the Contractor for DBE participation.

A joint check may not be used between the Contractor or subcontractor and a DBE regular dealer, bulk material supplier, manufacturer, wholesaler, broker, trucker, packager, manufacturer's representative, or other persons who arrange or expedite transactions.

Replace section 5-1.13E with:

5-1.13E Prompt Payment

Section 5-1.13E applies to all contracts.

Pay your subcontractors within 7 days of receipt of each progress payment under Pub Cont Code §§ 10262 and 10262.5. Pay other entities, such as material suppliers, within 30 days of receipt of each progress payment.

Each month, after the 15th and prior to 20th, submit the following payment information through the Department's prompt payment monitoring system at https://caltrans.dbesystem.com:

1. Subcontractor's or entity's business name
2. Description of work performed
   2.1. Bid item numbers or change order numbers
   2.2. Written narrative of work performed
3. Value of work performed
4. Amount paid to subcontractor or entity
5. Withhold amount, if applicable
6. Explanation of withhold reasoning, if applicable

Your subcontractors and other entities may validate payments received using the prompt payment monitoring system.

If a subcontractor's or other entity's work is in dispute, provide a written withhold notification to the subcontractor or entity and the Engineer no later than 7 days after receipt of the corresponding progress payment that includes the following:

1. Value of the disputed work
2. Amount of the withhold being taken
3. Bid item numbers or change order numbers associated with the disputed work
4. Explanation of the deficiencies of the disputed work and how the corresponding value was calculated
5. Corrective actions to be taken for release of withheld amount

The Department may request additional documentation from you to evaluate whether you applied the withhold in good faith.

If the Department determines your withhold was not applied in good faith or that you failed to submit the required withhold notification, the Department may withhold the same amount from your future progress pay estimate. The Department may also apply a 2 percent penalty on the withhold amount for every month payment is not made.

Add to the end of 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	Location	Type of work
04-2K2404	SON-101-16.5/19.00	SANTA ROSA	Replace/Upgrade Bridge Rails
04-2G3404	SON-101-21.5	SANTA ROSA	Bicycle and Pedestrian Overcrossing

Coordinate lane closures and traffic handling with the Engineer and with contractors of coincident or adjacent projects. Potential conflicts may not be limited to the contracts listed above.

Delete item 2 in the list in the 3rd paragraph of section 5-1.23B(2).

Add to section 5-1.23B(2):

Do not submit paper copies to OSD, Documents Unit.

For submittals to OSD, Documents Unit, e-mail shop drawings and calculation sheets electronically to sc.office.associates@dot.ca.gov.

Each PDF e-mail attachment must not exceed 25 MB in size. The e-mail message must not exceed 50 MB in size.

Each electronic e-mail submission must:

1. Be in PDF format
2. Have a resolution of at least 300 dpi
3. Contain the following information in the subject line:
   3.1. "Shop Drawing Submittal"
   3.2. Contract number
   3.3. Bid item number
   3.4. If separate e-mails are needed to accommodate large files, indicate the total number of e-mails included in the submittal
4. List each PDF file and its number of pages

Use the following naming convention for PDF files you submit:

For shop drawings:
SD_Contract number_Bridge number_Bid item number_Submittal e-mail number
Example: SD_12-345678_54-0001_123_1_of_<<Total Number>>.PDF
For calculations:
CALC_Contract number_Bridge number_Bid item__number_Submittal e-mail number
Example: CALC_12-345678_54-0001_123_1_of_<<Total Number>>.PDF

If submittal of more than 1 copy or set of shop drawings or calculations is specified, submit only 1 electronic copy.

After submitting your electronic files, send a notification of your electronic submittal to the Engineer. Include the names of the submitted files.

Upon completion of review, the Department returns 1 electronic copy with the date of authorization.

Replace section 5-1.24B with:

5-1.24B Department Construction Surveys for Automated Machine Guidance

The Department sets control points to a minimum of 0.07 foot local horizontal accuracy and 3rd order vertical accuracy standards.

For slope stakes and rough grade stakes, the Department sets 6 survey control points or 2 per mile, whichever is greater.

The Department sets slope stakes and rough grade stakes at:

1. Conform stations
2. Beginning and end of each alignment
3. Midpoint or every 200 feet, whichever results in a greater number of stakes, on a curve
4. Every 500 feet on tangents

The Department sets final grade stakes under Chapter 12, "Construction Surveys," section 12.5-6 of the Department's *Surveys Manual*.

At your request, the Department sets survey control points under section 12.1-6, "Automated Machine Guidance." When control stakes are requested, final grade stakes are set at:

1. Conform stations
2. Beginning and end of each alignment
3. Midpoint or every 100 feet, whichever results in the greater number of stakes, on a curve with a radius of 1,200 feet or less
4. Midpoint or every 200 feet, whichever results in the greater number of stakes, on a curve with a radius of more than 1,200 feet
5. Every 200 feet on a tangent

At your request and under Chapter 12 of the Department's *Surveys Manual*, the Department provides (1) staking for intersections, clearing, fencing, drainage, curbs, structures, abutment fill, wall, and miscellaneous areas and (2) additional survey control or staking for earthwork in areas where global navigation satellite system coverage is inadequate for automated machine guidance.

Replace section 5-1.25 with:

5-1.25 AUTOMATED MACHINE GUIDANCE

5-1.25A General

You may use automated machine guidance (AMG) if the AMG meets or exceeds the staking tolerances described in section 12.5, "Typical Department-Furnished Construction Stakes," of the Department's *Surveys Manual*.

You are responsible for determining whether the work and site conditions are practical for AMG use.

Furnish a global navigation satellite system (GNSS) rover compatible with your GNSS base station or the GNSS correction service you subscribe to. The Department returns the GNSS rover upon work completion. This is change order work.

At the preconstruction conference, be prepared to discuss survey control points, site and equipment calibration, inspection methods, conflict resolution, and staking.

5-1.25B Definitions

automated machine guidance: Technology that uses positioning devices, singly or in combination, such as global navigation satellite systems (GNSS), total stations, or rotating laser levels, to determine and control the real-time position of construction equipment using onboard computer equipment.

California Coordinate System of 1983 (CCS83): CCS83 as defined in Pub Res Code § 8801.

digital construction model: Three-dimensional model used by the Contractor's AMG equipment.

digital design model: Three-dimensional model consisting of roadway design alignments, profiles, and cross sections representing the finished grade.

digital terrain model: Three-dimensional model representing the original ground before job site activities start.

global navigation satellite system: Satellite system used to pinpoint the geographic location of a user's receiver anywhere in the world. Two GNSS systems are in operation: the US GPS and the Russian Federation's GLONASS. Each of the GNSS systems uses a constellation of orbiting satellites working in conjunction with a network of ground stations.

GNSS base station: Single ground-based system consisting of a GNSS receiver, antenna, and telemetry equipment that provides differential GNSS correction signals to other GNSS receivers or rovers. Multiple base stations can be combined into a GNSS network.

GNSS correction service subscription: Subscription service to receive differential GNSS correction signals for higher accuracy GNSS positioning without the need of a GNSS base station. Signals are normally received via cellular wireless data services.

GNSS rover: Portable GNSS antenna, receiver, rod, and data collector with telemetry equipment for real-time point measurements.

grid: Cartesian coordinate system of Northing (y) and Easting (x) coordinates using CCS83.

robotic total station: Survey instrument capable of tracking an optical target and providing real-time coordinates of the target to the equipment operator and AMG equipment. A robotic total station unit can provide AMG if site conditions do not allow GNSS receivers to be used and if a higher accuracy is required than the GNSS provides.

site calibration or localization: Process that establishes the relationship between the observed control point coordinates and the site coordinate system, which is usually grid. The term applies to both GNSS and robotic total station equipment.

5-1.25C Electronic Files

Electronic design files include:

1. Digital terrain model in 3-D DGN or LandXML format
2. Roadway design alignments and profiles in LandXML format
3. Cross sections in 2-D DGN and PDF
4. Digital design model in LandXML format

The Department makes electronic design files available as supplemental project information.

You must create the digital construction model (DCM).

Convert the electronic design files to a format compatible with your AMG system. Manipulation of the electronic design files is at your own risk.

Submit copies of the digital construction model files and any updates to them in LandXML format.

Digital design model information may not exist for contour grading and some drainage areas. The Department places stakes for these areas.

The Department provides you with updated electronic data whenever the Engineer determines a plan change materially affects the finished grade. For minor grade changes, the Department places stakes and marks.

5-1.25D Quality Control Plan

Submit an AMG QC plan at least 15 days before starting work requiring AMG. The plan must include the following information:

1. Contract number
2. Name and contact information of the AMG QC technician
3. Limits of the area for which the AMG will be used
4. Scope of work to be completed using AMG for the following work categories:
    4.1. Clearing and grubbing
    4.2. Earthwork
    4.3. Trench excavation
    4.4. Rough grading
    4.5. Subgrade
    4.6. Subbase
    4.7 Base
    4.8. Curb and gutter
    4.9. Cold planning or milling existing pavement
    4.10. Paving
    4.11. Intelligent compaction
    4.12. Concrete barrier
    4.13. Finishing roadway
5. Project control plan sheet detailing control points covering the job site

6 List of GNSS equipment, including:
   6.1. Type
   6.2. Manufacturer
   6.3. Model
   6.4. Software version
7. Description of GNSS site calibration or localization checking, including:
   7.1. List of equipment requiring calibration or localization checking
   7.2. Site calibration or localization procedures
   7.3. Frequency of calibration or localization
   7.4. Format for recording calibrations or localizations, including:
      7.4.1. Date
      7.4.2. Locations where calibration or localization was performed
      7.4.3. GNSS equipment manufacturer and model
      7.4.4. Range of required tolerance
      7.4.5. Name and signature of the person performing calibration or localization
   7.5. Reporting time for submitting records of calibration or localization
8. Description of daily GNSS equipment or robotic total station equipment check-testing procedures, including the format for recording daily check testing
9. List of AMG onboard computer equipment, including:
   9.1. Type
   9.2. Manufacturer
   9.3. Software version
   9.4. List of AMG-controlled equipment, including:
      9.4.1. Type, such as loader or grader
      9.4.2. Manufacturer
      9.4.3 Model
10. Procedures for AMG-controlled equipment calibration, including:
   10.1. Description of equipment calibration procedures
   10.2. Frequency of calibration
   10.3. Format for recording calibration information
11. Electronic data file control, including:
   11.1. Name and contact information of the person responsible for the electronic files
   11.2. DCM file-naming convention
   11.3. Description of the process that will be used to upload the DCM to the AMG equipment
   11.4. Description of the process that will be used whenever updated DCM files are required to be uploaded to the AMG equipment

If QC procedures or personnel change, submit a QC plan supplement describing the change.

5-1.25E Quality Control Technician

During AMG activities, provide a QC technician to be responsible for:

1. GNSS site calibration or localization and upload to all GNSS receivers
2. Maintenance of GNSS and AMG equipment
3. Documentation of the calibration or localization and maintenance of GNSS equipment
4. Daily calibration and documentation of AMG equipment
5. Daily setup and takedown of GNSS and robotic total station components

5-1.25F Just-in-Time Training

Provide at least 8 hours of just-in-time (JIT) training on the GNSS rover for up to 3 Department employees. Provide training materials and equipment.

The JIT training must cover the following topics:

1. Background information for the GNSS to be used
2. Setup and calibration checks for:
   2.1. GNSS receiver
   2.2. GNSS base station

2.3. GNSS rovers
2.4. Machinery
3. Operation of the GNSS rover, including:
3.1. Setup data collection
3.2. Settings for alignments and profiles
3.3. Onboard display options
4. Demonstration of grade checking using the rover

The training is change order work.

5-1.25G Construction

5-1.25G(1) General

If you find a discrepancy in any survey control point, survey stake, or in the electronic data provided, immediately, submit an RFI.

5-1.25G(2) GNSS Site Calibration or Localization

Perform GNSS site calibration or localization to the survey control points at least 5 business days before starting work requiring AMG.

Check each survey control point for accuracy. Submit the GNSS site calibration or localization results within 1 business day of the calibration or localization testing. Allow 3 business days for the review of the results

5-1.25G(3) GNSS Check Testing

Before starting daily work requiring AMG, conduct check testing for the proper setup of the GNSS or robotic total station equipment. Ensure the GNSS or robotic total station equipment achieves accuracies within:

1. 0.10 foot in both horizontal and vertical directions for rough grading
2. 0.05 foot in horizontal directions and 0.02 foot in vertical directions for final grades

Before starting daily production, conduct check testing of the AMG equipment and the GNSS rovers.

Within 1 business day after check testing, submit the check-testing results as informational submittals.

5-1.25G(4) Grade Verification

If requested, provide a GNSS rover and personnel to operate it for the Engineer's use in verifying grades. This is change order work.

Replace section 5-1.26 with:

5-1.26 GRADE QUALITY CONTROL

Use a global navigation satellite system (GNSS) rover, robotic total station equipment, or a level to check the grades at the frequencies shown in the following table:

Grade Checking Requirements

Type of work	Area or distance represented by the grade checking	Frequency (number of grade points)
Earthwork for cut and fill slopes ≤15 feet	200 feet	2
Earthwork for cut and fill slopes >15 feet	1,000 sq yd	1
Rough grading	1,000 sq yd	1
Trenching	100 feet	6
Subgrade	1 mi	30
Subbase layer	1 mi	50
Base layer	1 mi	100
Curb and gutter	100 feet	6
Concrete barrier	100 feet	5
Finishing roadway	1,000 sq yd	2

Increase the frequency of grade checking of a roadway:

1. Wherever its curve radius is 500 feet or less
2. In areas of a superelevation transition
3. At intersections

Notify the Engineer when an area is ready for line and grade inspection. Submit the grade checking results on a Grade Checking Report form as an informational submittal.

Add between the 2nd and 3rd paragraphs of section 5-1.32:

Where State-owned areas have been designated for Contractor's use beneath bridge structures, comply with the following:

1. Do not store any of the following beneath structures:
   1.1. Explosives or explosive materials
   1.2. Flammable or combustible materials
   1.3. Incompatible materials, such as chlorine and ammonia, or batteries and fuels, in the same secondary containment facility
2. Material storage may not encroach on any of the following:
   2.1. Within 20 feet of any bridge support
   2.2. Within 10 feet of any exposed footing or pile cap
   2.3. Within a 6-foot minimum clear zone height from the bottom of superstructure to top of material storage
3. Maintain 12-foot minimum width pathways beneath each hinge, bent cap and bridge span allowing manlift vehicle access
4. Do not obstruct drainage systems

Add to the end of section 5-1.32:

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

Replace section 5-1.35 with:

5-1.35 RENEWABLE DIESEL REQUIRED USE

5-1.35A General

5-1.35A(1) Summary

Section 5-1.35 applies to:

1. Off-road work that you self-perform, excluding vehicles that are used solely to deliver materials or supplies to the job site
2. Subcontractor performed roadway excavation, except when the subcontracted quantity is less than 5,000 cubic yards

Use only renewable diesel fuel for in-use off-road diesel-fueled vehicles and equipment subject to 13 CA Code of Regs § 2449. Renewable diesel fuel must contain a minimum of 95 percent renewable diesel in its blend

5-1.35A(2) Definitions

renewable diesel: A biomass-based diesel fuel which is produced through various thermochemical processes such as hydrotreating, gasification, and pyrolysis. Renewable diesel meets ASTM D975 for diesel fuel.

5-1.35A(3) Submittals

Submit a renewable diesel report form quarterly within 10 days after each quarter end (March 31, June 30, September 30, and December 31) and a final renewable diesel report within 10 days after Contract acceptance. Submit each renewable diesel report to the Engineer and to the electronic mailbox renewablediesel@dot.ca.gov.

You must certify each renewable diesel report for completeness and accuracy.

Submit each renewable diesel report in a PDF file. Use the following file naming convention:

CN_YYYYMMDD_T_R.PDF

where:
CN = contract number, expressed as nine characters, such as 04-0Z3804
YYYY = report year
MM = report month, leading zero
DD = report day, leading zero
T = report type identification, quarter type use "1" for January 1 – March 31, "2" for April 1 – June 30, "3" for July 1 – September 30, "4" for October 1 – December 31, or "F" for final report
R = Enter "0" for an original report copy. For a report revision, use a sequential revision number

Allow 5 business days for review.

If the renewable diesel report requires changes, submit a revised renewable diesel report within 3 business days of the Engineer's request.

Submit the completed report to the electronic mailbox renewablediesel@dot.ca.gov within 5 business days of receiving the renewable diesel report acceptance from the Engineer.

Retain records of each renewable diesel purchase receipt. If requested, submit renewable diesel purchase receipts.

You may request to opt out of future renewable diesel required use and reporting requirements when either of the following conditions occur:

1. For the preceding month relative to the Contract's bid opening date, the renewable diesel average monthly index is less than or equal to the conventional diesel average monthly index; and after Contract award, two consecutive renewable diesel monthly index values are more than 10 percent of their corresponding conventional diesel average monthly index values
2. For the preceding month relative to the Contract's bid opening date, the renewable diesel average monthly index is greater than the conventional diesel average monthly index; and after Contract award, two consecutive renewable diesel monthly index values are more than 10 percent of the renewable diesel monthly index for the month of bid opening

The Department posts average monthly conventional diesel and renewable diesel indices by the 5th day of each month for the preceding monthly index values. For projects with bid openings from the 1st to the 5th day of the month and when the preceding month's average monthly conventional diesel and renewable diesel indices are not yet available, use the monthly indices two months prior for renewable diesel opt out purposes. The monthly conventional diesel and renewable diesel indices will be posted at: http://dot.ca.gov/programs/construction/environmental.

To request an opt out of future renewable diesel required use and reporting requirements, submit a request to the Engineer identifying the renewable diesel average monthly indices and conventional diesel average monthly indices supporting your request. If the Engineer authorizes the opt out request, you are no longer required to use renewable diesel for the remaining duration of the project. Submit your last quarterly renewable diesel report and final renewable diesel report within 15 days of receipt of the Engineer's authorization of the opt out request.

5-1.35A(4) Quality Assurance

Renewable diesel fuel is subject to the Department's inspection, sampling, and testing.

5-1.35B Materials

Not Used

5-1.35C Construction

Not Used

5-1.35D Payment

The Department pays $500 for each authorized quarterly and final renewable diesel report. No additional compensation is provided for revisions of renewable diesel reports.

The Department withholds $5,000 for each failure to submit a required report. Withholds for missing reports become permanent deductions unless the reports are submitted within 10 days after Contract acceptance.

The Department does not adjust the unit price for an increase or decrease in the renewable diesel report quantity.

^^

6 CONTROL OF MATERIALS

Add to the beginning of section 6-1.02:

The Department furnishes you with:

1. Loop detector sensor units

The Department furnishes you with loop detector sensor units at Caltrans Maintenance Station, 224 Lincoln Street, Santa Rosa, CA 95401. 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.

Replace section 6-1.03B with:

6-1.03B Submittals

6-1.03B(1) General

Not Used

6-1.03B(2) Work Plan

For local material, such as rock, gravel, earth, structure backfill, pervious backfill, imported borrow, and culvert bedding, obtained from a (1) noncommercial source, or (2) source not regulated under California jurisdiction, submit a local material plan for each material at least 60 days before placing the material. The local material plan must include:

1. Certification signed by you and an engineer who is registered as a civil engineer in the State or a professional geologist licensed as a professional geologist by the State stating:

   > I am aware local material from a noncommercial source or a source not regulated under CA jurisdiction must be sampled and analyzed for pH and lead and may require sampling and analysis under section 6-1.03B(3) for other constituents of concern based on the land use history. I am aware that local material sources must not contain ADL at concentrations greater than 80 mg/kg total lead or equal to or greater than 5 mg/L soluble lead as determined by the Waste Extraction Test (WET) Procedures, 22 CA Code of Regs § 66261.24(a)(2) App II. I am aware that a maximum quantity of material may be excavated at the site based on the minimum number of samples taken before excavating at the site under section 6-1.03B(3).

2. Land use history of the local material location and surrounding property
3. Sampling protocol
4. Number of samples per volume of local material
5. QA and QC requirements and procedures
6. Qualifications of sampling personnel
7. Stockpile history
8. Name and address of the analytical laboratory that will perform the chemical analyses
9. Analyses that will be performed for lead and pH
10. Other analyses that will be performed for possible hazardous constituents based on:
    10.1. Source property history
    10.2. Land use adjacent to source property
    10.3. Constituents of concern in the ground water basin where the job site is located

The plan must be sealed and signed by an engineer who is registered as a civil engineer in the State or a professional geologist licensed as a professional geologist by the State.

If the plan requires revisions, the Engineer provides comments. Submit a revised plan within 7 days of receiving comments. Allow 7 days for the review.

6-1.03B(3) Analytical Test Results

At least 15 days before placing local material, submit analytical test results for each local material obtained from a noncommercial source or a source not regulated under CA jurisdiction. The analytical test results must include:

1. Certification signed by an engineer who is registered as a civil engineer in the State or a professional geologist licensed as a professional geologist by the State stating:

    > The analytical testing described in the local material plan has been performed. I performed a statistical analysis of the test results of the analytical testing described in the local material plan using the US EPA's ProUCL software with the applicable 95 percent upper confidence limit. I certify that the material from the local material source is suitable for unrestricted use at the job site and the material has met the following criteria:
    >
    > 1. Has a pH above 5.0.
    > 2. Does not contain soluble lead in concentrations equal to or greater than 5 mg/L as determined by the Waste Extraction Test (WET) Procedures, 22 CA Code of Regs § 66261.24(a)(2) App II.
    > 3. Does not contain lead in concentrations above 80 mg/kg total lead.
    > 4. Is not contaminated with the other constituents of concern identified in the local material plan in average concentration (95 percent upper confidence limit) in excess of these constituents' respective San Francisco Bay RWQCB commercial/industrial environmental screening levels ESLs, except for arsenic.
    > 5. Does not exceed the maximum allowed concentration limit table listed in Section 6-1.03B(4).

2. Chain of custody of samples.
3. Analytical results no older than 1 year.
4. Statistical analysis of the data using US EPA’s ProUCL software with a 95 percent upper confidence limit.
5. Comparison of sample results and 95 percent upper confidence limits to hazardous waste concentration thresholds and the applicable San Francisco Bay RWQCB environmental screening levels (ESLs) given in direct exposure human health risk levels (Table S-1), commercial/industrial: Shallow soil exposure, under Summary of Soil ESLs tables (2019 Rev 2). The Summary of Soil ESLs tables (2019 Rev 2) can be obtained by sending an email to ESLs.ESLs@waterboards.ca.gov with "Request for ESL Documents" in the subject line.

6-1.03B(4) Sample and Analysis

Sample and analyze local material from a (1) noncommercial source or (2) a source not regulated under CA jurisdiction:

1. Before bringing the local material to the job site
2. As described in the local material plan
3. Under US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)

The sample collection must be designed to generate a data set representative of the entire volume of proposed local material.

Before excavating at (1) a noncommercial material source or (2) a source not regulated under CA jurisdiction, collect the minimum number of samples, and perform the minimum number of analytical tests for the corresponding maximum volume of local material as shown in the following table:

Minimum Number of Samples and Analytical Tests for Local Material

Maximum volume of imported borrow (cu yd)	Minimum number of samples and analytical tests
< 5,000	8
5,000–10,000	12 for the first 5,000 cu yd plus 1 for each additional 1,000 cu yd or portion thereof
10,000–20,000	17 for the first 10,000 cu yd plus 1 for each additional 2,500 cu yd or portion thereof
20,000-40,000	21 for the first 20,000 cu yd plus 1 for each additional 5,000 cu yd or portion thereof
40,000–80,000	25 for the first 40,000 cu yd plus 1 for each additional 10,000 cu yd or portion thereof
> 80,000	29 for the first 80,000 cu yd plus 1 for each additional 20,000 cu yd or portion thereof

Do not collect composite samples or mix individual samples to form a composite sample.

Statistically analyze the samples' laboratory results using the US EPA's ProUCL software to define 95 percent upper confidence limit for the various contaminants of concern. All chemical analysis must be performed by a laboratory certified by the SWRCB's Environmental Laboratory Accreditation Program (ELAP).

The analytical test results must demonstrate that the local material:

1. Is not a hazardous waste
2. Has a pH above 5.0
3. Has an average total lead concentration, based upon the 95 percent upper confidence limit, at or below 80 mg/kg
4. Is not contaminated with local material plan-identified constituents of concern at average concentrations (95 percent upper confidence limits) in excess of their respective commercial/industrial San Francisco Bay RWQCB environmental screening levels ESLs, except for arsenic.

5. Does not contain any of the following compounds, chemicals, or elements at an estimated average concentration (95 percent upper confidence limit) above the maximum allowed concentration defined in the following table:

Compound/Chemical	Maximum allowed concentration (mg/kg)
Arsenic	11
Barium	1500
Benzene	1
Beryllium	10
Cadmium	10
Chromium (total)	1000
Cobalt	100
Diesel	150
Ethylbenzene	10
Gasoline	500
Mercury	10
Motor oil	500
Nickel	150
Selenium	10
Toluene	10
Trichloroethene	1
Vanadium	200
Xylenes	10
Zinc	600

6-1.03C Local Material Management

Do not place local material until authorized.

If the Engineer determines the appearance, odor, or texture of any delivered local material suggests possible contamination, sample and analyze the material. The sampling and analysis is change order work unless (1) hazardous waste is discovered or (2) the analytical test results indicate the material does not comply with section 6-1.03B(3).

Dispose of noncompliant local material at an appropriately permitted CA Class I, CA Class II or CA Class III facility. You are the generator of noncompliant local materials.

Replace section 6-1.04 with:

6-1.04 BUY AMERICA

6-1.04A General

Buy America requirements do not apply to the following:

1. Tools and construction equipment used in performing the work
2. Temporary work that is not incorporated into the finished project

6-1.04B Crumb Rubber (Pub Res Code § 42703(d))

Furnish crumb rubber with a certificate of compliance. Crumb rubber must be:

1. Produced in the United States
2. Derived from waste tires taken from vehicles owned and operated in the United States

6-1.04C Steel and Iron Materials

Steel and iron materials must be melted and manufactured in the United States except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials
2. If the total combined cost of the materials produced outside the United States does not exceed the greater of 0.1 percent of the total bid or $2,500, the material may be used if authorized

Furnish steel and iron materials to be incorporated into the work with certificates of compliance and certified mill test reports. Mill test reports must indicate where the steel and iron were melted and manufactured.

All melting and manufacturing processes for these materials, including an application of a coating, must occur in the United States. Coating includes all processes that protect or enhance the value of the material to which the coating is applied.

6-1.04D Manufactured Products

Iron and steel used in precast concrete manufactured products must meet the requirements of section 6-1.04C regardless of the amount used.

Iron and steel used in other manufactured products must meet the requirements of section 6-1.04C if the weight of steel and iron components constitute 90 percent or more of the total weight of the manufactured product.

6-1.04E Construction Materials

Buy America requirements apply to the following construction materials unless otherwise specified:

1. Non-ferrous metals
2. Plastic and polymer-based products such as:
   2.1. Polyvinylchloride
   2.2. Composite building materials
   2.3. Polymers used in fiber optic cables
3. Glass
4. Lumber
5. Drywall

Where one or more of these construction materials have been combined by a manufacturer with other materials through a manufacturing process, Buy America requirements do not apply unless otherwise specified.

Furnish construction materials to be incorporated into the work with certificates of compliance with each project delivery. Manufacturer's certificate of compliance must identify where the construction material was manufactured and attest specifically to Buy America compliance.

All manufacturing processes for these materials must occur in the United States.

Replace section 6-1.06 with:

6-1.06 BUY CLEAN CALIFORNIA ACT

6-1.06A Summary

For projects with a total bid over $1 million and 175 or more original working days, the materials or products shown in the following table are subject to the Buy Clean California Act (Pub Cont Code § 3500 et seq.):

Material or product	Material specifications
Carbon steel rebar[a]	Section 52-1.02B, "Bar Reinforcement" Excludes epoxy-coated or galvanized reinforcement uses.
Structural steel[b]	Section 55-1.02D(1), "General," – Structural Steel and Other Materials tables and Section 99, "Building Construction." For hot-rolled, plate or hollow products.
Flat glass[c]	Section 99, "Building Construction"
Mineral wool board insulation[d]	Section 99, "Building Construction"

[a]For each mill providing 20,000 pounds or more on the project
[b]For each mill providing 5,000 pounds or more on the project
[c]For each manufacturer providing 2,000 square feet or more on the project
[d]For each manufacturer providing 4,000 square feet or more on the project

An informal-bid contract is not subject to Buy Clean California Act requirements.

For carbon steel rebar material subject to Buy Clean California Act, the source mill must be on the Authorized Material List for Buy Clean California Act compliant steel mills. Identify source mills on Notice of Materials to be Used form submittals.

For structural steel, flat glass, and mineral wool board insulation subject to Buy Clean California Act, submit an environmental product declaration for each applicable material or product at least 15 days before scheduled installation. The global warming potential of each applicable material or product as evidenced by its environmental product declaration shall not exceed the maximum acceptable global warming potential values established by the Department of General Services. Do not install the applicable material or product until the submittal has been authorized. The maximum acceptable global warming potential for each category of material or product is published on the Department of General Services website at:

https://www.dgs.ca.gov/

For product category rules for structural steel, flat glass, or mineral wool board insulation, go to the METS website. Use the product category rule in effect on the date of bid opening unless otherwise authorized. An environmental product declaration for structural steel, flat glass, or mineral wool board is not required for either of the following conditions:

1. Applicable product category rule has expired without replacement as of the bid opening date.
2. Applicable product category rule was issued less than 100 days before the bid opening date.

Upon each jobsite shipment receipt of materials or products subject to these Buy Clean California Act requirements, report the represented quantity information using the Department's Data Interchange for Materials Engineering.

6-1.06B Definitions

environmental product declaration: Independently verified document created and verified under International Organization for Standardization (ISO) 14025 for Type III environmental declarations that identifies the global warming potential emissions of the facility-specific material or product through a product stage life cycle assessment.

product category rule: Program operator established rule based on the science of life cycle assessment that governs the development of the environmental product declaration for the material or product.

product stage: Boundary of the environmental product declaration that includes (1) raw material supply, (2) transportation processes, and (3) processing operations, including operations such as melting, mixing, milling, finishing, curing, cooling, trimming, packaging and loading for transport delivery. Commonly referred to as a "cradle-to-gate" life cycle assessment.

program operator: Independent agency that supervises and confirms the full environmental product declaration development process under ISO 14025.

raw material supply: Upstream processes which can include allocations, extraction, refinement, reclamation, handling and processing of the constituents used in producing the material or product.

transportation processes: Includes transportation of raw, reclaimed or recycled material constituents from the supplier to the gate of the manufacturer, producer or fabricator. Includes transport of related waste products.

6-1.06C Submittals

You must register on the Department's Data Interchange for Materials Engineering at least 15 days before submitting either of the following:

1. Represented quantity information for materials or products subject to Buy Clean California Act
2. Environmental product declarations for structural steel, flat glass, or mineral wool board insulation

Follow the registration process at:

https://dime.dot.ca.gov/

Submit environmental product declarations for structural steel, flat glass, and mineral wool board insulation to the Department's Data Interchange for Materials Engineering and provide PDF copies to the Engineer.

Submit certified mill test reports upon delivery of carbon steel rebar and structural steel materials to the project documenting their compliance. Do not incorporate these materials and products into the work until compliant documentation has been provided to the Engineer.

For each material or product subject to Buy Clean California Act requirements, complete the represented quantity information on the Department's Data Interchange for Materials Engineering within 5 business days of shipment receipt at the project site.

Immediately notify the Engineer if a program operator has determined their product category rule does not allow for development of a facility-specific environmental product declaration for structural steel, flat glass, or mineral wool board insulation. Include written correspondence from the program operator. If the Engineer determines the development of a facility-specific environmental product declaration for structural steel, flat glass, or mineral wool board insulation cannot be achieved, an environmental product declaration will not be required for that material or product.

6-1.06D Quality Assurance

Not Used

^^

7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

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

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

Section 7-1.02K(6)(j)(iii) includes specifications for handling, removing, and disposing of unregulated earth material containing lead. Management of this material exposes workers to health hazards that must be addressed in your lead compliance plan. This material contains average lead concentrations below 80 mg/kg total lead and below 5 mg/L soluble lead and is not regulated by DTSC as a hazardous substance or a hazardous waste. This material does not require disposal at a permitted landfill or solid waste disposal facility. The RWQCB has jurisdiction over reuse of this material at locations outside the job site limits.

Manage regulated earth material containing lead under sections 14-11.08 and 14-11.09.

Unregulated earth material containing lead is present on the job site at the following locations:

Location	Element of work	Depth
"HN" line east of 101	Interchange modification	The required excavation depth to modify interchange
"HN" line west of 101		
"CA" / "CA-N" line		
"RV2" line / basin		

Unregulated earth material containing lead has been detected to a depth of 2.5 feet within the job site. Unregulated levels of lead found range from less than 7 to 140 mg/kg total lead with an average concentration of 52.2 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. Unregulated levels of lead on the job site have a predicted average soluble concentration of 2.1 mg/L as analyzed by the California Waste Extraction Test and based upon a 95 percent upper confidence limit.

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

1. Cal/OSHA
2. CA RWQCB, Region 1, North Coast

If unregulated material is disposed of:

1. Submit at least 15 days before disposal, the form titled "Agreement between a Contractor Working on State Facilities and a Real Property Owner for Disposing Construction-related Material Suitable for Use on Residential Zoned Property" which discloses the lead concentration of the material to the receiving property owner and obtains authorization for disposal on the property. Give a copy of the signed form to the property owner.
2. You are responsible for any additional sampling and analysis required by the receiving property owner.

If you choose to dispose of unregulated 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 material and for all associated trucking and disposal costs, including any additional sampling and analysis required by the receiving landfill

Delete the 24th paragraph of section 7-1.04

^^

8 PROSECUTION AND PROGRESS

Add to the end of section 8-1.02C(1):

8-1.02C(1)(a) 4-Week Schedule

Hold a weekly schedule progress meeting with the Engineer to:

1. Discuss the weekly controlling activity
2. Coordinate work and traffic control with the contracts listed in section 5-1.20A

Beginning of each week, develop a 4-week schedule identifying the previous week's work and a 3-week look-ahead. Include sufficient detail:

1. By including your and your subcontractors' actual and planned activities for offsite and construction work
2. To address all future activities
3. To identify issues requiring Engineer's action or input
4. To identify all construction activities that may affect the public through:
   - 4.1. Traffic
   - 4.2. Noise
   - 4.3. Vibration
   - 4.4. Work that requires:
     - 4.4.1. Shoulder closure
     - 4.4.2. Lane closure
     - 4.4.3. Freeway closure
     - 4.4.4. Construction Zone Enhancement Enforcement Program (COZEEP)
5. To identify activities that affects the operations of the Toll System Integrator (TSI)
6. Show each TSI Installation Window as one continuous activity in the schedule

You must identify each activity in the 4-week schedule using the activity ID numbering system from the baseline schedule or the last accepted update schedule. To create the 4-week schedule, you must use an EXCEL spreadsheet or a scheduling software as acceptable by the Engineer.

Provide the 4-week schedule to the Engineer at the weekly progress meeting.

Payment for the 4-week Schedule is included in the payment for Level 2 Critical Path Method Schedule.

Replace section 8-1.04C with:

8-1.04C Delayed Start

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 of DRA or DRB nominee and disclosure statement
4. Contingency plan for opening closures to traffic

You may enter the job site only to measure controlling field dimensions and locate 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 form.
2. 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.
3. 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.
4. 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.

^^

DIVISION II GENERAL CONSTRUCTION

10 GENERAL

Add to the end of section 10-1.02B:

Install loop detectors in the uppermost layer of the new pavement.

Add to the end of section 10-1.02C(2):

Protect any irrigation component to be relocated before performing any other construction activity in the area.

^^

12 TEMPORARY TRAFFIC CONTROL

Add to section 12-3.11B(5)(b):

Provide two C50A(CA) construction project funding identification signs.

Legend for the type of project is not required.

Legend for the year of completion on project funding sign must read as follows:

YEAR OF COMPLETION 2025

Add the following funding partner agency pictographs:

Partner funding agency	Height dimension of pictograph with notes
California Department of Transportation	10.25 inches high, including all text legend
City of Santa Rosa	10.25 inches high, including all text legend
Sonoma County Transportation Authority	10.25 inches high, including all text legend
Measure M Go Sonoma	10.25 inches high, including all text legend

Replace section 12-3.20 with:

12-3.20 TEMPORARY BARRIER SYSTEMS

12-3.20A General

12-3.20A(1) Summary

Section 12-3.20 includes specifications for placing, maintaining, repairing, and removing temporary barrier systems.

Temporary barrier system consists of:

1. New or undamaged used interconnected barrier segments
2. Segment connection hardware
3. Stakes and anchor bolts

12-3.20A(2) Definitions

clear area width: Minimum width throughout the length of the barrier system that must be maintained clear of obstructions, objects, and work resources during non-working hours. The width is measured perpendicular from the non-traffic side toe.

set back distance: Space measured between the closest toe of temporary barrier and the edge of traveled way for each direction of traffic.

12-3.20A(3) Submittals

Submit as informational submittal for each type of temporary barrier system:

1. Certificate of compliance.
2. Manufacturer's installation instructions except for Type K temporary railing and temporary concrete barrier with cross bolt.
3. Manufacturer's QC test results and daily production log, through the Data Interchange for Materials Engineering (DIME) website. QC test results must include the concrete mix design number, barrier stamped ID, and must be submitted within 3 business days of QC test completion.

Submit test reports for cross bolts that certify compliance with the applicable ASTM requirements. The test reports must be from a laboratory that is accredited to International Standards Organization/International Electrotechnical Commission 17025 by the American Association for Laboratory Accreditation (A2LA) or the ANSI-ASQ National Accreditation Board.

Submit a signed manufacturer's replacement evaluation report within 10 days of damage to a temporary steel barrier system.

12-3.20A(4) Quality Assurance

12-3.20A(4)(a) General

Temporary barrier systems must comply with MASH Test Level 3 except for Type K temporary railing.

Except for Type K temporary railing and temporary concrete barrier with cross bolt, temporary barrier systems must:

1. Be on the Authorized Materials List for highway safety features
2. Comply with the manufacturer's drawings shown on the Department’s Division of Safety Programs website and the manufacturer's installation instructions

If a discrepancy exists, governing ranking in descending order is:

1. These specifications
2. Manufacturer's drawings
3. Manufacturer's installation instructions

QC sampling, testing, and inspection personnel must have an ACI Concrete Field-Testing Technician, Grade I certification.

Temporary concrete barrier segments must:

1. Comply with the requirements for tier 3 precast concrete in section 90-4
2. Be fabricated at a plant on the Authorized Facility Audit List

Concrete must be sampled and tested at the minimum frequencies shown in the following table.

Concrete QC Tests

Quality characteristic	Test method	Minimum testing frequency
Compressive strength	ASTM C172/C172M, ASTM C31/C31M, and ASTM C39/C39M	Once per 300 cu yd of concrete cast, or every day of casting, whichever is more frequent
Slump	ASTM C143/C143M	
Temperature at time of mixing	ASTM C1064/C1064M	
Density	ASTM C138	Once per 600 cu yd of concrete cast or every 7 days of batching, whichever is more frequent
Air content	ASTM C231/C231M or ASTM C173/C173M	If concrete is air entrained, once for each set of cylinders, and when conditions warrant

A daily production log of PC activities must be maintained under section 90-4.01C(4).

12-3.20A(4)(b) Quality Control

Replace damaged temporary concrete barrier segments with exposed reinforcing steel or concrete spalls 1-1/2 inches in depth and 4 inches in width or greater.

Replace damaged temporary steel barrier segments with permanent bends, tearing, or buckling as described in the signed manufacturer's replacement evaluation report.

Realign temporary barrier system within 2 days of impact or displacement when displaced more than 3 inches except when the temporary barrier system is displaced into a traveled lane realign immediately.

12-3.20B Materials

12-3.20B(1) General

Temporary barrier segment must:

1. Be a minimum 31-1/2 inches in height
2. Have at least two lifting holes
3. Be designed to be used with temporary traffic screen when required

Temporary barrier segment may have your name or logo on each barrier segment. The name or logo must be no more than 4 inches in height and must be located no more than 12 inches above the bottom of the barrier segment.

12-3.20B(2) Temporary Concrete Barriers

12-3.20B(2)(a) General

Temporary concrete barrier segment must:

1. Be precast concrete with a minimum 4,000-psi compressive strength.
2 Have reinforcement steel that complies with section 52.
3. Have a finished surface that complies with section 51-1.03F(2).
4. Include the manufacturer's name, lot number, and month and year of manufacture stamped on the top of each barrier segment except for Type K temporary railing. The stamped information must be:
   4.1. No more than 6 inches in height.
   4.2. No more than 12 inches in length.
   4.3. From 3/16 to 1/4 inch in depth.
   4.4. Centered on the top width of the barrier segment.

Segment connection hardware must be one of the following:

1. Steel bar loops and connecting pins
2. "J" hook steel plates
3. Cross bolts

Steel bar loops must comply with ASTM A36/A36M.

Connecting pins must comply with ASTM A307. A round bar of the same diameter may be substituted for the connecting pins. The round bar must:

1. Comply with ASTM A36/A36M
2. Have a minimum length of 26 inches
3. Have a 3-inch-diameter, 3/8-inch-thick plate welded on the upper end using a 3/16-inch fillet weld

"J" hook steel plates must be a minimum 18 inches in height.

Cross bolt hardware includes:

1. Cross bolts
2. Nuts complying with ASTM A563
3. Hardened washer complying with ASTM F436, Type 1
4. Plate washer complying with ASTM A36/A36M and galvanized post fabrication under section 75-1.02B

Cross bolts must:

1. Be a 7/8-inch bolt or threaded rod and comply with one of the following:
   1.1. HS threaded rod ASTM 193, Grade B7
   1.2. HS threaded rod ASTM A449, Type 1
   1.3. HS nonheaded anchor bolt ASTM F1554, Grade 105, Class 2A
2. Have a permanent grade symbol and manufacturer's identifier

Epoxy adhesive must have a minimum 1650 psi bond strength, except for temporary barrier with “J” Hooks.

12-3.20B(2)(b) Temporary Concrete Barrier with "J" Hooks

The steel stakes must be 1-1/2 inches in diameter and 48 inches long.

Anchor hardware must include:

1. Anchor bolt insert 1-inch diameter, 6-inch long
2. Hex head bolt 1-inch diameter with a minimum length of 11 inches plus thickness of asphalt overlay
3. Plate washer 3/8-inch by 3-inch by 3-inch
4. Retainer ring

12-3.20B(2)(c) Temporary Concrete Barrier with Cross Bolt

Reinforcement steel must comply with ASTM A615/ASTM A706, Grade 60.

Reinforcement steel must be galvanized under section 52-3, when shown.

Combinations of reinforcing steel and welded wire reinforcement are authorized. Welded wire reinforcement must comply with ASTM A1064.

Temporary barrier segments must comply with the tolerances shown in the following table:

Precast Barrier Tolerance

Dimension	Tolerance
Length	±1 in
Insert Placement	±1/2 in
Horizontal Alignment	±1/8 in per 10 feet of length
Deviation of Ends	
Horizontal Skew	±1/4 in
Vertical Batter	±1/8 in per foot of depth

Stakes must:

1. Comply with ASTM A36/A36M-14 or ASTM A529-14 Grade 50
2. Be 1-1/2-inch-diameter-by-48-inch-long
3. Have a plate 1/2-by-3-1/2-by-3-1/2-inch welded 2 inches down from the upper end using a 1/4-inch fillet weld under AWS D1.1 or D1.4

Anchor bolts must:

1. Be a threaded rod, 1-1/8-inch-diameter-by-10-1/2-inch-long
2. Comply with ASTM 307
3. Include a nut complying with ASTM A563
4. Include a plate washer:
   4.1. 1/2-by-3-1/2-by3-1/2-inch with a 1-1/4-inch diameter hole in the center
   4.2. Complying with ASTM A36/A36M
   4.3. Galvanized post fabrication under section 75-1.02B

12-3.20B(2)(d) Type K Temporary Railing

Anchor bolts must:

1. Be a threaded rod, 1-inch-diameter-by-15-1/2-inch-long
2. Comply with ASTM 307
3. Include a nut complying with ASTM A563
4. Include a plate washer:
   4.1. 3/8-by-2-1/2-by-3-inch with a 1-1/8-inch diameter hole in the center
   4.2. Complying with ASTM A36/A36M
   4.3. Galvanized post fabrication under section 75-1.02B

12-3.20B(2)(e)–12-3.20B(2)(g) Reserved

12-3.20B(3) Temporary Steel Barriers

Temporary steel barriers segment must:

1. Be galvanized steel.
2. Have a joint connection.
3. Include permanent identification information with no more than 6 inches in height and 12 inches in length and centered on the top width of the segment. The identification information must include:
   3.1. Manufacturer's name.
   3.2. Serial number.
   3.3. Lot number.
   3.4. Month and year of manufacture.

12-3.20B(4)–12-3.20B(9) Reserved

12-3.20B(10) Temporary Terminal Sections

Reserved

12-3.20C Construction

12-3.20C(1) General

Clean temporary barrier segments at time of installation and at least every 6 months thereafter.

Install the temporary barrier system based on the requirements shown in the following table:

Minimum Clear Area Width

Barrier	Configuration	Height differentials 3 feet or less (ft)	Height differentials greater than 3 ft up to 8 feet (ft)	Edge of deck or height differentials greater than 8 feet (ft)	Fixed objects, falsework members, or temporary supports[a] (ft)
12'-6" temporary concrete barrier with "J" hooks	Freestanding	3	4	8	7
	3 stakes per segment traffic side	1	1	2	3
	2 anchor bolts per segment traffic side	1	1	2	3
20-foot temporary concrete barrier with "J" hooks	Freestanding	3	4	8	7
	4 stakes per segment traffic side	1	1	2	3
	3 anchor bolts per segment traffic side	1	1	2	3
50-foot temporary steel barrier	Staked or anchored at both ends only	6	7	9	10
	Staked or anchored every 250 feet	5	6	8	9
	Staked or anchored every 33 feet	1	1	3	4
10-foot, 20-foot & 30-foot temporary concrete barrier with cross bolts	Freestanding	1	2	5	5
20-foot Type K temporary railing	Freestanding	2	3	8	7
	2 stakes or 2 anchor bolts per segment traffic side	1	1	3	4
	4 stakes or 4 anchor bolts per segment	N/A	N/A	3	3

[a]The minimum clear area width to a falsework or temporary support footing can be 2 feet less than the clear area width shown. Measure clear area width to the footing edge closest to traffic.

Stake temporary barrier systems when placed on an asphalt concrete surface.

Anchor temporary barrier systems when placed on a concrete surface. For bridge decks, confirm the anchor will not penetrate closer than 1-1/2 inches from the bottom of the deck before placement. When temporary barrier is not shown, request the Engineer to verify the bridge deck thickness.

Stake or anchor a minimum 20 feet of temporary concrete barrier at each end of the temporary barrier system. For:

1. Temporary concrete barrier with "J" hooks, place a minimum of 6 stakes or anchors at each end, 3 on each side.
2. Temporary concrete barrier with cross bolts, place a minimum of 6 stakes or anchors at each end, 3 on each side.
3. Type K temporary railing, place 4 stakes or anchors at each end, 2 on each side.

For installations on concrete surfaces, drill holes and bond threaded rods or dowels under section 51-1.03E(5). Do not drill the top of supporting beams or girders, bridge expansion joints, or drains.

Install stakes and anchor bolts so the heads do not project above the top of the temporary barrier pocket profile.

For the approach zone before the protected area, place a minimum:

1. 60 feet temporary barrier on facilities with a posted speed of 45 mph or less
2. 100 feet temporary barrier on facilities with a posted speed greater than 45 mph

Offset the approach end of a temporary barrier system a minimum of 15 feet from the edge of an open traffic lane, use the offset rate shown in the following table:

Temporary Barrier System Offset Rate

Posted speed (mph)	Rate[a]
0 to 45	10:1
46 to 60	15:1
61 to 70	20:1

[a]Rate is longitudinally to transversely with respect to the edge of the traveled way

If a 15-foot minimum offset cannot be achieved, offset the temporary barrier the maximum distance available and install an array of temporary crash cushion modules or an authorized temporary crash cushion system at the barrier approach end.

Install a reflector on the top or face of barrier segments placed within 10 feet of a traffic lane. Space reflectors at approximately 20-foot intervals. Apply adhesive for mounting the reflector under the reflector manufacturer's instructions.

Install a Type P marker panel complying with section 82 at:

1. Each end of a temporary barrier system placed adjacent to a two-lane, two-way highway
2. The end facing traffic for a temporary barrier system installed adjacent to a one-way roadbed
3. The end of the skew nearest the traveled way when a temporary barrier system is placed on a skew

Maintain a minimum height of 31-1/2 inches above surface for temporary barrier. For paving activities adjacent to temporary barrier, do not pave within 2 feet of the barrier segments unless authorized. For paving under the temporary barrier, remove and reset the barrier.

Remove temporary barrier systems when no longer required for the work. Remove stakes and anchor bolts so that minimal damage is done to surface.

After removing the temporary barrier systems:

1. Restore the area to its previous condition or construct it to its planned condition if temporary excavation or embankment was used to accommodate the temporary barrier.
2. Remove all threaded rods or dowels to a depth of at least 1 inch below the top of a concrete surface. Fill the resulting holes with mortar under section 51-1 except cure the mortar by the water method or by the curing compound method using curing compound no. 6.
3. Repair a damaged asphalt surface by providing a clean, smooth edge around the damaged area. Repair any heaving caused by stake removal to provide a uniform surface. Remove loose debris and use compressed air to clean out the stake hole. Comply with manufacturer's requirements except fill the stake hole with grout to existing pavement elevation under section 51-1.

If the Engineer orders a lateral move of a temporary barrier system and repositioning is not shown, the lateral move is change order work except for work area access, clear area width compliance, or because of your means and methods to perform the work.

12-3.20C(2) Temporary Concrete Barriers

12-3.20C(2)(a) General

Before placing temporary concrete barrier on the job site and after each described relocation, paint the exposed surfaces of the segments with white paint complying with specifications for acrylic emulsion paint for exterior masonry.

Place and maintain the abutting ends of segments in alignment without substantial offset from each other.

Install temporary barrier systems with the last segment extending a minimum of 60 feet past the length of the protected area.

12-3.20C(2)(b) Temporary Concrete Barrier with "J" Hooks

Install a minimum 200 feet of temporary concrete barrier with "J" hooks.

Place the temporary barrier system on a concrete or asphalt concrete surface. The asphalt concrete surface must have a minimum 2 inches of asphalt concrete over 6 inches of compacted subbase.

Install two parallel temporary barrier systems, one for each direction of travel, when placed between two-way traffic. Maintain the minimum clear area as shown in the table titled "Minimum Clear Area Width" between the two systems. Maintain a minimum 1-foot set back distance.

12-3.20C(2)(c) Temporary Concrete Barrier with Cross Bolts

Install a minimum 210 feet of temporary concrete barrier with cross bolts.

Place the temporary barrier system on a concrete or asphalt concrete surface.

Do not stake or anchor down temporary barrier system, except for 20 feet at end of the barrier system.

Intermix segments of different lengths within a temporary barrier system when necessary.

For a temporary barrier system placed on a curved layout, maintain the minimum curve radius shown in the following table:

Minimum Curve Radius

Segment length (ft)	Curve radius (ft)
10	125
20	265
30	400

Maintain a minimum 1-foot set back distance when placed between two-way traffic.

12-3.20C(2)(d) Type K Temporary Railing

Do not install Type K temporary railing on projects advertised after December 31, 2026.

Install a minimum 160 feet of Type K temporary railing.

Excavate and backfill under section 19-3.

Do not compact earth fill placed behind Type K temporary railing in a curved layout.

Place temporary barrier system on a firm, stable surface. Grade the area to provide a uniform bearing surface throughout the entire length of the system.

Anchor or stake down the first and last segment and every other segment with four stakes as shown when placed between two-way traffic. Maintain a minimum 1-foot set back distance.

12-3.20C(2)(e)–12-3.20C(2)(g) Reserved

12-3.20C(3) Temporary Steel Barriers

12-3.20C(3)(a) General

Install temporary barrier system under manufacturer's instructions.

12-3.20C(3)(b) 50-Foot Temporary Steel Barriers

Use 50-foot temporary steel barriers with or without rubber pads.

Install a minimum 250 feet of 50-foot temporary steel barrier. The last segment must extend a minimum 25 feet past the length of the protected area.

Place the temporary barrier system on a concrete or asphalt concrete surface. Do not place the system on a dirt surface.

Anchor or stake down the first and last segment of the temporary barrier system.

Maintain a minimum radius of 800 feet for segments placed on a curved layout. For tighter curves down to a 250-foot radius, contact the manufacturer before installation and provide manufacturer's written recommendation for the installation.

Maintain a minimum 2-foot set back distance on both sides of a temporary barrier system used with traffic on both sides of the barrier.

12-3.20C(3)(c)–12-3.20C(3)(h) Reserved

12-3.20C(4)–12-3.20C(9) Reserved

12-3.20C(10) Temporary Terminal Sections

Reserved

12-3.20D Payment

The payment quantity for types of temporary barrier systems is the length measured along the top of the barrier segments.

Replace section 12-3.22 with:

12-3.22 TEMPORARY CRASH CUSHION MODULES

12-3.22A General

Section 12-3.22 includes specifications for placing sand-filled temporary crash cushion modules in groupings or arrays.

12-3.22B Materials

Each sand-filled temporary crash cushion module must:

1. Be on the Authorized Material List for highway safety features
2. Be colored standard yellow with black lids
3. Be free from structural flaws and objectionable surface defects

Sand for filling modules must be:

1. Be commercial-quality, washed concrete sand
2. Contain no more than 7 percent water under California Test 226
3. Be cleaned when placed in the modules

12-3.22C Construction

When activities expose traffic to a fixed obstacle, protect the traffic from the obstacle with a temporary crash cushion. The crash cushion must be in place before opening to traffic the lanes adjacent to the obstacle.

Use the same type of crash cushion module for a single grouping or array. Do not use sand-filled temporary crash cushion module for a permanent installation.

Install temporary crash cushion under the manufacturer's instructions before:

1. Starting the activity requiring the crash cushion.
2. Opening to traffic the lanes adjacent to the protected obstacle.

Fill each sand-filled module with sand to capacity in pounds, under the manufacturer's instructions.

Securely fasten the top edge of a seal to the wall of the sand-filled module with a continuous strip of heavy-duty tape, when a seal is required.

Temporary crash cushion arrays must not encroach on the traveled way.

Maintain sand-filled temporary crash cushions in place at each location, including when work is not in progress. You may remove the crash cushions during the work shift for access to the work area if the exposed fixed obstacle is 15 feet or more from the nearest lane carrying traffic. Reset the crash cushion before the end of the work shift.

Repair damaged sand-filled temporary crash cushion modules immediately. Remove and replace any module damaged beyond repair. Repair and replacement of temporary crash cushion modules damaged by traffic are change order work.

You may place sand-filled temporary crash cushion modules on movable pallets or frames complying with the dimensions shown. The pallets or frames must provide a full-bearing base beneath the modules. Do not move the modules and supporting pallets or frames by sliding or skidding along the pavement or bridge deck.

Attach a Type R or Type P marker panel to the front of the temporary crash cushion if the closest point of the crash cushion array is within 12 feet of the traveled way. Firmly fasten the marker panel to the crash cushion with commercial quality hardware or by other authorized methods. Attach the Type R marker panel such that the top of the panel is 1 inch below the module lid. Attach the Type P marker panel such that the bottom of the panel rests upon the roadway surface or pallet surface when used.

A lateral move of a temporary crash cushion module is change order work if ordered and the repositioning is not shown.

Remove sand-filled temporary crash cushion modules, including sand, pallets or frames, and marker panels, at Contract acceptance.

12-3.22D Payment

The payment quantity for temporary crash cushion module does not include:

1. Modules placed for public safety
2. Modules placed in excess of the number described

Replace section 12-3.28 with:

12-3.28 ALTERNATIVE TEMPORARY CRASH CUSHION—TL-2

12-3.28A General

12-3.28A(1) Summary

Section 12-3.28 includes specifications for installing, repairing, replacing, maintaining, and removing alternative temporary crash cushion.

Alternative temporary crash cushion includes all components needed to attach it to temporary barrier or other temporary barrier system as shown and as approved by the manufacturer.

12-3.28A(2) Definitions

Not Used

12-3.28A(3) Submittals

At least 10 days before installation, submit a certificate of compliance and a minimum of two copies of the manufacturer's drawings, installation instruction manual, and maintenance manual for each model of alternative temporary crash cushion to be used.

12-3.28A(4) Quality Assurance

You must have a copy of the manufacturer's drawings, installation instructions manual, and maintenance manual for each alternative temporary crash cushion to be used on the job site during installation.

Use personnel trained by the manufacturer to install alternative temporary crash cushion. A record of training provided by the manufacturer may be requested by the Engineer at any time.

12-3.28(B) Materials

ABSORB-M crash cushion is a two-element, gating, non-re-directive system manufactured by Lindsay Transportation Solutions and can be obtained from the distributor:

Address	Telephone no.
STATEWIDE SAFETY SYSTEMS 7920 CUCAMONGA AVENUE SACRAMENTO, CA 95826	(916) 452-4855

The price quoted by the distributor/manufacturer for the ABSORB-M Crash cushion, FOB, Sacramento, CA, is $6,757.00, not including sales tax.

The above price is firm for orders placed within 180 days of Contract award and provided you accept delivery within 90 days after the order is placed.

12-3.28(C) Construction

Install alternative temporary crash cushion under the manufacturer's instructions and as shown.

The alternative temporary crash cushion must not be placed such that it impedes the through flow of traffic.

Attach a Type R or Type P marker panel to the front of the alternative temporary crash cushion if the closest point of the crash cushion array is within 12 feet of the traveled way. Firmly fasten the marker panel to the crash cushion with commercial-quality hardware or by other authorized methods.

Maintain alternative temporary crash cushion in place at each location, including times when work is not actively in progress.

Repair damaged alternative temporary crash cushion immediately. Remove and replace crash cushions damaged beyond repair.

Replacement and repair of crash cushions damaged by public traffic is change order work.

12-3.28(D) Payment

Not Used

Add to the beginning of section 12-3.32C:

Place PCMSs at the locations shown and in advance of the 1st warning sign for each:

1. Stationary lane closure
2. Off-ramp closure
3. On-ramp closure
4. Shoulder closure

Add between the 9th and 10th paragraphs of section 12-3.32C:

Start displaying the message on the sign 5 minutes before closing the lane or shoulder or when directed by the Engineer.

Add to section 12-3:

12-3.41 TEMPORARY AUTOMATED END OF QUEUE WARNING SYSTEM

12-3.41A General

12-3.41A(1) Summary

Section 12-3.41 includes specifications for furnishing, maintaining, and removing a temporary automated end of queue warning system.

12-3.41A(2) Definitions

Not Used

12-3.41A(3) Submittals

Submit a weekly temporary automated end of queue warning system operation report by Tuesday of the following week. The report must include:

1. Date, time, message, county, route, direction, and post mile or station for each PCMS.
2. Date and time when the system is not operational.
3. Date, time, location, and activity necessary to maintain system operation.
4. Time and date for any system failures. Each failure entry must include:
   4.1. Description of the equipment that failed.
   4.2. Cause of equipment malfunction.
   4.3. Description of the work performed to correct the malfunction.
   4.4. Time required to repair the malfunction.

12-3.41A(4) Quality Assurance

The system coordinator must be available at the job site within a 2-hour notice.

12-3.41B Materials

Temporary automated end of queue warning system includes traffic sensors, a controller unit, and PCMS.

Temporary end of queue warning system must differentiate between periods of stopped traffic and periods with no traffic.

Temporary automated end of queue warning system must comply with section 12-3.35 except the system must display on the PCMS:

1. Messages shown, based on real time traffic speed data
2. Default message *ROAD WORK AHEAD* when any of the following conditions exist:
   2.1. Sensors do not detect a queue
   2.2. During a power failure and the controller must restart automatically
   2.3. When communication is lost for more than 10 minutes
3. Message *STOPPED TRAFFIC AHEAD* when the speed drops below 5 mph and the traffic sensors stop detecting

12-3.41C Construction

Provide a Type 1 temporary automated end of queue warning system per closure on a freeway, expressway, or multilane conventional highway.

Provide end of queue monitoring and warning for the first 5 days of lane closures with truck mounted changeable message sign.

Place the traffic sensors and PCMSs as shown.

Operate the temporary automated end of queue warning system only while work is in progress.

On entrance ramps within the maximum design queue, place a W3-4 sign downstream from the C23 (CA) sign. Place a C23 (CA) sign on the ramp if one is not already in place.

12-3.41D Payment

If the temporary automated end of queue warning system malfunctions for a cumulative period of 4 hours or more, no payment will be made for the day.

Add to section 12-4.02A(2):

special days: Third Monday in January.

Add between the 1st and 2nd paragraphs of section 12-4.02A(3)(c):

Submit a contingency plan for each of the following activities:

1. Rapid-set concrete activities
2. Cold-planing asphalt concrete pavement
3. Bridge work
4. Striping
5. HMA paving

Add to the end of section 12-4.02C(1):

Keep the full width of the traveled way open to traffic when no active construction activities are occurring in the traveled way or within 6 feet of the traveled way.

Keep the full width of the ramp traveled way open for use by traffic on designated holidays and special days.

For each 10-minute interval or fraction thereof past the time specified to open the closure, the amount for liquidated damages per interval shown in the table below is deducted. Liquidated damages are limited to 5 percent of the total bid per occurrence. Liquidated damages are not assessed if the Engineer orders the closure to remain in place beyond the scheduled pickup time.

Type of facility	Route	Direction or segment	Period	Liquidated damages/interval
Mainline (Partial Closure)	Route 101	NB or SB (Weekday or Weekend)	1st half hour 2nd half hour 2nd hour and beyond	$1,000/10 minutes $1,000/10 minutes $1,246/10 minutes
Mainline (Complete Closure)	Route 101	NB Weekday	1st half hour 2nd half hour 2nd hour and beyond	$2,197/10 minutes $3,296/10 minutes $4,394/10 minutes
Mainline (Complete Closure)	Route 101	NB Weekend	1st half hour 2nd half hour 2nd hour and beyond	$2,096/10 minutes $3,143/10 minutes $4,191/10 minutes
Mainline (Complete Closure)	Route 101	SB Weekday	1st half hour 2nd half hour 2nd hour and beyond	$2,316/10 minutes $3,475/10 minutes $4,633/10 minutes
Mainline (Complete Closure)	Route 101	SB Weekend	1st half hour 2nd half hour 2nd hour and beyond	$1,715/10 minutes $2,572/10 minutes $3,430/10 minutes
All Ramps	Route 101	Weekday	1st half hour 2nd half hour 2nd hour and beyond	$1,000/10 minutes $1,000/10 minutes $1,000/10 minutes
All Ramps	Route 101	Weekend	1st half hour 2nd half hour 2nd hour and beyond	$1,000/10 minutes $1,000/10 minutes $1,038/10 minutes

Add to the end of section 12-4.02C(3)(a):

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

Replace section 12-4.02C(3)(b) with:

12-4.02C(3)(b) Complete Freeway or Expressway Closure Requirements

You may close Route 101 to traffic at 1 location in each direction of travel at a time as shown on charts no. H1 – H2.

A complete freeway or expressway closure is allowed for the following activities:

1. Girder erection
2. Bridge demolition

Replace section 12-4.02C(3)(f) with:

12-4.02C(3)(f) Closure Restrictions for Designated Holidays and Special Days

Closure restrictions for designated holidays and special days are shown in the following table:

Lane Closure Restrictions For Designated Holidays And Special Days											
Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun	Mon
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						
				x	**SD** xx						
					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 5:00 a m.
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 11:00 p m.
H	Designated holiday
SD	Special day

Replace section 12-4.02C(3)(g) with:

12-4.02C(3)(g) Freeway or Expressway Lane Requirement Charts

Freeway lane closures must comply with the requirements shown in the following charts:

Chart No. G1
Freeway Lane Requirements

County: SON	Route/Direction: US 101/NB	Post Mile:18.3-18.9

Closure limits: Between Yolanda Avenue / Hearn Avenue Off-Ramp and Baker Avenue On-Ramp

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	1	1	1	1	1	2															S	S	S	2	1
Fri	1	1	1	1	1	2															S	S	S	2	1
Sat	1	1	1	1	1	1	2	2	S	S	S								S	S	S	S	S	2	2
Sun	1	1	1	1	1	1	1	2	2	S	S	S	S	S	S	S	S	S	S	S	S	S	2	2	1

Legend:

1	Provide at least 1 through Freeway Lane open in the direction of travel.
2	Provide at least 2 adjacent through Freeway lanes open in the direction of travel.
S	Shoulder closure is allowed (right / left).
	Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS:

Chart No. G2
Freeway Lane Requirements

County: SON	Route/Direction: US 101/SB	Post Mile:18.9-18.3

Closure limits: Between Baker Avenue Off-Ramp and Hearn Avenue On-Ramp

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	1	1	1	2	2	S																S	S	2	1
Fri	1	1	1	2	2	S																S	S	2	2
Sat	1	1	1	1	1	2	2	S														S	S	2	2
Sun	1	1	1	1	1	1	2	2	S													S	S	2	1

Legend:

1	Provide at least 1 through Freeway Lane open in the direction of travel.
2	Provide at least 2 adjacent through Freeway lanes open in the direction of travel.
S	Shoulder closure is allowed (right / left).
	Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS:

Replace section 12-4.02C(3)(h) with:

12-4.02C(3)(h) Complete Freeway or Expressway Closure Hour Charts

Comply with the requirements for the complete Freeway closure shown in the following charts:

Chart No. H1
Complete Freeway Closure Hours

County: SON	Route/Direction: US 101/NB	Post Mile:18.3 - 18.9

Closure limits: Between Yolanda Avenue/ Hearn Avenue Off-Ramp and Baker Avenue On-Ramp

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C																				
Fri	C	C	C	C	C																				
Sat		C	C	C	C	C																			
Sun		C	C	C	C	C																			

Legend:

C — Freeway may be closed completely.

(blank) — No complete closure is allowed.

REMARKS: Detour traffic as per Detour Plan No. 10 and 10a (MI-9)
NB on ramp from Yolanda Avenue must be closed during these freeway closure hours
This closure chart to be used for a maximum of up to 4 times

Chart No. H2
Complete Freeway Closure Hours

County: SON	Route/Direction: US 101/SB	Post Mile:18.9 - 18.4

Closure limits: Between Baker Avenue Off-Ramp and Hearn Avenue On-Ramp

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C																					
Fri	C	C	C	C																					
Sat		C	C	C	C																				
Sun			C	C	C	C																			

Legend:

C — Freeway may be closed completely.

(blank) — No complete closure is allowed.

REMARKS: Detour traffic as per Detour Plan No. 9 (MI-8).
SB on ramp from Baker Avenue must be closed during these freeway closure hours.
This closure chart to be used for a maximum of up to 4 times.

Chart No. H3
Complete Freeway Closure Hours

County: SON	Route/Direction: US 101 NB & SB	Post Mile:18.3 and 18.9

Closure limits: Between Baker Avenue and Yolanda Avenue

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C																					
Fri	C	C	C	C																					
Sat		C	C	C	C																				
Sun			C	C	C	C																			

Legend:

C	Freeway may be closed completely.
	No complete closure is allowed.

REMARKS: Detour traffic as per Detour Plan No. 9 (MI-8) for US 101 Southbound direction closure and. Detour traffic as per Detour Plan No. 10 and 10a (MI-9) for US 101 Northbound direction closure.
SB on ramp from Baker Avenue and NB on ramp from Yolanda Avenue must be closed during these freeway closure hours.

Chart No. H4
Complete Freeway Closure Hours

County: SON	Route/Direction: US 101 NB & SB	Post Mile:18.3 and 18.9

Closure limits: Between Baker Avenue and Yolanda Avenue

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu																									
Fri																						C	C	C	C
Sat	C	C	C	C	C	C	C	C															C	C	C
Sun	C	C	C	C	C	C	C	C	C																

Legend:

C	Freeway may be closed completely.
	No complete closure is allowed.

REMARKS: Detour traffic as per Detour Plan No. 9 (MI-8) for US 101 Southbound direction closure and Detour traffic as per Detour Plan No. 10 and 10a (MI-9) for US 101 Northbound direction closure.
SB on ramp from Baker Avenue and NB on ramp from Yolanda Avenue must be closed during these freeway closure hours. This closure chart to be used for the existing Hearn Avenue OC demolition only once for two adjacent days.

Chart No. H5
Complete Freeway Closure Hours

County: SON	Route/Direction: US 101 NB	Post Mile:18.3 and 18.9

Closure limits: Between Yolanda Avenue/Hearn Avenue Off Ramp and Baker Avenue On Ramp

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C																				C
Fri	C	C	C	C	C																				
Sat	C	C	C	C	C	C																			
Sun	C	C	C	C	C	C																			C

Legend:

C	Freeway may be closed completely.
	No complete closure is allowed.

REMARKS: Detour traffic as per Detour Plan No. 10 and 10a (MI-9) for US 101 Northbound direction closure. NB on ramp from Yolanda Avenue must be closed during these freeway closure hours. This closure chart to be used for the California wide flange girder placement and can used for a maximum of five occurrences for two adjacent days.

Chart No. H6
Complete Freeway Closure Hours

County: SON	Route/Direction: US 101 / SB	Post Mile:18.9 and 18.4

Closure limits: Between Baker Avenue Off Ramp and Hearn Avenue On Ramp

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C																				C
Fri	C	C	C	C	C																				
Sat	C	C	C	C	C	C																			
Sun	C	C	C	C	C	C																			C

Legend:

C — Freeway may be closed completely.

(blank) — No complete closure is allowed.

REMARKS: Detour traffic as per Detour Plan No. 9 (MI-8) for US 101 Southbound direction closure. SB on ramp from Baker Avenue must be closed during these freeway closure hours. This closure chart to be used for the California wide flange girder placement and can used for a maximum of five occurrences for two adjacent days.

Replace section 12-4.02C(3)(j) with:

12-4.02C(3)(j) Complete Ramp Closure Hour Charts and Ramp Lane Requirement Charts

Comply with the requirements for the complete ramp closure shown in the following charts:

Chart No. J1
Complete Ramp Closure Hours

County: SON	Route/Direction: US 101/NB	Post Mile:18.5

Closure limits: On-Ramp from Hearn Avenue / Yolanda Avenue

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C																			C	C
Fri	C	C	C	C	C																			C	C
Sat	C	C	C	C	C	C	C																	C	C
Sun	C	C	C	C	C	C	C	C																C	C

Legend:

C — Ramp may be closed completely.

(blank) — Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS: Detour traffic as per Detour Plan No. 10 and 10a (MI-9)

Chart No. J2
Complete Ramp Closure Hours

County: SON	Route/Direction: US 101/SB	Post Mile:18.8

Closure limits: On-Ramp from Baker Avenue

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C																		C	C	C
Fri	C	C	C	C	C																		C	C	C
Sat	C	C	C	C	C	C	C	C														C	C	C	C
Sun	C	C	C	C	C	C	C	C														C	C	C	C

Legend:

C Ramp may be closed completely.

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

REMARKS: Detour traffic as per Detour Plan No. 9 (MI-8)

Chart No. J3
Complete Ramp Closure Hours

County: SON	Route/Direction: US 101/SB	Post Mile:18.4

Closure limits: Off-Ramp to Hearn Avenue

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C																		C	C	C
Fri	C	C	C	C	C																		C	C	C
Sat	C	C	C	C	C	C	C															C	C	C	C
Sun	C	C	C	C	C	C	C	C														C	C	C	C

Legend:

C Ramp may be closed completely.

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

REMARKS: Detour traffic as per Detour Plan No. 1 (MI-1)

Comply with the requirements for the ramp lane closure shown in the following chart:

Chart No. J4
Ramp Lane Closure Requirements

County: SON	Route/Direction: US 101/SB	Post Mile:18.5

Closure limits: Off-Ramp to Hearn Avenue

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	1	1	1	1	1	1	S														S	S	1	1	1
Fri	1	1	1	1	1	1	S														S	1	1	1	1
Sat	1	1	1	1	1	1	1	1	S	S									S	S	S	1	1	1	1
Sun	1	1	1	1	1	1	1	1	1	S	S	S						S	S	S	1	1	1	1	1

Legend:

1	Provide at least 1 ramp lane, not less than 11 feet in width, open in the direction of travel.
S	Shoulder closure is allowed (right/left).
	Work is allowed within the highway where a shoulder or lane closure is not required.

REMARKS: Detour traffic as per Detour Plan No. 12 (MI-11)

Replace section 12-4.02C(3)(m) with:

12-4.02C(3)(m) City Street Closure Hour Charts and City Street Lane Requirement Charts

Comply with the requirements for a complete city street closure shown in the following charts:

Chart No. M1
Complete City Street Closure Hours

Location: Hearn Avenue	Direction: EB and WB	

Closure limits: From Corby Avenue to Santa Rosa Avenue

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	C	C	C
Fri	C	C	C	C	C	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	C	C	C
Sat	C	C	C	C	C	C	C	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	C	C
Sun	C	C	C	C	C	C	C	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	C	C

Legend:

C	Street may be closed.
N	No work is allowed.

REMARKS: The number of through traffic lanes in each direction of travel is 1.
Detour traffic as per Detour Plan No. 2, 3, 4, 4a (MI-2 and MI-3).

Chart No. M2
Complete City Street Closure Hours

Location: Corby Avenue	Direction: NB and SB	

Closure limits: From US 101 SB Ramps to North of Hearn Avenue

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	C	C	C
Fri	C	C	C	C	C	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	C	C	C
Sat	C	C	C	C	C	C	C	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	C	C
Sun	C	C	C	C	C	C	C	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	C	C

Legend:

C	Street may be closed.
N	No work is allowed.

REMARKS: The number of through traffic lanes in each direction of travel is 2.
Detour traffic as per Detour Plan No. 5, 5a, 5b, 6, 6a, 6b, 6c, 7, 7a (MI-4, MI-5, and MI-6)
This chart may be used in conjunction with Chart No. J3 (SB 101 off-ramp to Hearn Avenue); see Detour Plan No. 8, 8a, 8b (MI-7)

Chart No. M3
Complete City Street Closure Hours

Location: Hearn Avenue	Direction: EB	

Closure limits: From Corby Avenue to Santa Rosa Avenue

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Fri	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	C	C	C
Sat	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Sun	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C

Legend:

C	Street may be closed.
N	No work is allowed.

REMARKS: The number of through traffic lanes in each direction of travel is 1.
Detour traffic as per Detour Plan No. 4, 4a (MI-3).
This chart to be used for not more than two weekends.
Close the Corby Avenue NB right turning lane on to Hearn Avenue. Close the right most lane on SB Santa Rosa Avenue south of Hearn Avenue intersection. Close the SB left turning lane and the EB through lanes at Hearn Avenue/Corby Avenue intersection.
Portable changeable message signs to be placed 2 weeks prior to the closure notifying the drivers to expect delays.
Coordination with the City is required during this closure.
Simultaneous closure of Chart No. M3 and Chart No. M4 is allowed for not more than two weekends; see Detour Plan No. 2,3,4,4a (MI-2 and MI-3).

Chart No. M4
Complete City Street Closure Hours

Location: Hearn Avenue	Direction: WB	

Closure limits: From Corby Avenue to Santa Rosa Avenue

Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon–Thu	C	C	C	C	C	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Fri	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	C	C	C
Sat	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
Sun	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C

Legend:

C — Street may be closed.

N — No work is allowed.

REMARKS: The number of through traffic lanes in each direction of travel is 1.
Detour traffic as per Detour Plan No. 2, 3 (MI-2).
This chart to be used for not more than two weekends.
Close the EB Hearn Avenue dedicated left turn lane on to Santa Rosa Avenue. Re-stripe to provide dedicated left turn and right turn on Hearn Avenue. Close SB Santa Rosa Avenue dedicated right turn lane at Hearn Avenue and the right most SB through lane. Close left turn lane on Kawana Springs Road. Close the NB Santa Rosa Avenue left turn lanes at Hearn Avenue.
Portable changeable message signs to be placed 2 weeks prior to the closure notifying the drivers to expect delays.
Coordination with the City is required during this closure.
Simultaneous closure of Chart No. M3 and Chart No. M4 is allowed for not more than two weekends; see Detour Plan No. 2,3,4,4a (MI-2 and MI-3)

Add to the end of section 12-4.02C(8)(a):

For a complete freeway closure, install the closure signs at least 7 days before closing the freeway. Notify the Engineer at least 5 business days before installing the signs. If the freeway is not closed on the posted day, change the closure to allow for a 3-business-day advance notice before closure.

For concrete pavement and approach slab replacement activities, place a Fresh Concrete (C43(CA)) sign at the start of the work area and at every 500 feet throughout the entire length of the closure. Keep the signs in place during the curing period.

Replace section 12-4.02C(12) with:

12-4.02C(12) Construction Work Zone Speed Limit Reduction

12-4.02C(12)(a) General

Section 12-4.02C(12) includes specifications for providing, installing, maintaining, and removing traffic control devices for reducing the speed limit for the construction work zones.

Speed limit reduction is limited to 10 mph from the posted speed limit in construction work zones unless a greater speed limit reduction is specified. Construction work zone speed limit reduction can either be required when construction activities are active in a closure as a temporary condition or 24 hours a day, 7 days a week based on the roadway conditions when specified.

Temporary construction work zone speed limit reduction is required for lane closures when construction activities require workers to be present within the lane closures. Construction work zone speed limit reduction is not required for short duration closures of 1 hour or less or when the length of lane closure is 1/2 mile or less.

Construction work zone speed limit reduction is required 24 hours a day, 7 days a week when construction activities affect the roadway around the clock 24 hours a day, 7 days a week as shown on the traffic handling plans.

For divided highways, the construction speed limit reduction zone for 24 hours a day, 7 days a week applies only to the direction of travel where the roadway conditions require lower vehicle speeds.

12-4.02C(12)(b) Materials

For construction work zone speed limit reduction for 24 hours a day, 7 days a week, construction area signs must comply with the requirements for stationary-mounted signs in section 12-3.11. When the duration of construction work zone speed limit reduction for 24 hours a day, 7 days a week is 7 days or less, you may use portable signs that comply with the requirements for portable signs in section 12-3.11.

For temporary construction work zone speed limit reduction, signs must comply with the requirements for portable signs in section 12-3.11.

The PCMS must comply with section 12-3.32.

Radar feedback sign LED displays must have LED:

1. Character of at least 18 inches in height for freeways and expressways
2. Character of at least 14 inches in height for conventional highways
3. Character's width-to-height ratio from 0.7 to 1.0
4. Character's stroke width-to-height ratio of 0.2

Portable radar speed feedback sign must comply with section 12-3.37.

Portable radar speed feedback sign trailers must have a minimum of 9 cones placed on a taper in advance of the device and along the edge of shoulder or edge of the traveled way at 25-foot intervals to a point not less than 25 feet past the device.

Temporary radar speed feedback sign system must comply with the specifications for:

1. Temporary electrical system in section 87-20
2. Radar speed feedback sign system in section 87-14 except the LED character display must remain blank when no vehicles are detected or when the detected vehicle speed is 10 miles or less than the pre-set speed

12-4.02C(12)(c) Construction

Advise motorists of construction work zone speed limit reductions starting 14 days in advance of implementing the speed limit reduction using a PCMS displaying the alternating messages *Reduced Speed* and *Starting XX/XX/XX (Date)*.

When construction work zone speed limit reduction is in effect, the PCMS message must be *XX ZONE AHEAD* and *WILL BE ENFORCED*. Mount a 48-by-48-inch W3-5 XX "SPEED LIMIT" ahead symbol sign on the PCMS trailer.

Cover all existing speed limit signs while the construction work zone speed limit reduction is in effect. Remove covers when construction work zone speed limit reduction is no longer in effect. For construction work zone speed limit reduction for 24 hours a day, 7 days a week, you may remove the existing speed limit signs and replace the signs when the construction activities that required the 24 hours a day, 7 days a week speed limit reduction are completed.

For construction work zone speed limit reduction for 24 hours a day, 7 days a week, install temporary radar speed feedback systems. In addition to the temporary radar speed feedback system shown, place a portable radar speed feedback system 400 feet upstream of active work areas. Portable radar speed feedback system must include a R2-1 sign with G20-5aP "WORK ZONE" plaque.

For temporary construction work zone speed limit reduction for lane closures, install portable radar speed feedback system as shown. In addition to the portable radar speed feedback system shown, place a portable radar speed feedback system 400 feet upstream of active work areas. The portable radar speed feedback system must include a R2-1 sign with G20-5aP "WORK ZONE" plaque.

For on-ramps within the limits of a construction work zone speed limit reduction, place R2-1 signs with G20-5aP "WORK ZONE" plaque within 500 feet of entrance ramps. You may use the strap and saddle method for mounting these sign panels on the entrance ramp lighting standard at the merge point.

For freeway to freeway connector ramps, install signs and devices as shown for construction work zone speed limit reduction.

For expressways, place a R2-1 sign with G20-5aP "WORK ZONE" plaque approximately 500 feet downstream from intersections within the limits of a construction work zone speed limit reduction.

For conventional highways, place a R2-1 sign with G20-5aP "WORK ZONE" plaque approximately 500 feet downstream from major intersections within the limits of a construction work zone speed limit reduction.

Within the limits of a construction work zone speed limit reduction, place intermediate R2-1 signs with G20-5aP "WORK ZONE" plaque at intervals not exceeding three miles.

You may use variable speed limit signs where R2-1 signs are described.

For chip seal projects, place construction work zone speed limit reduction signs and devices as shown except place additional intermediate signs, W8-7 "LOOSE GRAVEL" sign, and a W13-1 (35) plaque every 2000 feet.

12-4.02C(12)(d) Payment

For construction work zone speed limit reduction for 24 hours a day, 7 days a week, signs are paid for as construction area signs, PCMS is paid for as portable changeable message sign, temporary radar speed feedback sign is paid for as temporary radar speed feedback sign system, and portable radar speed feedback sign is paid for as portable radar speed feedback sign systems. Covering and removing covers of existing speed limit signs are included in the price paid for construction area signs.

For construction work zone speed limit reduction only during lane closures, signs are included in the bid item for traffic control system, PCMS is paid for as portable changeable message sign, and portable radar speed feedback sign is paid for as portable radar speed feedback sign systems. Covering and uncovering existing speed limit signs for each lane closure are included in the price paid for traffic control system.

^^

13 WATER POLLUTION CONTROL

Add to the end of section 13-3.01A:

This project's risk level is 2.

The receiving water for this project is Russian River in the Middle Russian River Hydrologic Area 114.21.

Add to section 13-3.01B:

surface water buffer: 50-foot undisturbed natural buffer from the edge of disturbed soil areas to receiving water's top of bank.

TMDL: Total Maximum Daily Load, the sum of the maximum amount of a pollutant that a waterbody can receive per day and still meet state water quality standards. It is the sum of the individual waste load allocations for point sources, the load allocations for nonpoint and natural background sources, and the margin of safety.

Replace the Submittal Requirements table in section 13-3.01C(1) with:

Submittal Requirements

Document	Risk level 1	Risk level 2	Risk level 3	EPA	Lake Tahoe Hydrologic Unit
SWPPP	X	X	X	X	X
Construction Site Monitoring Program	X	X	X	X	X[a]
Job site monitoring reports	X	X	X	X	X
Sampling and analysis plan	X	X	X	X	X
Sampling and analysis plan for nonvisible pollutants	X	X	X	X	X
Sampling and analysis plan for pH and turbidity	--	X	X	--	X
NAL/NEL reports	--	X	X	--	X
Receiving water monitoring trigger reports	--	--	X	--	--
Rain Event Action Plan	--	X[b]	X[b]	--	X
Stormwater Annual Report	X	X	X	X	X

[a]For a project in the Lake Tahoe Hydrologic Unit, this program is referred to as the Construction Site Monitoring and Reporting Program.
[b]Rain Event Action Plans apply to 2009 CGP projects.

Replace section 13-3.01C(2)(a) with:

Within 15 days of Contract approval, submit 1 printed copy and an electronic copy on a read-only CD, DVD, or other authorized data-storage device of your SWPPP unless different quantities are ordered at the preconstruction conference.

A QSD must be assigned to develop and revise the SWPPP.

The SWPPP must:

1. Describe the work involved in the installation, maintenance, repair, and removal of temporary and permanent WPC practices
2. Include maps showing:
   2.1. Locations of disturbed-soil areas
   2.2. Water bodies and conveyances
   2.3. Locations and types of WPC practices that will be used for each Contractor-support facility
   2.4. Locations and types of temporary WPC practices that will be used in the work for each construction phase
   2.5. Locations and types of WPC practices that will be installed permanently under the Contract
   2.6. Water quality sampling locations
   2.7. Locations planned for the storage and use of potential nonvisible pollutants
   2.8. Receiving-water sampling locations
   2.9. Locations of surface water buffers for 2022 CGP project
3. Include a Construction Site Monitoring Program or Construction Site Monitoring and Reporting Program as applicable

4. Include a schedule showing when:
    4.1. Work activities that could cause the discharge of pollutants into stormwater will be performed
    4.2. WPC practices, including soil stabilization and sediment control, that will be used in the work for whichever has the longest duration in the first:
        4.2.1. 60 days
        4.2.2. Construction phase
5. Include a copy of each permit obtained by the Department, such as the Department of Fish and Wildlife permits, US Army Corps of Engineers permits, RWQCB 401 certifications, Docket No. ESPO-SMA 15/16-001 Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils with the DTSC (ADL Agreement), ADL Agreement notification, and RWQCB waste discharge requirements for aerially deposited lead reuse
6. Include training records for project personnel
7. Include contact information of all personnel responsible for WPC practices
8. Include sediment load calculations for surface water buffer for 2022 CGP project. Calculate sediment load of surface water buffer and equivalent sediment load reductions achieved with WPC practices when a 50-foot undisturbed buffer cannot be maintained using RUSLE2 or other approved method.

If revisions are required, the Engineer notifies you of the date when the review stopped and provides comments. Submit a revised SWPPP within 15 days of receiving the comments. The Department's review resumes when a complete SWPPP has been resubmitted.

The North Coast, Region 1 RWQCB will review the authorized SWPPP.

Submit an electronic copy on a read-only CD, DVD, or other Engineer-authorized data-storage device and 4 printed copies of the authorized SWPPP unless fewer quantities are authorized at the preconstruction conference.

If the RWQCB requires review of the authorized SWPPP, the Engineer submits it to the RWQCB for review and comment. If the Engineer orders changes to the SWPPP based on the RWQCB's comments, submit a revised SWPPP within 10 days.

Do not start job site activities until (1) the SWPPP is authorized and (2) a waste discharge ID number is issued.

Submit a revised SWPPP annually before September 15th and any time:

1. Changes in work activities could affect the discharge of pollutants
2. WPC practices are added as change order work
3. WPC practices are added at your discretion
4. Changes in the quantity of disturbed soil are substantial
5. Objectives for reducing or eliminating pollutants in stormwater discharges have not been achieved
6. You receive a written notice of a permit violation for the project from the RWQCB or any other regulatory agency
7. Changes are made to dewatering discharge WPC practices for 2022 CGP project
8. Changes are made to assistant WPC Manager or QSP delegate assignments or delegate functions
9. Changes are made to the project inactive status

Revise the SWPPP through amendment. The annual SWPPP amendment must include an annual winterization plan.

The annual winterization plan must describe the preparation for the upcoming rainy season including:

1. Updated schedule
2. Materials and labor
3. Management of stormwater through the job site including:
    3.1. Run-on
    3.2. Run-off
    3.3. Conveyance downslope

4. Management of areas within the job site including:
    4.1. Areas where work is suspended
    4.2. Areas of soil stabilization
    4.3. New disturbed soil areas
5. Changes to monitoring locations
6. Slope stabilization
7. Management of dewatering discharges for 2022 CGP project

Project subject to 2022 CGP must prepare an inactive project plan when beginning or ending inactive project status. The inactive project plan must include:

1. Updated schedule
2. Site stabilization measures
3. Construction activity status
4. Revised site map with current site conditions
5. Include photographs showing stabilization WPC practices
6. Changes to WPC management and inspections

For 2022 CGP projects with dewatering activities, also submit a sampling and analysis plan for pH and turbidity.

Add to the end of section 13-3.01C(2)(b)(ii):

The following site inspection reports must be performed by the QSD for 2022 CGP project:

1. One within 30 days of construction activities starting
2. One within 30 days of a new site QSD
3. Once between August 1 and October 31 of each year
4. Once between January 1 and March 31 of each year
5. Within 14 calendar days after a NAL exceedance
6. Within 14 calendar days of an inactive project status
7. As requested by Water Board staff

The following site inspection reports must be performed by the QSP for 2022 CGP project:

1. Once every calendar month
2. Once within 72 hours of each forecasted qualifying precipitation event
3. Within 14 days after a NAL exceedance
4. Before the final Notice of Termination or Change of Information of all or part of the site

A QSP delegate cannot perform the above listed QSD and QSP inspection reports.

2022 CGP projects must include a site inspection report for Notice of Termination that includes site photos to document final site conditions and a final site map with the following:

1. Project boundaries and adjacent lands with labeled key features such as roadways and waterbodies
2. Developed drainage basin boundaries and discharge location points
3. Features related to the project that may be used as a reference, such as site entrance and exists, lot boundaries, roads, and structures
4. Permanent WPC practices using hatch patterns, symbols or shading unique to each WPC practice
5. Location and orientation of site photographs used to document final site conditions
6. Areas of the site being transferred to new ownership with the name and contact information of the owner

Replace section 13-3.01C(2)(b)(iii) with:

Submit a copy of the visual monitoring report on a Stormwater Site Inspection Report form for each nonstormwater discharge and each (1) storm event inspection for 2009 CGP project, or (2) qualifying precipitation event inspection for 2022 CGP project. The visual monitoring report must include:

1. Name of personnel performing the inspection, inspection date, and date the inspection report is completed
2. Storm and weather conditions
3. Location of any of the following:
   3.1. Floating and suspended material, sheen on the surface, discoloration, turbidity, odor, and source of observed pollutants for flowing and contained stormwater systems
   3.2. Nonstormwater discharges and their sources
4. Photographs of WPC practices and QSP's description of problem areas for 2022 CGP project
5. Corrective action taken

For each storm event for 2009 CGP project, or qualifying precipitation event for 2022 CGP project, the monitoring report must include:

1. Date, time, and rain gauge reading
2. Visual observations:
   2.1. Within 2 business days before the predicted storm for:
      2.1.1. Spills, leaks, or uncontrolled pollutants in drainage areas
      2.1.2. Proper implementation of WPC practices
      2.1.3. Leaks and adequate freeboard in storage areas
   2.2. Every 24 hours during the storm event for:
      2.2.1. Effectiveness of WPC practices
      2.2.2. WPC practices needing maintenance and repair
   2.3. Within 2 business days after (1) a qualifying rain event for 2009 CGP project, or (2) a qualifying precipitation event for 2022 CGP project, for:
      2.3.1. Stormwater discharge locations
      2.3.2. Evaluation of design, implementation, effectiveness, and locations of WPC practices, including locations where additional WPC practices may be needed
      2.3.3. Evidence of non-visible pollutant discharges due to a failure to implement WPC practices, a container spill or leak, or a WPC practice breach, failure, or malfunction for 2022 CGP project

For nonstormwater discharges for 2009 CGP project, the monitoring report must cover each of the following periods:

1. January through March
2. April through June
3. July through September
4. October through December

Visual observations are not required:

1. During dangerous weather conditions, such as flooding or electrical storms
2. Outside of normal working hours

Retain a copy of the visual monitoring reports at the job site as part of the SWPPP.

Replace items 13 and 14 in the list in the 2nd paragraph of section 13-3.01C(2)(b)(iv) with:

13. Procedures for collecting and analyzing at least 3 samples for each day of each qualifying rain event for a risk level 2 or risk level 3 project subject to 2009 CGP
14. Procedures for collecting and analyzing 1 sample from each discharge location for each day of qualifying precipitation event for a risk level 2 or 3 project subject to 2022 CGP
15. Procedures for collecting effluent samples at all locations where the stormwater is discharged off the job site

Add to the list in the 2nd paragraph of section 13-3.01C(2)(b)(v):

4. TMDL related pollutants

Replace the list in the last paragraph of section 13-3.01C(2)(b)(v) with:

1. Include sampling procedures and a schedule for:
   1.1. Sample collection during the first 2 hours of rain events that generate runoff for 2009 CGP project
   1.2. Sample collection within 8 hours from each discharge location hydraulically down-gradient from the observed triggering condition for 2022 CGP project
   1.3. One sample per applicable discharge location for each 24-hour period that there is a discharge, until the necessary corrective actions are completed to control further discharge of the pollutant, for 2022 CGP project
   1.4. Each nonvisible pollutant source
   1.5. Uncontaminated control sample
2. Identify the locations for sampling downstream and collecting control samples and the reasons for selecting those locations. Select locations for control samples where the sample does not come in contact with materials, wastes, or areas associated with potential nonvisible pollutants or disturbed soil areas.

Replace the header and introductory clause in the 1st paragraph of section 13-3.01C(2)(b)(vi)(B) with:

13-3.01C(2)(b)(vi)(B) Numeric Action Level and Numeric Effluent Limit Exceedance Reports

If a NAL or NEL is exceeded, notify the Engineer and submit an exceedance report within 48 hours after the conclusion of (1) a storm event for 2009 CGP project, or (2) a qualifying precipitation event for 2022 CGP project. The report must include:

Replace the introductory clause in the 1st paragraph of section 13-3.01C(2)(b)(vi)(C) with:

If a receiving-water monitoring trigger is exceeded, notify the Engineer and submit a monitoring trigger report within 48 hours after the conclusion of (1) a storm event for 2009 CGP project, or (2) a qualifying precipitation event for 2022 CGP project. The report must include:

Replace the 1st sentence of section 13-3.01C(3) with:

For a risk level 2 or risk level 3 project subject to the 2009 CGP, submit a rain event action plan at least 48 hours before a forecasted storm event if the NWS predicts a storm event with at least a 50 percent probability of precipitation within 72 hours.

Replace section 13-3.01D with:

13-3.01D Quality Assurance

13-3.01D(1) General

Not Used

13-3.01D(2) Regulatory Requirements

Except for a project in the Lake Tahoe Hydrologic Unit or on federal or tribal lands, discharges of stormwater from the project must comply with the 2009 or 2022 CGP.

For a project in the Lake Tahoe Hydrologic Unit, discharges of stormwater from the project must comply with the NPDES General Permit for General Waste Discharge Requirements and National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity in the Lake Tahoe Hydrologic Unit, Counties of Alpine, El Dorado, and Placer. You may view the General Permit for the Lake Tahoe Hydrologic Unit at the Storm Water Program page of the Lahontan RWQCB website.

A project on federal or tribal lands must comply with the permit issued by the US EPA for National Pollutant Discharge Elimination System General Permit for Discharges from Construction Activities. This permit governs stormwater and nonstormwater discharges from work activities at the job site. This permit may be viewed at the US EPA website.

13-3.01D(3) Sampling

13-3.01D(3)(a) General

Assign trained personnel to collect samples. The personnel must comply with the equipment manufacturer's instructions for the collection of samples, analytical methods, and equipment calibration.

Samples taken for laboratory analysis must comply with water quality sampling procedures and be analyzed by a State-certified laboratory under 40 CFR part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants*.

For a risk level 2 or risk level 3 2009 CGP project, take samples for pH and turbidity from representative and accessible locations upstream and downstream of the discharge point. For multiple discharge points, obtain samples from a single upstream and a single downstream location.

For risk level 2 or risk level 3 2022 CGP project, take samples for PH and turbidity from representative and accessible locations upstream and downstream of each discharge point. Sample run-on from surrounding areas if there is a reason to believe run-on may contribute to an NAL or NEL exceedance.

If the receiving water monitoring trigger for turbidity is exceeded for a risk level 3 project, take samples and analyze the suspended sediment concentration under ASTM D3977 at a minimum detection limit of 5 mg/L.

13-3.01D(3)(b) Numeric Action Levels

For a risk level 2 or risk level 3 project, test the sample at the discharge location. For 2022 CGP projects with dewatering activities, test each dewatering discharge location within the first hour of discharge and daily for continuous dewatering discharges. The test methods and detection limits for the NALs are shown in the following table:

Quality characteristic	Test method	Detection limit (min)	NAL
Turbidity (max, NTU)	Field test with calibrated portable instrument	1	250
pH	Field test with calibrated portable instrument	0.2	6.5–8.5

For 2022 CGP project, if dewatering discharge NALs are exceeded, cease dewatering discharges.

For a project in the Lake Tahoe Hydrologic Unit, test the sample at the discharge location under the test method and at the detection limits for the NALs shown in the following table:

Quality characteristic	Test method	Detection limit (min)	NAL
pH	Field test with calibrated portable instrument	0.2	6.0–9.0

The daily average sampling limits must be within the specified range for 2009 CGP project or 2022 CGP projects in the Lake Tahoe Hydrologic Unit. Each discharge location must be sampled for 2022 CGP projects.

13-3.01D(3)(c) Receiving-Water Monitoring Triggers

For a risk level 3 project, test the receiving water under the test methods and at the detection limits for the monitoring triggers shown in the following table:

Quality characteristic	Test method	Detection limit (min)	Monitoring trigger
Turbidity (max, NTU)	Field test with calibrated portable instrument	1	500
pH	Field test with calibrated portable instrument	0.2	6.0–9.0

For 2009 CGP project, the storm event daily average for storms up to the 5-year, 24-hour storm must not exceed the receiving-water monitoring trigger for turbidity. The daily average sampling results must not exceed the receiving-water monitoring trigger for pH.

For 2022 CGP project, collect a minimum of 1 upstream receiving water sample from an accessible and safe location that is representative of the receiving water, as close as possible to the discharge location, and upstream from the discharge location. Collect a minimum of 1 downstream receiving water sample from an accessible and safe location that is representative of the receiving water, as close as possible to the discharge location and downstream from the discharge location. Collect samples once every 24-hour period of the qualifying precipitation event. Analyze the sample for the parameter that triggered the receiving water monitoring, including either pH or turbidity, or both.

13-3.01D(3)(d) Numeric Effluent Limitations

For a project in the Lake Tahoe Hydrologic Unit, test the sample at each discharge location under the test methods and at the detection limits for the NALs shown in the following table:

Quality characteristic	Test method	Detection limit (min)	NEL
Turbidity (max, NTU)	Field test with calibrated portable instrument	1	20

The storm event daily average for storms up to the 20-year, 1-hour storm must not exceed the NEL for turbidity for projects in the Lake Tahoe Hydrologic Unit.

13-3.01D(4) Water Quality Control

Collect water samples:

1. During a storm event for:
   1.1. Each nonvisible pollutant source and a corresponding uncontaminated control sample
   1.2. All locations identified on the rain event action plan for risk level 2 or risk level 3 2009 CGP project
   1.3 All discharge locations for risk level 2 or risk level 3 2022 CGP project
2. For 2009 CGP project, during a qualifying rain event for:
   2.1. Each nonvisible pollutant source and a corresponding uncontaminated control sample
   2.2. Turbidity, pH, and other constituents as required
   2.3. All locations identified on the rain event action plan
3. For 2022 CGP project, during a qualifying precipitation event for:
   2.1. Each nonvisible pollutant source and a corresponding uncontaminated control sample
   2.2. Turbidity, pH, and other constituents as required
   2.3. All discharge locations for risk level 2 or risk level 3 project

For 2009 CGP project, collect at least 3 samples for each day of a qualifying rain event. Collect samples during (1) normal working hours and (2) the first 2 hours of each storm event. Samples do not need to be collected during dangerous weather conditions, such as flooding or electrical storms.

For 2022 CGP project, collect samples for each 24-hour period of a qualifying precipitation event. Collect samples during (1) normal working hours and (2) within 8 hours of each storm event. Samples do not need to be collected during dangerous weather conditions, such as flooding or electrical storms.

Collect receiving water samples for a risk level 3 project and if a direct discharge to receiving waters occurs.

If a downstream sample shows an increased level of turbidity, pH, or other constituent, assess WPC practices, site conditions, and surrounding influences to determine the probable cause for the increase.

You may request or the Engineer may order laboratory analysis of stormwater samples. If ordered, laboratory analysis of stormwater samples is change order work.

13-3.01D(5) Training

For project managers, supervisory personnel, subcontractors and employees that are QSP delegates involved in WPC work on a 2022 CGP project:

1. Provide stormwater training for:
   - 1.1. SWPPP roles and responsibilities
   - 1.2. Forecast information
   - 1.3. Documentation and reporting procedures
2. Provide site-specific training for:
   - 2.1. Visual inspections
   - 2.2. Sampling procedures
   - 2.3. SWPPP and WPC implementation activities relevant to the QSP delegate's assigned responsibilities

13-3.01D(6) Responsibilities

Before assigning a QSP delegate on a 2022 CGP project, the WPC manager must ensure the QSP delegate has a competent understanding of the following WPC work:

1. Visual inspections
2. Sampling procedures
3. SWPPP and WPC implementation tasks

The QSP delegate must record and report issues to the QSP within 24-hours of a WPC corrective action.

Replace 2nd sentence in the 1st paragraph of section 13-3.03 with:

The notice must include the Waste Discharge ID number and a contact name and phone number for obtaining additional project information.

Add to the end of section 13-3.03:

Notify the Engineer at least 32-hours in advance of dewatering activity discharges for 2022 CGP project.

Replace section 13-14 with:

13-14 TEMPORARY DEWATERING AND NON-STORM WATER DISCHARGE CONTROL SYSTEM

13-14.01 GENERAL

13-14.01A Summary

Section 13-14 includes specifications for designing, installing, operating, monitoring, maintaining, and removing temporary dewatering and non-storm water discharge control system (TDNWCS) for the collection, conveyance, treatment and disposal of contaminated groundwater and accumulated stormwater from excavations or other areas requiring dewatering including impounded construction site water, water resulting from piling work, and stormwater combined with groundwater.

Design, installation, operation, and monitoring of a TDNWCS and monitoring and disposal of the treated effluent and petroleum hydrocarbons (total petroleum hydrocarbons (TPH) as gasoline (TPH-G), TPH as diesel (TPH-D), and TPH as motor oil (TPH-MO) and other potential inorganic and organic pollutants must comply with North Coast Regional Water Quality Control Board NPDES General Permit for Discharges of Highly Treated Groundwater to Surface Waters Following Extraction and Treatment of Groundwater Polluted with Petroleum Hydrocarbons and Volatile Organic Compounds (Order No. R1-2016-0034, NPDES No. CAG911001). You are responsible for all costs and requirements related to obtaining coverage under the Order No. R1-2016-0034.

CAM 17 Metals (arsenic, barium, beryllium, chromium, copper, lead, mercury, nickel and zinc), petroleum hydrocarbons (TPH-D, TPH-MO), were reported at concentrations exceeding their respective waste discharge requirements (WDRs) in groundwater collected at the job site. In addition to these metals above their respective WDRs, antimony, cadmium, cobalt, selenium, silver, thallium, vanadium must be monitored. The soil and groundwater concentration data is included in the Hazardous Materials Investigation Report, which is listed in section 2-1.06B.

You may discharge into a publicly owned treatment works system instead of using a TDNWCS. If contaminated groundwater, stormwater, or both are discharged to a publicly owned treatment works, obtain a municipal batch discharge permit. You are responsible for all costs and requirements related to obtaining the municipal batch discharge permit and discharging the water.

13-14.01B Definitions

Not Used

13-14.01C Submittals

13-14.01C(1) General

Not Used

13-14.01C(2) Temporary Dewatering and Non-storm Water Discharge Control System Plan

Submit the TDNWCS plan at least 55 days before discharge activities:

1. Submit 3 copies of the TDNWCS plan. Allow 10 days for the Engineers' review. The Engineer provides comments and specifies the date when the review stopped if revisions are required.
2. Change and resubmit a revised TDNWCS plan within 5 days of receiving the Engineer's comments. The Engineer's review resumes when a complete TDNWCS plan has been resubmitted.
3. When the Engineer authorizes the TDNWCS plan, submit an electronic copy and 4 printed copies of the authorized TDNWCS plan.
4. Allow 30 days for the Engineer to submit the authorized TDNWCS plan to the RWQCB.
5. If the Engineer requests changes to the TDNWCS plan based on the RWQCB's comments, amend the TDNWCS plan within 5 business days.

The TDNWCS plan must include:

1. Title sheet
2. Table of contents
3. Certification and approval sheet described in the Department's Storm Water Prevention Plan (SWPPP) and Water Pollution Control Plan (WPCP) Preparation Manual
4. Amendment log and format described in the Department's Storm Water Prevention Plan (SWPPP) and Water Pollution Control Plan (WPCP) Preparation Manual
5. Description and schedule of the discharge activities
6. Discharge alternatives, including:
    6.1. Dust control
    6.2. Percolation
    6.3. Storm sewers
    6.4. Surface waters
7. Treatment system description and components
8. Anticipated flow rates
9. Operation and maintenance manual for equipment
10. Monitoring, sampling, and reporting plan, including quality assurance and quality control
11. Health and safety plan

12. Spill prevention plan
13. Field-recorded data, visual inspection, calibration procedures, and examples of logs
14. Measuring equipment descriptions
15. Shop drawings showing:
    15.1. Section and plan views of non-stormwater effluent treatment systems
    15.2. Location of sampling points for water quality measurements
    15.3. Flow path and placement of pipes, hoses, pumps, holding tanks, and other equipment used to convey water
    15.4. General position of treatment components relative to excavations or other areas requiring dewatering
    15.5. Point of non-stormwater discharge
16. Daily inspection report form. The daily inspection report must include:
    16.1. Discharge volumes
    16.2. Water quality monitoring records
    16.3. Discharge point information that includes:
        16.3.1. Date and time
        16.3.2. Weather conditions, including wind direction and velocity
        16.3.3. Presence or absence of water fowl or aquatic wildlife
        16.3.4. Color and clarity of the effluent discharge
        16.3.5. Erosion or ponding downstream of the discharge site
        16.3.6. Photographs labeled with the time, date, and location
17. Municipal batch discharge permit from a publicly owned treatment works if required
18. Coagulant pollution prevention plan with the TDNWCS plan if you use chemical coagulants, in-line flocculants, or both, in the treatment system. Chemical coagulants and flocculants proposed for use in TDNWCS must comply with all provisions under "Active Treatment System (TDNWCS) Requirements" within Attachment F Provisions D and E, in the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002).The coagulant prevention work plan must include:
    18.1. Description of BMPs to prevent accidental spillage, overfeeding into the treatment system, or other mishandling of coagulant agents
    18.2. Monitoring plan for all coagulants, flocculants, or both
    18.3. Description of the agents, including chemical and trade names
    18.4. Determination of acute and chronic toxicity for aquatic organisms conforming to EPA methods for the agents
    18.5. Monitoring plan to detect a residual agent at concentrations at or below established acute toxicity levels for freshwater and marine conditions for that agent

13-14.01C(3) Notice of Discharge Report

Whenever observations or measurements confirm that a residual chemical or water quality standard is exceeded:

1. Submit the notice of discharge within 48 hours after exceeding the limits
2. Document the reasons for exceeding the water quality standard and any corrective work performed to prevent a recurrence in the notice of discharge

13-14.01C(4) Other Active Treatment System Submittals

If the TDNWCS discharges treated effluent, submit a daily inspection report within 24 hours.

Submit records of delivery and removal of TDNWCS components.

13-14.01D Quality Assurance

A residual chemical for coagulants must be less than 10 percent of the maximum allowable threshold concentration for the most sensitive species.

Discharges from a TDNWCS must comply to Order No. R1-2016-0034 and other applicable permits.

13-14.02 MATERIALS

13-14.02A General

Design and implement a system for the site conditions and anticipated flow rate.

System must include:

1. Treatment system
2. Collection and conveyance system
3. Temporary holding tanks
4. Sampling methods
5. Discharge methods

13-14.02B Treatment System

Primary and secondary treatment may be required, or the design of the treatment system may require combined use of the various treatment components in series to achieve effective treatment. The treatment system must have components to:

1. Remove sediment, turbidity-producing suspended solids, petroleum hydrocarbon, volatile organic compounds (VOCs), and metals, Components may include desilting basins, weir tanks, settling tanks, sediment traps, gravity bag filters sand media filters, pressurized bag filters, cartridge filters, in-line chemical coagulants and flocculants, activated clay filters, activated carbon filters or any combination necessary to provide primary and secondary treatment
2. Adjust pH or dissolved oxygen by:
    2.1. Addition of sulfuric, phosphoric, citric, or nitric acid under the supplier's specifications for treatment of water with high pH. You may use hydrochloric acid if the water is dechlorinated before discharge.
    2.2. Filtration through a limestone bed or addition of sodium hydroxide for treatment of water with a low pH. You may use carbon dioxide diffusion that produces carbonic acid for pH adjustment.
    2.3. Aeration for treatment of water with low dissolved oxygen.

13-14.02C Collection and Conveyance System

Provide pumps and piping to convey the water from the point of dewatering or stormwater capture to the treatment system and to the point of discharge. Pumps and piping must comply with section 74-2.

Use a flow meter to measure all discharges from treatment activities.

13-14.02D Temporary Holding Tank System

Store water pumped during dewatering activities that is not diverted to TNDWCS, in temporary holding tanks placed at the work area for treatment.

Use temporary holding tanks including transportable closed-top holding tanks or tanker trucks. Provide enough holding tanks based on:

1. Anticipated flow rate
2. Pumping rates
3. Capacity inefficiencies due to sediment retention within the holding tanks
4. Sediment settling rates
5. Sediment removal frequency
6. Anticipated water loss or reuse rates

Temporary holding tanks must have holding capacity sufficient to handle the water removed from dewatering activities and to prevent delay of work.

Each temporary holding tank must have an inlet and outlet capable of receiving and discharging flows at a sufficient rate to handle the water removed from dewatering activities.

Maintain a minimum freeboard of 1 foot in each of the temporary holding tanks at all times. Clean the holding tanks when 25 percent of the tank's volume is filled with sediments.

13-14.02E Discharge Method

Provide a method for discharging treated water or uncontaminated ground or surface water and include a discharge location. Do not discharge treated water in a way that impacts the natural bedding and aquatic life.

Discharge treated water:

1. To control dust in active work areas.
2. To land where the grade allows sheet flow and the soil allows infiltration.
3. In a way that does not cause erosion and scour. Whenever scour occurs, repair the damage and install a velocity dissipater.

13-14.03 CONSTRUCTION

13-14.03A General

Water quality must comply with limits for discharge effluents and the receiving waters. Whenever observations or measurements under section 13-14.03B determine the water quality limits are exceeded:

1. Stop the discharge immediately
2. Notify the Engineer
3. Start corrective measures to change, repair, or replace the equipment and procedures used to treat the water

After the Engineer inspects and authorizes your corrective measures, resume treatment and discharge activities under the startup-phase sampling requirements before resuming regular-phase sampling.

Maintain the TDNWCS to provide required function and prevent leaks. Whenever a component of the system is not functioning properly, discontinue treatment activities and repair or replace the component.

Sediments removed from uncontaminated areas during maintenance of the treatment system must be dried, distributed uniformly, and stabilized at a location within the project limits where authorized.

Relocate the TDNWCS as needed.

13-14.03B Monitoring

13-14.03B(1) General

Comply with the manufacturer's instructions for all calibrations of the flow meter. Perform calibrations in the presence of the Engineer.

While the system in operation, monitor in conformance with the Monitoring and Reporting Program included in Attachment E of the Order R1-2016-0034 for discharging treated water.

Monitoring equipment for the TDNWCS must record data at least once every 15 minutes. Cumulative flow data must be recorded daily. The recording system must have the capacity to record a minimum of 7 days of continuous data.

Monitoring equipment must be interfaced with the control system of the TDNWCS to provide shutoff or recirculation whenever effluent readings exceed limits for applicable constituents. The control system must default to recirculation or shutoff during a power failure or other catastrophic event.

The control system must control the dose of the coagulant, flocculent, or both to prevent overdosing.

Comply with the manufacturer's instructions for the use and calibration of meters and devices for taking water quality measurements. Perform calibrations in the presence of the Engineer.

You may discharge into a publicly owned treatment works (POTW) system instead of using a dewatering and non-storm water discharge system. If contaminated groundwater, storm water, or both are discharged to a POTW, obtain a municipal batch discharge permit. You are responsible for all costs and requirements related to obtaining the municipal batch discharge permit and discharging the water.

13-14.03B(2) Flow Rate Monitoring

A flow meter that has been authorized for exclusive use in dewatering during construction must be used to measure all excavation discharges. All calibrations must be done under the manufacturer's instructions in the presence of the Engineer.

Record the flow-meter totalize readings and compute average daily volumes for every day that dewatering is performed.

13-14.03C Inspection

13-14.03C(1) General

Perform compliance monitoring under the Monitoring and Reporting Program (MRP) included in Attachment E of the Order No. R2-2017-0048 for discharging treated water. If a batch discharge permit is obtained from a POTW, comply with the provisions contained in the batch discharge permit including all monitoring and reporting requirements.

While TDNWCS is being operated, document the results in a Daily Inspection Report (DIR). The DIR form must include the discharge volume records and water quality monitoring records. In developing the DIR, refer to the Department's Dewatering Guide. The DIR form must be authorized before use. The DIR must be provided weekly or as directed to the Engineer.

All information and recorded data collected or submitted as part of the DIR must be certified as true and accurate and signed by those who gather the information.

13-14.03C(2) Visual Inspection

During each day of discharge, perform daily inspection of the effluent at the discharge site. The DIR must include photographs of the discharge point and areas downstream of the discharge location.

13-14.04 PAYMENT

Not Used

^^

14 ENVIRONMENTAL STEWARDSHIP

Add to the end of section 14-1.02:

An ESA exists on this project.

Before starting job site activities, install Temporary High Visibility Fence to protect the ESA and mark its boundaries.

Limited access to the ESA is allowed for biological and water quality monitoring and maintenance or inspection of fencing. Notify the Engineer 5 business days or less before the planned entry date. Any other access to the ESA is prohibited.

Access to an ESA other than that described is prohibited.

Add to the 1st paragraph of section 14-6.03A:

This project is within or near habitat for the regulated species shown in the following table:

Regulated Species

Cooper's Hawk
White-Tail Kite
Migratory Birds

This project includes the sensitive habitats shown in the following table:

Sensitive Habitats

Wetland and waters

Replace item 1 in the list in the 2nd paragraph of section 14-6.03A with:

1. Stop all work within a 100-foot radius of the discovery except as shown in the following table:

Regulated species	Protective radius (feet)
Nesting Raptors	300
Nesting Migratory Birds	50

Add to section 14-6.03A:

Species protection areas within the project limits are as specified in the following table:

Species Protection Areas

Identification name	Location
Species Protection Area 1	Entire Project Limits
Species Protection Area 2	SPA-2

Comply with the following biological resource information requirements:

Within Species Protection Area 1, implement the following protection measures:

1. Notify the Engineer 15 days before the start of job site to allow for preconstruction surveys by the Department Biologist. Do not start work without authorization.
2. Do not disturb ground, remove vegetation, prune plants, saw cut or grind pavement, or work on existing structures without authorization:
   - 2.1. Notify the Engineer to allow nesting bird surveys of the job site by the Department Biologist:
     - 2.1.1. At least 15 days before starting initial work.
     - 2.1.2. At least 10 days before resuming work.
   - 2.2. Authorization is valid for 72 hours whether you perform the work.
3. Minimize job site disturbance from construction activities.
4. Debris and waste must be picked up daily:
   - 4.1. All food and related food trash items must be enclosed in a trash container with a lid and removed from the job site daily.
   - 4.2. Dispose cigarette butts in trash.
5. No dumping of litter or construction debris is permitted within water or wetland features or where it may pass into water or wetland features.
6. Debris, soil, silt, bark, slash, sawdust, rubbish, creosote-treated wood, raw cement/concrete, or washings thereof, asphalt, paint or other coating material, oil or other petroleum projects, or any other substances which could be hazardous to aquatic life, wildlife, or riparian habitat Provide absorbent materials designated for spill containment and cleanup activities on-site for use in an accidental spill. Before entering the job site, all field personnel must know the location of spill kits and trained in their appropriate use. must be prevented from contaminating the soil and/or entering any water or wetland features.

7. Do not dispose soil and plant materials from any areas that support high priority noxious weeds into natural habitats.
8. Do not work in the rain unless authorized. Monitor the weather for forecasted precipitation by National Weather Service. When 1/4 inch or more of precipitation is forecasted to occur, work must stop before precipitation commences. After any storm event, inspect the entire job site for erosion and sediment problems., Notify the Engineer immediately of any problem and take corrective action as authorized. 72-hour weather forecasts from the National Weather Service must be consulted and work must not start back up until runoff ceases and there is less than a 50 percent forecast for precipitation for the following 24-hour period.
9. Water containing mud, silt, or other pollutants from equipment washing or other activities, must not be allowed to enter a water or wetland feature and must be disposed of according to State and local laws outside the job site.
10. Concrete used must be excluded from water or wetland features or where they may come in contact with water or wetland features for a period of 30 days after it is poured/sprayed. commercial sealants may be applied to the poured concrete surface where difficulty in excluding flow for a long period may occur. If sealant is used, the instructions as noted on the product label must be followed.
11. Submit a list of sealants for the Engineer's authorization before using.
12. Hazardous or toxic materials must be contained in watertight containers and must be removed when no longer needed
13. Refueling of mobile construction equipment and vehicles must not occur within 100 feet of any water or wetland feature, or anywhere that spilled fuel could drain to a water or wetland feature. Refueling of stationary equipment requiring breakdown and a setup to move will remain in place. Equipment must be refueled with appropriate drip pans, absorbent pads, and water quality Best Management Practices. Equipment and vehicles operating in the project area must be checked and maintained daily to prevent leaks of fuels, lubricants, or other liquids.
14. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents, must be located outside of water or wetland features. Stationary equipment, such as motors, pumps, generators, compressors, and welders, located within or adjacent to a water or wetland feature must be positioned over drip pans. Equipment or vehicles driven and/or operated within or adjacent to a water or wetland feature must be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life
15. Locate construction staging, storage, and vehicle parking areas on paved surfaces and outside of ESAs or other areas not designated on the project plans.
    15.1 Access routes and the number and size of staging and work areas must be limited to the minimum necessary for construction.
    15.2. Use of areas not shown for staging, storage and laydown vehicle parking, and access must be authorized by the Resident Engineer.
16. All removed spoils and construction debris must be disposed outside of the job site. Do not stockpile removed spoils or construction debris within the job site.
17. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. Stop work and immediately notify the Engineer if trapped wildlife is discovered. Do not resume activities until authorized.
18. Pipes, hoses, culverts, or similar structures less than 12 inches in diameter must be closed, covered, or capped to prevent animal entry upon arrival to the job site. Similar structures greater than 12 inches in diameter must be inspected thoroughly for wildlife before the similar structure is buried, capped, used, or moved.
19. No firearms are allowed on the job site except for those carried by authorized security personnel, local, State, or Federal law enforcement officials.
20. Pets are prohibited on the job site.
21. Temporary or permanent erosion control devices containing plastic monofilament netting, including photo-degradable or bio-degradable plastic netting is prohibited.
22. Within Erosion Control areas install signs before applying hydroseed and jute netting.
23. Comply with all applicable State and Federal laws.
24. Maintain Temporary High Visibility Fencing.

Species Protection Area 2:
1. Access and work is permitted between June 15 and October 31.
2. Notify Engineer 15 days prior to working in this area.
3. Install TVFH 10 days before starting work.

4. Do not remove or access areas within the THVF until written approval from Resident Engineer is obtained.
5. Maintain Temporary High Visibility Fencing.

Replace the 2nd paragraph of section 14-8.02 with:

Noise from job site activities must not exceed 86 dBA Lmax at 50 feet from the job site from 6:00 p.m. to 7:00 a.m. each day, and the noise level produced by the traffic on or by the construction activity can't exceed 52 dBA Leq interior noise levels in school facilities as defined under St & Hwy Code § 216.

See section 14-6.03A for additional noise level restrictions required by the permitting resource agencies. The lowest noise level restrictions apply.

The following activities may exceed this noise restriction during the hours and on the days shown in the following table:

Noise Restriction Exceptions

Activity	Hours		Days	
	From	To	From	Through
Cold Planing	9.00 pm	5:00 am	Saturday	Sunday
Sawcutting	9.00 pm	5:00 am	Monday	Saturday
Pile Driving	9.00 pm	5:00 am	Monday	Saturday
Removing Concrete	9.00 pm	5:00 am	Monday	Saturday

Add to section 14-8.02:

Submit a noise control plan (NCP) to minimize construction noise including back up alarm.

Include the following information in the NCP:

1. List of the locations and construction activities to be monitored
2. Description of the construction activities and anticipated noise levels at these locations
3. Operating sound levels of construction equipment at specified distances and locations
4. Sound control measures to maintain noise levels within specified limits
5. Corrective actions if specified sound levels are exceeded
6. List of sound level meters and calibrators with current calibration certifications
7. Names, qualifications, and resumes of:
   7.1. Person who prepared NCP
   7.2. Personnel who will perform noise monitoring
8. Notification letter for residents that includes:
   8.1 Project location
   8.2 Project start and completion date
   8.3 Project contact person information
   8.4 Activities and duration of activities that could contribute to an increase in noise levels in the area

The NCP must be prepared by a qualified person that meets one of the following requirements:

1. Board Certified by the Institute of Noise Control Engineering of the USA with 2 years of noise control experience
2. Registered Civil engineer with 3 years of full-time noise control experience
3. Bachelor's or higher degree from an ABET accredited institution of higher education in a relevant field of engineering, environmental science, or earth science and 5 years of full-time noise control experience
4. Bachelor's or higher degree from an ABET accredited institution of higher education and 10 years of full-time noise control experience

Conduct noise monitoring by a person with at least 2 years of experience in conducting field noise measurements. Submit the qualifications of each of the individuals who will be performing the noise monitoring.

Fourteen days before starting construction activities described in the NCP, notify:

1. The Engineer
2. Entities or residents within 500 feet from the job site activity with the NCP letter delivered in person

Monitor noise:

1. The 1st time each activity described in the NCP is performed and when equipment or activities have changed from the authorized NCP
2. Each time noise complaint is received

Measure Noise levels with a Type 1 or Type 2 sound level meter. The sound level meter must:

1. Be calibrated and certified by the manufacturer or an independent acoustical laboratory
2. Be capable of taking A-weighted measurements and have slow response settings
3. Have a microphone fitted with a windscreen
4. Be recalibrated annually by the manufacturer or an independent NIST certified acoustical laboratory

Submit a noise monitoring report within 24 hours of completing noise monitoring for each of the activities. The report must include A-weighted noise levels, measurement location, types of noise measuring equipment including model number and identification number, time of day, temperature and wind speed.

Conduct noise monitoring to investigate noise complaints that are attributed to a particular construction operation. If the operation exceeds the sound level submit a list of authorized contingency measures from the NCP that will be implemented.

The noise level requirements apply to the equipment on the job or related to the job, including impact pile driver, trucks, transit mixers or transient equipment used on the project.

Furnish 1 Type 1 or Type 2 sound-level meter and 1 acoustic calibrator to the Department for use until contract acceptance to monitor noise.

The sound-level meter must:

1. Be calibrated and certified by the manufacturer or an independent acoustical laboratory before delivery to the Department
2. Be capable of taking A-weighted measurements and have slow response settings
3. Have a microphone fitted with a windscreen
4. Be recalibrated annually by the manufacturer or an independent acoustical laboratory

Provide noise monitoring equipment training by the authorized noise monitor to 1 Department employee.

The Department returns the equipment to you at contract acceptance.

Add to the end of section 14-9.02:

The US EPA has established the National Emission Standards for Hazardous Air Pollutants (NESHAP). Under the Health & Safety Code § 39658(b)(1), your demolition and rehabilitation activities must comply with 40 CFR 61, Subpart M (National Emission Standard for Asbestos).

The asbestos survey and sampling report for this project is included in the *Information Handout*.

You must notify the Bay Area Air Quality Management District of your demolition activities even if the activities will not disturb asbestos-containing material.

You may obtain the notification form, submittal instructions, and other information from:

BAY AREA AIR QUALITY MANAGEMENT DISTRICT
357 BEALE STREET, SUITE 600
SAN FRANCISCO, CA 94105

http://www.baaqmd.gov

Instead of the 10 days specified at the website, submit a notification form to the Bay Area Air Quality Management District at least 15 days before starting demolition or rehabilitation activities.

Submit a copy of the notification form and the necessary attachments as informational submittals before starting demolition or rehabilitation activities.

Submit a copy of the acknowledgement letter from the Bay Area Air Quality Management District (BAAQMD) as an informational submittal.

Do not start demolition or rehabilitation activities before the date specified in BAAQMD's acknowledgement letter.

If you discover unanticipated asbestos-containing material during the demolition or rehabilitation activities, immediately stop work in that area and notify the Engineer. The Department will use other forces to remove and dispose of the material. Do not resume work in the area until authorized.

Notify the BAAQMD of a change to your demolition or rehabilitation activities, including a revised work plan or the discovery of unanticipated asbestos-containing materials, within 2 business days of the change or discovery.

Replace section 14-11.05B with:

14-11.05B Liner

Store stockpiled Type R-1 material on a liner. Liner must be new and undamaged impervious 30 mils minimum thickness plastic sheeting or an equivalent impermeable barrier. For stockpiles on a paved surface, you may reduce the thickness of the barrier to 20 mils. The dimensions of the impermeable barrier must extend a minimum of 3 feet beyond the perimeter of the stockpile. Overlap edges of the liner a minimum of 2 feet and seal the entire length of the seam with duct tape to prevent leakage.

Replace section 14-11.08 with:

14-11.08 REGULATED MATERIAL CONTAINING AERIALLY DEPOSITED LEAD

14-11.08A General

Section 14-11.08 includes specifications for management of regulated material containing ADL. Management of the material includes:

1. Excavating
2. Loading and unloading containers or trucks
3. Stockpiling
4. Transporting
5. Placing

Manage regulated material containing ADL under the rules and regulations of the following agencies:

1. US Department of Transportation
2. US EPA
3. California Environmental Protection Agency
4. CDPH
5. DTSC
6. Cal/OSHA
7. California Department of Recycling and Recovery

8. California Air Resources Board
9. RWQCB, Region 1, North Coast
10. BAAQMD

The Department entered into agreement Docket No. ESPO-SMA 15/16-001 Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils with the DTSC (ADL Agreement) regarding the management of regulated material containing ADL. As the responsible entity and the generator of waste, only the Department determines material classification. For the ADL agreement, go to the Caltrans Hazardous Waste Management website.

Regulated material containing ADL is present within the project limits and the ADL Agreement applies. Management of regulated material containing ADL exposes workers to health hazards that must be addressed in your lead compliance plan under section 7-1.02K(6)(j)(ii).

14-11.08B Definitions

average ADL concentration: Average ADL concentration calculated using the 95 percent upper confidence limit.

regulated material: ADL-contaminated material that has average ADL concentrations over 80 mg/kg total lead or equal to or greater than 5 mg/L soluble lead tested using the California Waste Extraction Test (CA-WET) or equal to or greater than 5 mg/L soluble lead tested using the Toxicity Characteristic Leaching Procedure (TCLP).

Type R-1: Regulated material that may be reused on the job site if placed at least 5 feet above the maximum historical elevation of the water table and covered with at least 1 foot of unregulated material with a pH greater than 5 or pavement.

14-11.08C Site Conditions

Concentration data and sample location maps for regulated material are included in the *Information Handout*.

Type R-1 material exists from the surface to below the existing grade as shown.

14-11.08D Submittals

14-11.08D(1) General

Not Used

14-11.08D(2) Perimeter Air Monitoring Requirements

Not Used

14-11.08D(3) Excavation and Transportation Plan

Within 15 days of Contract approval, submit 3 copies of an excavation and transportation plan for regulated material. Allow 15 days for review. If the plan requires revisions, the Department provides comments. Submit a revised plan within 7 days of receiving comments. The Engineer may allow construction to proceed while minor revisions or amendments are being completed.

The excavation and transportation plan must comply with:

1. DTSC regulations
2. ADL Agreement
3. Cal/OSHA regulations

The excavation and transportation plan must include:

1. Procedures for managing the material.
2. Excavation schedule by location and date.
3. Locations for temporary stockpiles.
4. Survey methods for burial locations for Type R-1 material.
5. Type R-1 material soil cover source area.
6. Dust control measures.
7. Transportation equipment and routes.

8. Method for preventing spills and tracked material onto public roads.
9. Truck waiting and staging areas.
10. Example of a bill of lading to be carried by trucks transporting Type R-1 material on public roads outside the controlled access construction zone. The bill of lading must include:
    10.1. US Department of Transportation description, including shipping name
    10.2. Hazard class
    10.3. Identification number
    10.4. Handling codes
    10.5. Quantity of material
    10.6. Volume of material
11. Spill contingency plan for regulated material containing ADL.
12. Copies of the contract plan sheets where the location and depth of the existing regulated material are shown, as an attachment.
13. Copies of the contract plan sheets where the location and depth of Type R-1 material burial locations are shown, as an attachment.

14-11.08D(4) Burial Location Report

Within 5 business days of completing placement of Type R-1 material at a burial location, submit a report for that burial location that includes:

1. "Burial Location of Soil Containing Aerially Deposited Lead (Topographic Survey)" form
2. Electronic geospatial vector survey data shapefiles of the top and bottom of the burial location with polygon feature classes containing the location and attributes of the burial site. Provide polygon feature classes in a shapefile that is comprised of a minimum of four files with the extensions of .shp, .shx, .dbf and .prj. Include the following attribute data:
    2.1. Contractor
    2.2. Contract number
    2.3. District
    2.4. County
    2.5. Route
    2.6. PM Start
    2.7. PM End
    2.8. Project EA
    2.9. Project name
    2.10. Burial location number

Submit the report to the Engineer and to:

ADL@dot.ca.gov

The Engineer notifies you of acceptance or rejection of the burial location report within 5 business days of receipt. If the report is rejected, you have 5 business days to submit a corrected report. Each burial location report prepared for a survey required under section 14-11.08I, including electronic files, is considered a submittal required by the contract. Failure to submit more than one submittal required by section 14-11.08I is considered multiple performance failures under section 9-1.16E(3).

14-11.08D(5) Bill of Lading

Submit copies of the bills of lading used as an informational submittal upon placement of Type R-1 material in its final location.

14-11.08D(6) Disposal Documentation

Not Used

14-11.08E Dust Control

Prevent visible dust migration under section 14-11.04 during management of regulated material.

14-11.08F Air Monitoring

Not Used

14-11.08G Stockpiling

Stockpile Type R-1 material under section 14-11.05 for no more than 90 days. The Department does not pay for stockpiling unless stockpiling is ordered.

14-11.08H Placement

Place Type R-1 material as shown.

Cover for Type R-1 must comply with section 6-1.03B.

14-11.08I Surveying Burial Site

Topographically survey the location of the bottom and top of each area where you bury Type R-1 material (burial locations). Topographic surveys must be performed by or under the direction of one of the following:

1. Land surveyor licensed under the Bus & Prof Code Ch 15, starting with § 8700
2. Civil engineer licensed before January 1, 1982 under the Bus & Prof Code Ch 7 starting with § 6700

At a minimum, topographic surveys consist of collecting northing, easting, and elevation information of survey points along cross sections lines of the Type R-1 material burial locations, where the cross section line intervals are 25 feet, at a maximum, with a minimum of 5 cross sections surveyed per burial location. Collect a survey point at each change in terrain elevation with a minimum of 5 survey points per cross section line. The same cross section lines are used to survey the ground surface just before placing Type R-1 material and used to survey the finished grade immediately after the placement of the Type R-1 material.

Report each burial location in California state plane coordinates in US survey feet within the appropriate zone of the California Coordinate System of 1983 (CCS83) and in latitude and longitude. Reference horizontal positions to CCS83. Perform the survey to a horizontal accuracy of 0.3 ft as described in Figure 5.1A of the Caltrans Surveys Manual. Reference each horizontal position to a roadway horizontal alignment, indicating a station and offset. The elevation of points identifying the burial location must locate the bottom and top of Type R-1 material to an accuracy of 0.3 ft vertically. Reference elevations of the bottom and top of Type R-1 material to the project vertical datum. Report accuracy of spatial data in US Survey feet under Caltrans Orders of Accuracy in the Caltrans Surveys Manual Chapter 5.

14-11.08J Material Transportation

Before traveling on public roads outside the controlled access construction zone, remove loose and extraneous regulated material from outside surfaces of containers and the cargo areas of trucks. Place tarpaulins or other cover over the cargo as described in the authorized excavation and transportation plan. You are responsible for costs due to spillage of regulated material during transport. Transportation routes for Type R-1 material must only include the highway within the job site limits.

Use a bill of lading while transporting excavated Type R-1 material on public roads outside of the controlled access construction zone.

Replace section 14-11.09 with:

14-11.09 MINIMAL DISTURBANCE OF REGULATED MATERIAL CONTAINING AERIALLY DEPOSITED LEAD

14-11.09A General

Section 14-11.09 includes specifications for handling and managing regulated material containing ADL when there is a minimal disturbance. Regulated material containing ADL has average ADL concentrations over 80 mg/kg total lead or equal to or greater than 5 mg/L soluble lead tested using the California Waste Extraction Test or equal to or greater than 5 mg/L soluble lead tested using the toxicity characteristic leaching procedure.

Compliance with 22 CA Code of Regs is not required where there is minimal disturbance of regulated material containing ADL.

Management of regulated material containing ADL exposes workers to health hazards that must be addressed in your lead compliance plan under section 7-1.02K(6)(j)(ii).

Handle regulated material containing ADL under the rules and regulations of the following agencies:

1. Cal/OSHA
2. RWQCB, Region 1 — North Coast
3. Bay Area Air Quality Management District

Regulated material containing ADL is typically found within the top 2 feet of material in ADL-impacted areas of the job site. Concentrations of ADL found in the area of minimal disturbance range from 6 to 820 mg/kg total lead with an average concentration of 106.9 mg/kg total lead using a 95 percent upper confidence limit. Lead concentrations were analyzed by US EPA Method 6010 or US EPA Method 7000 series.

Minimal disturbance of regulated material containing ADL occurs where the following work activities are conducted:

1. Removal of roadside signs and guardrail
2. Installation of roadside signs and Midwest Guardrail System
3. Installation of vegetation control paving

14-11.09B Material Management

Handling of regulated material containing ADL must result in no visible dust migration. Use dust control measures. A means of controlling dust must be available at all times.

Separate material from vegetation. The resulting soil must remain on the job site.

Surplus material from the areas with regulated material containing ADL must remain in the area of disturbance. Do not dispose of surplus material outside the highway.

Add after the 2nd paragraph of section 14-11.12A:

This project includes removal of yellow thermoplastic traffic stripe that will produce hazardous waste residue.

Add after the 1st paragraph of 14-11.12E:

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 90 days after accumulating 220 lb of residue.

If less than 220 lb of hazardous waste residue and dust is generated in total, dispose of it within 60 days after the start of accumulation of the residue.

Replace section 14-11.14 with:

14-11.14 TREATED WOOD WASTE

14-11.14A General

Section 14-11.14 applies if treated wood waste is shown on the Bid Item List.

Section 14-11.14 includes specifications for handling, storing, transporting, and disposing of treated wood waste. Manage treated wood waste under Health & Safety Code §25230 et seq.

Wood removed from guardrail and roadside signs is treated wood waste.

14-11.14B Submittals

Within 5 business days of disposing of treated wood waste, submit as an informational submittal a copy of each completed shipping record and weight receipt.

14-11.14C Training

Provide training to personnel who handle or may come in contact with treated wood waste. Training must include:

1. Requirements of 8 CA Code of Regs
2. Procedures for identifying and segregating treated wood waste
3. Safe handling practices
4. Requirements of Health & Safety Code §25230 et seq
5. Proper disposal methods

Maintain training records for 3 years after contract acceptance.

14-11.14D Storage of Treated Wood Waste

Store treated wood waste at the jobsite until transport to the CA permitted disposal site.

Until disposal, store treated wood waste using the following methods:

1. Raise the waste on blocks above a foreseeable run-on elevation and protect it from precipitation for no more than 90 days.
2. Place the waste on a containment surface or pad protected from run-on and precipitation for no more than 180 days.
3. Place the waste in water-resistant containers designed for shipping or solid waste collection for no more than 1 year.
4. Place the waste in a storage building as defined in Health & Safety Code §25230 et seq.

Prevent unauthorized access to treated wood waste using a secure enclosure such as a locked chain-link-fenced area or a lockable shipping container located within the job site.

Resize and segregate treated wood waste at a location where debris including sawdust and chips can be contained. Collect and manage the debris as treated wood waste.

Identify treated wood waste and accumulation areas using water-resistant labels that comply with Health & Safety Code §25230 et seq. Labels must include:

1. The words *TREATED WOOD WASTE Do not burn or scavenge*
2. The words *Caltrans District* and the district number
3. The words *Construction Contract* and the contract number
4. District office address
5. Engineer's name, address, and telephone number
6. Contractor's contact name, address, and telephone number
7. Date placed in storage

14-11.14E Transport and Disposal of Treated Wood Waste

Dispose of treated wood waste within:

1. 90 days of generation if stored on blocks
2. 180 days of generation if stored on a containment surface or pad
3. 1 year of generation if stored in a water-resistant container or within 90 days after the container is full, whichever is shorter
4. 1 year of generation if stored in a storage building as defined in Health & Safety Code §25230 et seq

Before transporting treated wood waste, obtain agreement from the receiving facility that it will accept the waste. Protect shipments of the waste from loss and exposure to precipitation. For projects generating 10,000 lb or more of treated wood waste, request a generator's EPA Identification Number from the Engineer at least 5 business days before the 1st shipment. Each shipment must be accompanied by a shipping record such as a bill of lading or invoice that includes:

1. The words *Caltrans District* and the district number
2. The words *Construction Contract* and the contract number
3. District office address
4. Engineer's name, address, and telephone number

5. Contractor's name, contact person, and telephone number
6. Receiving facility's name and address
7. Description of the waste (e.g., treated wood waste with preservative type if known or unknown/mixture)
8. Project location
9. Estimated weight or volume of the shipment
10. Date accumulation begins
11. Date of transport
12. Name of transporter
13. Date of receipt by the treated wood waste facility
14. Weight of shipment measured by the receiving facility
15. Generator's US EPA Identification Number for projects generating 10,000 lb or more of treated wood waste

The shipping record must be 8-1/2 by 11 inches and a 4-part carbon or carbonless form to provide copies for the Engineer, transporter, and treated wood waste facility.

Transport treated wood waste directly to the CA permitted disposal site after leaving the jobsite. Do not mix treated wood waste from the job site with waste from any other generator.

Dispose of treated wood waste at one of the following:

1. An approved California disposal site operating under a RWQCB permit that includes acceptance of treated wood waste
2. California disposal site operating under a DTSC permit that includes acceptance of treated wood waste

^^

15 EXISTING FACILITIES

Add between the 6th and 7th paragraph of section 15-1.03A:

The loop detectors shown at stations "CA" 26+75 and "CA" 27+69 to 28+13 must remain in place and operational.

Add to the end of section 15-1.03C:

At least 2 business days before hauling the material to the salvaged material stockpile location, notify the Engineer and inform the district recycle coordinator at telephone no. (415) 330-6500.

The stockpile locations are as shown in the following table:

Stockpile Locations

Material	Location
Controller assemblies	Caltrans Maintenance Electrical Shop 30 Rickard Street, San Francisco, CA 94134
City street lighting and signal equipment	City of Santa Rosa Corporation Yard

^^

DIVISION III EARTHWORK AND LANDSCAPE

19 EARTHWORK

Add to the end of section 19-3.01A:

Structure backfill includes constructing the geocomposite drain system. The systems must comply with section 68-7.

Add to the beginning of section 19-3.03B(1):

For footings at locations with structure excavation (Type D), ground or surface water is expected to be encountered but seal course concrete is not needed.

Add to section 19-3.04:

Structure excavation for footings at locations not shown as structure excavation (Type D) and where ground or surface water is encountered is paid for as structure excavation (bridge).

Add to the list in the 2nd paragraph of section 19-6.01A:

5. Installing settlement platforms where shown, including associated settlement monitoring.
6. Installing hubs where shown, including associated monitoring.

Add to section 19-6.01C:

Submit details for protection of hubs. Include details for repair or replacement of unusably damaged hubs, and how a damaged hub's location is to be re-established.

Replace the 5th paragraph of section 19-6.03D with:

Install settlement platforms where shown. If ordered, install additional settlement platforms. The installation of additional settlement platforms is change order work.

Install hubs where shown.

Add to section 19-6.03D:

Settlement periods and surcharges are required for bridge approach embankments as shown in the following table:

Bridge name or number	Abutment number	Bent number	Surcharge height (feet)	Settlement period (days)
20-0304	1 and 3		0.0[a]	30

[a]At this location, construct embankment by extending the grading plane (GP) in the elevation view of the bridge embankment surcharge detail of standard plan A62B horizontally to the centerline of the abutment.

Settlement periods and surcharges are required for roadway embankments at the earth retaining structures as shown in the following table:

Earth retaining structure number	Surcharge height (feet)	Settlement period (days)
20E0102	0.0	30

Hubs must be square stakes 2 inches on a side with a nail driven flush into the top of the stake. The top of each hub must be 3 feet above the surrounding ground surface.

Hub installation method and embedment depth must be adequate to insure fixity.

Establish initial hub northings, eastings and elevations by survey to 2nd order accuracy in accordance with the Department's Survey Manual. As an informational submittal, for each hub submit within 24 hours of completion electronic and hard copy records of surveyed hub location. Include instrument identifications and survey date.

Monitor hubs for settlement and horizontal movement at least once per week. Submit results within 24 hours as an informational submittal.

Repair or replace damaged hubs within 48 hours.

Settlement platforms must conform to the requirements for embankment settlement devices in California Test 112. Settlement monitoring must conform to the requirements of California Test 112.

Perform settlement platform monitoring by survey accurate to 0.01 foot.

In addition to the requirements of California Test 112, record the top of wood or plywood platform elevation at each settlement platform before the placement of any embankment.

^^

20 LANDSCAPE

Replace the 3rd paragraph of section 20-1.02C with:

Do not use rodenticides.

Add to section 20-1.02C:

Select herbicides from the following table:

Herbicides

Herbicide name	Herbicide type					
	Preemergent (granular)	Preemergent (non granular)	Post-emergent	Selective	Non-selective	Systemic
Clopyralid	--	--	--	--	X	--
Fluazifop-P-Butyl	--	--	--	X	--	--
Imazapyr	--	--	--	--	X	--
Triclopyr	--	--	--	--	--	X

Add to section 20-1.03C(3):

Control weeds within the areas shown.

Hand pull weeds within biofiltration swale and strip areas.

Control weeds under guard rails, from within asphalt concrete surfacing, concrete surfacing, rock blankets, rock mulch, gravel mulch or decomposed granite areas, and unpaved gore areas between the edge of pavement and planting areas with pesticides or by hand pulling.

Replace the 2nd paragraph of section 20-1.03C(4) with:

Dispose of mowed material during roadside clearing. Dispose of noxious and invasive plants within 3 days of removal. Dispose of seed pods and heads the same day as removed. Prevent seed dispersal during transportation to the disposal site.

Replace the 3rd paragraph of section 20-2.01A(4)(b)(i) with:

Perform pressure testing using Method B to test supply lines (1) located on the discharge side of the valve, (2) installed by trenching and backfilling, or (3) completely visible after installation.

Replace the 1st paragraph of section 20-2.01B(7) with:

Valve boxes must be polymer concrete.

Add to the 1st paragraph of section 20-2.01B(7):

Valve boxes must not have side openings.

Add to the 1st paragraph of section 20-2.01B(7):

Valve box and cover must comply with ANSI/SCTE Tier 22 load rating.

Replace item 1 in the list in the 2nd paragraph of section 20-2.01B(7) with:

1. Polymer concrete

Add between the 4th and 5th paragraphs of section 20-2.01B(7):

Remote control valves must be labeled with a polyurethane tag. Attach the tag tightly with a nylon tie to the conductor wire. The tag must be stamped on both sides with the appropriate letters and numbers at least 1 inch high showing the valve's controller and station.

Add to section 20-2.02B(3):

The color of the backflow preventer blanket must be green, to match color no. 14062 of AMS-STD-595.

Replace item 1 in the list in the 1st paragraph of section 20-2.02B(4) with:

1. Be hot-dipped galvanized steel

Add to the list in the 1st paragraph of section 20-2.02B(4):

7. Be powder coated by the manufacturer to match color no. 14062 of AMS-STD-595

Add to section 20-2.04B:

You may use conductors that are not armor-clad if installed in a conduit.

Add to section 20-2.05B:

Flow sensor cable must:

1. Be rated for 600V.
2. Be rated for 194 degrees F.
3. Be UL listed as Type TC.
4. Comply with specifications of ICEA/NEMA.
5. Consist of two no. 16 minimum stranded copper conductors. Insulated conductor must be color coded with a PVC or nylon jacket.
6. Include a tinned copper braid or aluminized polyester film shield. Where the film is used, a no. 18 or larger, stranded or no. 16 solid, tinned, copper drain wire must be placed between the insulated conductors and the shield and in contact with the conductive surface of the shield.
7. Include a black PVC jacket with a minimum nominal thickness of either 50 mils or 48 mils where capacitance of conductors to other conductors and the shield is 87 pF/ft or better. The cable jacket must be marked with the insulation type designation, conductor size, and voltage and temperature ratings.
8. Have an outside diameter from 0.42 to 0.45 inch.
9. Be UV resistant and direct burial type.
10. Have no splices between components except where shown.

Use the flow sensor cable length that is recommended by the flow sensor manufacturer.

Flow sensor cable must have shielding or armoring.

Add to the list in the 1st paragraph of section 20-2.06B(2)(a):

17. Be EPA WaterSense® approved.

Add to section 20-2.06B(2)(a):

The irrigation controllers within Department highway areas must be WeatherTrak and must have 2-way communication by cell. The vendor must install any necessary software and conduct any initial software or proprietary website setup configuration for communications between controller and any web-enabled device.

You may obtain specified equipment listed below from:

Company:	Watersavers Irrigation Inc.
Address:	4306 Redwood Highway, Suite 200, San Rafael, CA 94903
Business phone number:	(415) 256-1711, Fax: (415)454-1556
Mobile phone number:	(925) 788-4458
Email address:	chadl@watersaversinc.com
Web site address	http://watersaversinc.com

The Department has obtained quoted prices, not including sales tax and delivery, for the equipment shown in the following table:

Equipment description	Quoted price	Quantity	Extended price	Controller identification
WeatherTrak Pro312 Station Wall Mount Controller WTPRO3-C-12-CWM	$3,657.00	1	$3,657.00	ICC 'E1'
Strong Box 18"x36"x12" SS Enclosure Item No.: SB18SS	$2,279.4	1	$2,279.42	ICC 'E1'
Strong Box 18"x12"x10" SS Front Entry Pedestal Item No.: PED18SS	$637.07	1	$637.07	ICC 'E1'
WeatherTRAK Wireless Rain Sensor Item No.: WTWRS	$258.00	1	$258.00	ICC 'E1'
WeatherTRAK Warranty Item No.: XTDWAR5YA	$984.00	1	$984.00	ICC 'E1'
4 Year Cellular Service Item No.: CIM-4Y	$902.00	1	$902.00	ICC 'E1'
Central LTE Antenna Item No.: ANT-LTE-P Mount on outside of the SS enclosure.	$226.00	1	$226.00	ICC 'E1'

These prices are good until June 30, 2023.

Delete items 2.1 and 2.3 in the list in the 1st paragraph of section 20-2.06B(3).

Replace item 6 in the list in the 1st paragraph of section 20-2.06B(3) with:

6. Have door locks with a removable-core mortise cam cylinder door lock compatible with the Department's lock core. The Department's lock core is a Best construction core. Keys must be removable from the locks in the locked position only.

Add to section 20-2.06B(3):

A single irrigation controller enclosure cabinet must be 48 inches high by 18 inches wide by 12 inches deep.

Add to section 20-2.06C:

Install door locks under the manufacturer's instructions. Furnish 2 keys for each door lock before Contract acceptance.

Replace item 2 in the list in the 1st paragraph of section 20-2.10B(10)(a) with:

2. Be glass-filled nylon.

Replace *60 days* in the 1st paragraph of section 20-3.01A(3)(b) with:

30 days

Add to section 20-3.01A(3)(b):

Some plants required may not be readily available and must be grown specifically for this project. Submit a statement within 30 days after Contract approval from the vendor that the order to grow the plants, including inspection plants and replacement plants, has been received and accepted by the vendor. The statement from the vendor must include the plant names, sizes, and quantities and the anticipated delivery date. Notify the Engineer when the vendor has started growing the plants.

Add to section 20-3.01B(3)(a):

Select soil amendment from the following:

1. Compost must be medium and coarse particle size compost under section 21-2.02K.
2. Nitrolized fir bark.

Replace the 3rd paragraph of section 20-3.01B(9) with:

Support stakes must be 3-inch nominal diameter or 3-by-3-inch nominal size wood stakes a minimum of 10 feet long. Wood stakes must be straight.

Add to section 20-4.01A:

This project has a Type 2 plant establishment period.

Hydroseeded areas and erosion control Type 2 areas are also included as part of plant establishment.

Replace the 1st paragraph of section 20-4.01C(1) with:

Submit the following seasonal watering schedules for use during the plant establishment period:

1. March through May
2. June through August
3. September through October
4. November through February

Submit the first season's watering schedule within 10 days after the start of the plant establishment period. Submit subsequent watering schedules at least 5 business days before start of the next seasonal period. Remote irrigation control system watering schedule must use the remote irrigation control system software program.

Add to the beginning of the 1st paragraph of section 20-4.03A:

Maintain a neat and presentable job site during plant establishment including areas not visible to the public.

Add to section 20-4.03C:

Apply slow-release fertilizer to the plants during the 1st week of March and September of each year.

Add to section 20-4.03D:

Dispose of weeds under section 20-1.03C(4).

Add to section 20-4.03:

20-4.03H Pest Control

Control pests under sections 20-1.03B and 20-1.03C(1).

Add to section 20-5.03B(2)(a):

Do not use preemergent.

^^

21 EROSION CONTROL

Replace section 21-2.02K with:

21-2.02K Compost

Compost must be derived from one or a combination of the following types of materials:

1. Green material consisting of chipped, shredded, or ground vegetation or clean, processed, recycled wood products
2. Biosolids
3. Manure
4. Mixed food waste

Compost must not be derived from mixed municipal solid waste and must not contain paint, petroleum products, pesticides, or other chemical residues harmful to plant or animal life. Metal concentrations in compost must not exceed the maximum listed under 14 CA Code of Regs § 17868.2.

Process compost materials under 14 CA Code of Regs § 17868.3.

The particle size must comply with the requirements shown in the following table:

Compost Gradation

Quality characteristic	Test method[a]	Requirement	
		Min	Max
Gradation Fine:(dry weight % passing)			
1-inch sieve	TMECC 02.02-B	100	--
3/8-inch sieve		95	--
Gradation Medium:(dry weight % passing)			
2-inch sieve	TMECC 02.02-B	95	--
3/8-inch sieve		40	55
Gradation Coarse:(dry weight % passing)			
3-inch sieve	TMECC 02.02-B	95	--
3/8-inch sieve		25	35

[a]TMECC refers to *Test Methods for the Examination of Composting and Compost*, published by the United States Department of Agriculture and the United States Compost Council (USCC).

The quality characteristics of compost must have the values shown in the following table:

Compost

Quality characteristic	Test method[a]	Requirement	
		Fine	Medium/Coarse
pH	TMECC 04.11-A	6.0–8.0	6.0-8.0
Soluble salts (dS/m)	TMECC 04.10-A	0–10	0-10
Moisture content (% wet weight)	TMECC 03.09-A	25–60	25-60
Organic matter content (% dry weight)	TMECC 05.07-A	30–70	30-100
Maturity (seed emergence) (% relative to positive control)	TMECC 05.05-A	80 or above	80 or above
Maturity (seedling vigor) (% relative to positive control)	TMECC 05.05-A	80 or above	80 or above
Stability (mg CO_2-C/g OM per day)	TMECC 05.08-B	5 or below	8 or below
Pathogen Salmonella (most probable number per 4 grams dry weight basis)	TMECC 07.01-B	< 3	< 3
Pathogen Fecal coliform (most probable number per gram dry weight basis)	TMECC 07.01-B	< 1,000	< 1,000
Physical contaminants (% dry weight) Plastic, glass, and metal	TMECC 02.02-C	combined total: < 0.5	combined total: < 1.0
Film plastic (% dry weight)	TMECC 02.02-C	Combined total: < 0.1	Combined total: < 0.1

[a] TMECC refers to *Test Methods for the Examination of Composting and Compost*, published by the United States Department of Agriculture and the United States Compost Council (USCC).

^^

DIVISION V SURFACINGS AND PAVEMENTS

36 GENERAL

Replace section 36-4 with:

36-4 RESIDUE CONTAINING LEAD FROM PAINT AND THERMOPLASTIC

36-4.01 GENERAL

Section 36-4 includes specifications for performing work involving residue from grinding and cold planing that contains lead from paint and thermoplastic.

36-4.02 MATERIALS

Not Used

36-4.03 CONSTRUCTION

The residue from grinding or cold planing contains lead from paint and thermoplastic. The average lead concentrations are less than 1,000 mg/kg total lead and 5 mg/L soluble lead. This residue:

1. Is a nonhazardous waste
2. Does not contain heavy metals in concentrations that exceed thresholds established by the Health and Safety Code and 22 CA Code of Regs
3. Is not regulated by the Federal Resource Conservation and Recovery Act, 42 USC § 6901 et seq.

Management of this material exposes workers to health hazards that must be addressed in your lead compliance plan.

36-4.04 PAYMENT

Not Used

^^

39 ASPHALT CONCRETE

Replace *Reserved* in section 39-2.02B(3) with:

The grade of asphalt binder for Type A HMA must be PG 64-10.

For Type A HMA using RAP substitution of greater than 15 percent of the aggregate blend, the virgin binder grade must comply with the PG binder grade specified above with 6 degrees C reduction in the upper and lower temperature classification.

For Type A HMA using RAP substitution of 15 percent or less of the aggregate blend, the grade of the virgin binder must comply with the PG binder grade specified above.

Replace the 2nd paragraph of section 39-2.03A(1) with:

Produce RHMA-G using a WMA additive technology.

Add to section 39-2.03B(3)(a):

The grade of asphalt binder for RHMA-G must be PG 64-16.

Replace the 2nd paragraph in section 39-2.04A(1) with:

Produce OGFC using a WMA additive technology.

Add to section 39-2.04B(3):

For RHMA-O and RHMA-O-HB, the grade of asphalt binder must be PG 64-16.

^^

DIVISION VI STRUCTURES

47 EARTH RETAINING SYSTEMS

Add to section 47-2.01A:

You may use an alternative earth retaining system for the mechanically stabilized embankment at Retaining Wall Number 202. The alternative system must comply with section 47-6.

Add to section 47-6.01A:

The alternative earth retaining system must be one of the systems shown in the following table:

Proprietary earth retaining system	Website/e-mail	Address	Telephone no.
Reinforced Earth – 5 ft cruciform (Steel strap soil reinforcement with 5 ft cruciform concrete face panels.)	https://www.reinforcedearth.com	THE REINFORCED EARTH COMPANY 23161 MILL CREEK DR STE 315 LAGUNA HILLS CA 92653-7907	(949) 427-3601
Reinforced Earth – 5 ft square (Steel strap soil reinforcement with 5 ft square concrete face panels.)	https://www.reinforcedearth.com	THE REINFORCED EARTH COMPANY 23161 MILL CREEK DR STE 315 LAGUNA HILLS CA 92653-7907	(949) 427-3601
Retained Earth (Steel mesh soil reinforcement with 5 ft square concrete face panels.)	https://www.reinforcedearth.com	THE REINFORCED EARTH COMPANY 23161 MILL CREEK DR STE 315 LAGUNA HILLS CA 92653-7907	(949) 427-3601
MSE Plus – 5 ft square (Steel mesh soil reinforcement with 5 ft square concrete face panels.)	http://www.mseplus.com	SSL 4740 SCOTTS VALLEY DR STE E SCOTTS VALLEY CA 95066-4240	(831) 430-9300
MSE Plus – 5 by 6 ft (Steel mesh soil reinforcement with 5 ft high by 6 ft wide concrete face panels.)	http://www.mseplus.com	SSL 4740 SCOTTS VALLEY DR STE E SCOTTS VALLEY CA 95066-4240	(831) 430-9300
ARES – 9 by 5 ft (Geogrid soil reinforcement with 9 ft wide by 5 ft high concrete face panels.)	http://www.tensarcorp.com	TENSAR INTERNATIONAL CORPORATION 2500 NORTHWINDS PKWY STE 500 ALPHARETTA GA 30009-2247	(770) 344-2090
KeySystem 1 (Steel wire grid soil reinforcement with a modular concrete block facing.)	http://www.keystonewalls.com	KEYSTONE RETAINING WALL SYSTEMS 4444 W 78TH ST MINNEAPOLIS MN 55435-5406	(952) 897-1040
Mesa Retaining Wall System (Geogrid soil reinforcement with modular concrete block facing vertical.)	https://www.tensarcorp.com	TENSAR INTERNATIONAL CORPORATION 2500 NORTHWINDS PKWY STE 500 ALPHARETTA GA 30009-2247	(770) 344-2090

^^

49 PILING

Add to the end of section 49-1.01D(4):

The Department performs dynamic monitoring of the first production pile driven for each control zone at the support location shown in the following table:

Bridge no.	Control zone	Dynamic monitoring support location
20-0304	Abutment 1	Stage 1 footing
20-0304	Abutment 3	Stage 1 footing
20E0102	Entire RW No. 201	Stage 1 footing
20-0304	Entire OC	Stage 2 footings

Add to section 49-1.03:

Expect difficult pile installation due to the conditions shown in the following table:

Pile location		Conditions
Bridge no. or structure name	Support location	
20-0304	Bent 2 Footings A and B, and both abutments	Hard driving before reaching specified tip elevation, high groundwater, underground utilities, noise control, vibration monitoring, staged construction and traffic control
20-0304	Bent 2 Footing C	Hard driving before reaching specified tip elevation, high groundwater, noise control, vibration monitoring, staged construction and traffic control
20-0304	Bent 2 Footings D and E	Hard driving before reaching specified tip elevation, high groundwater, potential conflicts with existing piles, noise control, vibration monitoring, staged construction and traffic control
Retaining Wall No. 201	All	Hard driving before reaching specified tip elevation, high groundwater, underground utilities, noise control, vibration monitoring, staged construction and traffic control

Add to section 49-2.01A(3)(a):

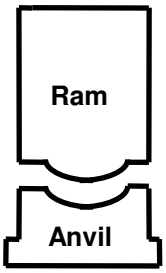
Before installing driven piles, submit a Pile and Driving Data Form for each pile type for each of the support locations shown in the following table:

Bridge no.	Pile type	Support location
20-0304	Class 90	Both abutments
20-0304	Class 140	Both abutments
20-0304	Class 200	Bent 2 and both abutments

CALIFORNIA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION LABORATORY

PILE AND DRIVING DATA FORM

Structure Name :_____ Contract No.:_____
_____ Project:_____
Structure No.:_____ Pile Driving Contractor or
Dist./Co./Rte./Post Mi:_____ Subcontractor_____(Pile Driven By)



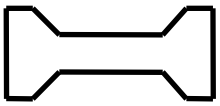
Hammer

Manufacturer:_____ Model:_____
Type:_____Serial No.:_____
Min Rated Energy: _____ at ___ Length of Stroke ____ Fuel Setting
Max Rated Energy: _____ at ___ Length of Stroke ____ Fuel Setting
Ram Weight:_____kips

Modifications: _____
_____
_____

Capblock (Hammer Cushion)

Material:_____
Thickness:_____in Area:_____in^2
Modulus of Elasticity - E:_____ksi
Coefficient of Restitution - e:_____



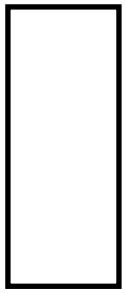
Pile Cap

Helmet
Bonnet
Anvil Block
Drivehead

Weight:_____ kips

Pile Cushion

Material:_____
Thickness:_____in Area: _____in^2
Modulus of Elasticity - E:_____ksi
Coefficient of Restitution - e:_____



Pile

Pile Type:_____
Length (In Leads):_____ft
Lb/ft.:_____Taper:_____
Wall Thickness:_____in
Cross Sectional Area:_____ in^2
Design Pile Capacity:_____kips
Description of Splice:_____
_____
Tip Treatment Description:_____
_____

DISTRIBUTE:

- ☐ Translab, Foundation Testing
- ☐ Translab, Geotechnical Design
- ☐ Resident Engineer

Note: If mandrel or follower is used to drive the pile, attach separate manufacturer's detail sheet(s) including weight and dimensions.

Submitted By:_____
Date:_____Phone No.:_____

Replace the paragraph of section 49-2.01C(3) with:

Before driving piles, you may drill holes with a diameter not greater than the least dimension of the pile to attain the specified tip elevation shown for driven piles at the locations and to the bottom of hole elevations shown in the following table:

Bridge no.	Abutment no.	Bent no.	Bottom of hole elevation
20-0304	1 and 3, including all RW and WW	2	130 feet
20E0102			130 feet

Replace the last sentence in the 2nd paragraph of section 49-2.01C(4) with:

After driving the pile, fill the space around the pile to the ground surface with lean concrete complying with the requirements for lean concrete backfill in section 19-3.02I.

Add to section 49-2.01C(5):

If piles do not attain the nominal driving resistance at the specified tip elevation shown, the Engineer will select 2 piles or 10 percent of piles in the footing, whichever is greater, to stand 1 foot above specified cut-off elevation for a set period without driving. The set period must be at least 72 hours.

After the set period has elapsed, redrive the selected piles in the footing. Driving hammer must be warmed up before restrike begins by applying at least 20 blow counts to (1) another pile or (2) timber mats placed on the ground. Redriving consists of operating the driving hammer at full rated energy on the pile and calculating the nominal driving resistance of the pile.

If the nominal driving resistance is attained for each pile designated to be redriven, the remaining piles in that footing are considered satisfactory and further driving is not required. If redriving the designated piles demonstrates that the nominal driving resistance has not been attained, redrive all piles in the footing until the nominal driving resistance is attained.

Add to section 49-2.04B(1):

Alternative X type piles must have a dimension, T, of at least 14 inches at abutment retaining walls.

^^

50 PRESTRESSING CONCRETE

Replace the 2nd paragraph of section 50-1.01C(3) with:

For initial review, submit:

1. 8 copies for railroad bridges unless the project includes a BNSF Railway underpass
2. 10 copies for railroad bridges if the project includes a BNSF Railway underpass
3. 6 copies for structures other than railroad bridges

^^

51 CONCRETE STRUCTURES

Replace the 2nd paragraph of section 51-1.01C(1) with:

Submit a deck placement plan for concrete bridge decks. Include in the placement plan your method and equipment for ensuring that the concrete bridge deck is kept damp by misting immediately after finishing the concrete surface.

Add to section 51-1.03C(2)(c)(i):

You may use permanent steel deck forms for the deck slabs between the girders of Bridge No. 20-0304.

Add to section 51-1.03G(1):

Construct one test panel for each of the following textures:

1. Fractured rib
2. Test panel "1" for overcrossing corbel shown on Architectural Details Number 3 sheet
3. Test panel "2" for overcrossing barrier shown on Architectural Details Number 2 sheet

Formed relief texture includes the following concrete surface textures as shown:

1. Fractured rib texture with city logo
2. City logo

Add to the end of section 51-1.03G(2):

For concrete surface textures on Bridge No. 20-0304, extend form liners the full height of texturing.

Do not abrasive-blast concrete surface textures for Bridge No. 20-0304. Pressure-wash surfaces with medium water pressure using a fan pattern.

Add to section 51-1.04:

The payment quantity for formed relief texture does not include the area of formed relief texture on the concrete barrier.

Replace item 3 in the list in the 2nd paragraph of section 51-4.03B with:

3. Except for box girders, a minimum of 1.5 inch 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 Highway 101. 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

[a]Apply the lateral pressure at the top of the girder in either direction.

^^

52 REINFORCEMENT

Replace section 52-4 with:

52-4 ELECTRIC-RESISTANCE WELDED STIRRUPS FOR CONCRETE BARRIER REINFORCEMENT CAGES

52-4.01 GENERAL

52-4.01A Summary

Section 52-4 includes specifications for welding longitudinal support wire to stirrups using electric-resistance welding (ERW) to partially fabricate reinforcing cages for concrete barriers.

Electric-resistance welded supports may be used only for concrete barrier stirrups on structures with uncoated reinforcement.

You may use ERW to weld support wire to no.5 reinforcing bars or smaller. The support wire must be W 6.5 or smaller.

52-4.01B Definitions

partially fabricated reinforcing cage: Stirrups for concrete barrier reinforcing cages held in position by welded longitudinal support wires.

lot: 150 count, or fraction thereof, of welds for each size of reinforcing bar and support wire and for each change to the welding equipment settings.

52-4.01C Submittals

52-4.01C(1) General

Not Used

52-4.01C(2) Certificate of Compliance

Submit a certificate of compliance for each shipment of partially fabricated cages. Include with the submittal:

1. Identification of each cage including lot numbers, welds traceable by welding clamp, and location tracking information.
2. Grade and size of welded reinforcement used for the stirrups and support wire.
3. For the reinforcing bar and support wire:
   3.1. Heat number
   3.2. Mill certificate

52-4.01C(3) Test Samples

Submit QA test samples to METS.

Include copies of certificates of compliance with the test samples.

52-4.01C(4) Welding Quality Control Plan

Submit 2 copies of a welding QC plan for each subcontractor or supplier performing ERW. The QC plan must include:

1. WPSs
2. Names and certifications of welding personnel, including qualifications for the QC Manager
3. Welding procedures including current setting, welding clamp force, weld time, and hold time for each size of reinforcement to be welded
4. Welding equipment manufacturer's operating instructions including the recommended calibration frequency of the welding equipment

5. Documentation of ERW equipment calibration
6. Fabricator's *QC Process Control Manual*
7. Method for identifying welds and tracking lots

For the contents, format, and organization required for a welding QC plan, go to the METS website.

52-4.01C(5) Shop Drawings

Submit shop drawings showing the stirrup positioning, welded connections of the support wire to the stirrups, and welding equipment layout. Allow 15 days for the Engineer's review.

52-4.01C(6) Prefabrication Test Results

Submit the prefabrication test results within 3 business days of prefabrication testing. The prefabrication test results must include:

1. Contract number
2. Bridge number
3. Welds identified by welding clamp
4. Reinforcement and support wire sizes
5. Test specimen length
6. Physical condition of test samples
7. Notable defects
8. Ultimate tensile strength of each sample
9. Location of necking area of each sample

Allow 3 business days for the Engineer's review.

52-4.01C(7) Quality Control Test Reports

Submit a QC test report within 7 days of testing for each lot. The report must be prepared by the authorized laboratory performing the testing. The report must be signed by the QC manager. For each lot, the report must include:

1. Contract number
2. Bridge number
3. Lot numbers with welds identified by welding clamp
4. Installed location of completed cages
5. Reinforcement and support wire sizes
6. Cage types
7. Cage lengths
8. Test specimen length
9. Physical condition of test samples
10. Notable defects
11. Ultimate tensile strength of each sample
12. Location of necking area of each test sample

Allow 3 business days for the Engineer's review.

52-4.01D Quality Assurance

52-4.01D(1) General

Provide a welding QC manager. The QC manager must be registered as a civil engineer in the State or currently certified as a CWI.

52-4.01D(2) Prewelding Meeting

Before submitting a welding QC plan, hold a prewelding meeting to discuss the work and the requirements for the welding QC plan. The meeting attendees must include the Engineer, your welding QC manager, and a representative from each entity performing welding or welding inspection.

52-4.01D(3) Test Samples

Samples must be a minimum length of 4 feet of bar reinforcing steel with a support wire welded at midpoint. You may furnish shorter length samples if authorized.

Prepare the samples using the same materials, procedures, equipment, and equipment settings used in the work.

The welding clamps that produce the samples are determined by the Engineer.

Prepare QC test samples and the Department acceptance test samples concurrently:

1. During fabrication of samples representing the 1st lot
2. From 1 of every 5 subsequent lots, or fraction thereof, randomly selected by the Engineer

After receiving notification that lots are ready for QC testing, the Engineer (1) randomly selects test samples to represent each lot and (2) places tamper-proof markings or seals on the test samples.

Before transporting test samples to an authorized laboratory and METS:

1. Securely bundle and package the test samples for each test in a way that preserves their condition during transportation
2. Identify each test sample by lot number and Contract number using weatherproof markings
3. Attach a completed Sample Identification Card to each bundle

If a sample show signs of tampering before testing, the sample is rejected.

52-4.01D(4) Quality Control

52-4.01D(4)(a) General

Test the samples for tensile strength under California Test 670, Section E, Part III, Tensile Test.

Tensile testing must be performed by an authorized laboratory. The laboratory must be on the Authorized Laboratories List for testing reinforcing steel splices.

52-4.01D(4)(b) Prefabrication Testing

Before the start of fabrication of production cages, prepare 4 samples from each welding clamp.

Notify the Engineer at least 5 business days before fabricating the samples.

If 3 or more of the 4 samples from each welding clamp attain the specified minimum tensile strength, the Department accepts the prefabrication test results.

If 2 of the 4 samples attain the specified minimum tensile strength, determine the cause of the failure and take corrective action as specified in section 52-4.01D(4)(c). Fabricate 4 additional samples from the clamp that produced the noncompliant samples and perform tensile tests until at least 3 of the 4 samples attain the specified minimum tensile strength.

Do not start fabrication of production cages until the Department accepts the test results.

52-4.01D(4)(c) Fabrication Testing

During fabrication of production cages, for each lot prepare 8 test samples.

At least 5 business days before performing fabrication testing, notify the Engineer of:

1. Date of the testing
2. Location of the authorized laboratory where the tests will be conducted
3. Number of lots to be tested

Do not perform tests on test samples from bundles containing fewer than 8 samples. Test 4 of the samples. The Engineer determines the samples to be tested.

If 3 or more of the 4 samples from a lot attain the specified minimum tensile strength, the Department accepts the lot.

If 2 of the 4 samples from a lot attain the specified minimum tensile strength, perform additional tests on the remaining samples. If any of the additional samples do not attain the specified minimum tensile strength, the Department rejects the lot.

If a lot is rejected, stop production until the following corrective actions have been performed:

1. QC manager reviews your QC process
2. You have prepared a welding rejection mitigation report describing:
   2.1. Cause of the failure
   2.2. Method used to identify the cause of failure
   2.3. Identification of affected lots
   2.4. Provisions for preventing similar failures in future lots
   2.5. Procedure for repairing or replacing the welded connections in the rejected lot
3. Engineer has notified you that the welding rejection mitigation report is authorized

52-4.01D(5) Department Acceptance

The Department accepts lots based on your QC tension test results specified in section 52-4.01D(4)(c).

The Department performs tensile test on samples from the 1st lot and from 1 of every 5 subsequent lots, or fraction thereof, randomly selected by the Engineer.

If 3 or more of the 4 samples attain the specified minimum tensile strength, the Department accepts the lot.

If 2 of the 4 samples attain the specified minimum tensile strength, fabricate 4 additional samples using the same materials and welding machine settings as the noncompliant lot. If any of the 4 additional samples do not attain the minimum specified tensile strength, the Department rejects the lot.

If QC and Department acceptance testing results have different compliance determinations, the Department will perform QA testing for all subsequent lots until QC testing and the Department testing are consistent for 2 consecutive lots before resuming testing for 1 of every 5 lots, or fraction thereof, as determined by the Engineer.

52-4.02 MATERIALS

52-4.02A General

Reinforcing bars must comply with ASTM A706, Grade 60.

Support wire must comply with the specifications for plain wire in ASTM A1064.

The tensile strength of reinforcing bars with the support wire welded to the bar must be at least 80,000 psi.

52-4.02B Fabrication

Perform ERW at a fabrication shop using computer-controlled equipment.

Weld the support wire to the stirrups. The stirrups must be positioned as shown. The support wire must be capable of maintaining the dimensions, position, and shape of the stirrups until the cage is complete.

52-4.03 CONSTRUCTION

Provide bracing to avoid collapse of the cage during assembly, transportation, and placement as needed.

Field tack welding of support wire to reinforcement is not allowed.

Wiring longitudinal reinforcement at each stirrup intersection is not required.

52-4.04 PAYMENT

Not Used

^^

56 OVERHEAD SIGN STRUCTURES, STANDARDS, AND POLES

Replace section 56-2.03B(2) with:

56-2.03B(2) Remove Sign Structure

Section 56-2.03B(2) includes specifications for removing a sign structure.

Removing an overhead sign structure includes removing:

1. Frames, braces, supports, and brackets
2. Portions of foundations
3. Sign panels
4. Mounting hardware for light fixtures
5. Walkways, safety railing, gutter
6. Electrical equipment for sign lighting
7. Hardware
8. Posts

You may abandon concrete foundations in place, except remove the top portion of the foundation, including anchor bolts, reinforcing steel, and conduits, to a depth of at least 3 feet below the adjacent finished grade. Backfill and compact the resulting holes with material at least equal in quality to the surrounding material.

Remove the sign's conduit and wiring to the nearest pull box. Remove fuses within spliced connections in the pull box.

^^

60 EXISTING STRUCTURES

Add to section 60-2.01A:

Remove the existing Hearn Avenue Overcrossing, Bridge No. 20-0176, including slope paving.

Add to section 60-2.02A(3):

For the existing Hearn Avenue Overcrossing, Bridge No. 20-0176, allow 30 days for the review of the bridge removal work plan.

^^

DIVISION VII DRAINAGE FACILITIES

62 STORMWATER TREATMENT

Replace 62-7 with:

62-7 BIORETENTION

62-7.01 GENERAL

62-7.01A Summary

Section 62-7 includes specifications for constructing bioretention.

Compost must comply with section 21.

Imported topsoil must comply with section 21.

62-7.01B Definitions

Not Used

62-7.01C Submittals

Submit a certificate of compliance for the biofiltration soil media from the soil supplier.

Submit the compost producer's *Compost Technical Data Sheet* including test results and *Seal of Testing Assurance* certificate before mixing compost with sand and soil.

Submit a minimum 1-gallon sample of biofiltration soil media.

62-7.01D Quality Assurance

Saturated hydraulic conductivity for biofiltration soil media must be at least 5 inches per hour.

62-7.02 MATERIALS

62-7.02A General

Permeable material must be Class 2 and comply with section 68-2.

62-7.02B Biofiltration Soil Media

Biofiltration soil media must be a uniform mixture consisting of 4 parts sand, 2 parts compost and 1 part topsoil by volume.

Sand must comply with section 90-1.02C for 3/8 inch max combined aggregate gradation.

Compost must be fine particle size.

Overall topsoil dry weight percentages must be 60 to 90 percent sand with less than 20 percent passing the No. 200 sieve, less than 5 percent clay, and no gravel.

62-7.03 CONSTRUCTION

Place biofiltration soil media after all other earthwork in the area is complete.

Place biofiltration soil media in lifts of 8 to 12 inches and spread to a uniform thickness.

Bioretention within 30 feet of the edge of the traveled way must have a relative compaction of at least 90 percent.

62-7.04 PAYMENT

Not Used

^^

68 SUBSURFACE DRAINS

Replace the 3rd paragraph of section 68-2.02F(1) with:

Use Class 2 permeable material for underdrains.

Replace section 68-5 with:

68-5 PERMEABLE MATERIAL BLANKET

68-5.01 GENERAL

Section 68-5 includes specifications for installing permeable material blankets.

68-5.02 MATERIALS

Permeable material for permeable material blanket must be Class 2 and must comply with section 68-2 except for payment.

Filter fabric must comply with section 96-1.02B.

68-5.03 CONSTRUCTION

Place filter fabric as follows:

1. Ensure the subgrade complies with the compaction and elevation tolerance specified for the material involved before placing the filter fabric on the subgrade.
2. Handle and place filter fabric under the manufacturer's instructions.
3. Align and place the fabric without wrinkles.
4. Overlap or stitch adjacent borders of the fabric from 12 to 18 inches. The preceding roll must overlap the following roll in the direction the permeable material is being spread or must be stitched. If the fabric is joined by stitching, the fabric must be stitched with yarn of a contrasting color. The size and composition of the yarn must be as recommended by the fabric's manufacturer. There must be 5 to 7 stitches per inch of seam.
5. Cover the fabric with the planned thickness of permeable material or aggregate subbase material as shown within 24 hours after the filter fabric has been placed.
6. Maintain at least 6 inches of the material between the fabric and your equipment during spreading and compaction of the permeable material and aggregate subbase. Where embankment material is to be placed on the filter fabric, maintain at least 18 inches of embankment material between the fabric and your equipment. Do not operate or drive equipment or vehicles directly on the filter fabric.

68-5.04 PAYMENT

Not Used

^^

71 EXISTING DRAINAGE FACILITIES

Replace section 71-6.03 with:

71-6.03 CULVERTS AND PIPELINES

71-6.03A General

Abandon culverts or pipelines 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.

71-6.03B Materials

Openings into existing structures that are to remain in place must be plugged with minor concrete under section 90.

71-6.03C Construction

Wherever culverts or pipelines 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 or pipeline.

Culverts or pipelines 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 19-3.02G
2. Slurry cement backfill under section 19-3.02E

Ends of culverts and pipelines must be securely closed by a 6-inch-thick, tight-fitting plug or wall of commercial-quality concrete.

71-6.03D Payment

If backfilling inside the culvert or pipeline 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.

^^

DIVISION VIII MISCELLANEOUS CONSTRUCTION

72 SLOPE PROTECTION

Replace section 72-11.01A(4) with:

72-11.01A(4) Quality Assurance

Construct a test panel at the job site before placing the permanent slope paving.

Notify the Engineer at least 7 days before constructing the test panel.

The test panel must be:

1. Constructed at an authorized location
2. At least 4 by 6 feet
3. Constructed and finished using the personnel, materials and methods to be used in the permanent work

If the test panel is rejected, construct another test panel.

The Engineer uses the authorized test panel to determine the acceptability of the slope paving.

Dispose of the test panel. Notify the Engineer before disposing of the test panel.

^^

73 CONCRETE CURBS AND SIDEWALKS

Add to section 73-1.02A:

Concrete must be minor concrete complying with section 90-2 and may contain returned plastic concrete complying with section 90-9.

^^

75 MISCELLANEOUS METAL

Add to the end of section 75-3.01A:

Bridge deck drainage system consists of deck drains Type D-1 and drainage piping.

^^

77 LOCAL INFRASTRUCTURE

Replace section 77 with:

77-1 GENERAL

77-1.01 GENERAL

77-1.01A Summary

Section 77-1 includes general specifications for constructing City of Santa Rosa local infrastructure.

77-1.01B Definitions

Not Used

77-1.01C Submittals

Submit the City GRIDSMART single-camera detection system:

1. Manufacturer's product data
2. Manufacturer's certificate of compliance
3. Manufacturer's instructions

77-1.01D Quality Assurance

77-1.01D(1) General

The City GRIDSMART single-camera detection system and testing equipment must be new and comply with the manufacturer's instructions. Date of manufacture must not be older than 12 months from the installation start date. Material substitutions must be authorized by the Engineer.

77-1.01D(2) Warranty

Submit before installation a 3-year replacement warranty for the GRIDSMART single-camera detection system against defects in materials and workmanship or failures. The effective date of the warranty is the date of acceptance of the installation. Submit all warranty documentation before installation.

A replacement detection system must be furnished within 10 days of receipt of a failed unit. The Department does not pay for replacements.

Deliver replacement detection system to:

City of Santa Rosa Corporation Yard
69 Stony Circle
Santa Rosa, CA 95401

77-1.02 MATERIALS

77-1.02A General

Electrical equipment and materials must comply with section 86.

77-1.02B City GRIDSMART Single-camera Detection System

The City GRIDSMART single-camera detection system includes:

1. SMARTMOUNT BELL Camera
2. Processor/Hardware
3. System software
4. Cable

The processor and software must be GRIDSMART products and be compatible with the SMARTMOUNT BELL Camera.

The GRIDSMART single-camera detection system can be obtained from the following supplier:

CUBIC ITS, Inc.
10545 Hardin Valley Rd
Knoxville, TN 37932
Telephone (865) 482-2112

The price quoted by CUBIC ITS, Inc for the GRIDSMART single-camera detection system, not including sales tax or shipping is:

Description	Manufacturer	Part number	Qty	Unit price	Total price
GRIDSMART single-camera detection system	CUBIC ITS	GS-3-TEN, GS-3-CAT5, GS-3-CBP, GS3-SYS, GS3-TS1 CBL, GS-3-PFM+, GS-3-SMK, GS3-TS1-OPT	1	$22,500	$22,500

The above prices will be firm for orders placed on or before May 8, 2023, provided delivery is accepted within 90 days after the order is placed.

77-1.03 CONSTRUCTION

77-1.03A General

Install electrical equipment under section 87.

77-1.03B City GRIDSMART Single-camera Detection System

Install the GRIDSMART single-camera detection system under the manufacturer's installation instructions.

A representative from the GRIDSMART detection system supplier must be present during installation, set-up, and testing of GRIDSMART detection system.

Use personnel certified by the manufacturer to install the GRIDSMART detection system. A record of training provided by the manufacturer may be requested by the Engineer at any time.

77-1.04 PAYMENT

Not Used

77-2 LIGHTING (CITY STREET)

77-2.01 GENERAL

77-2.01A Summary

Section 77-2 includes specifications for constructing lighting (City Street).

Lighting (City Street) includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Standards
6. Luminaires
7. Service equipment enclosure
8. Photoelectric control
9. Fuse splice connectors

The components of lighting (City Street) are shown on the project plans.

77-2.01B Definitions

Not Used

77-2.01C Submittals

Submit product data for the decorative standard and luminaire.

77-2.01D Quality Assurance

Not Used

77-2.02 MATERIALS

77-2.02A General

Not Used

77-2.02B City Decorative Electrolier

All components of the city decorative electrolier must be painted after galvanizing to match the color of the bridge ornamental railing. Comply with section 59-3 except the 2nd finish coat color must match color no. 34062 of AMS-STD-595.

City decorative electrolier luminaire must:

1. Be a teardrop-style 144 W LED luminaire with Type III distribution
2. Be rated at a color temperature of 3,000 K
3. Include a multitap driver and individual photoelectric control

City decorative electrolier luminaire arm must be Union Metal 49-F2 Finial with 2" schedule 40 steel pipe arm and 1-1/4” thread.

City decorative electrolier pole must be:

1. Union Metal Design 3714, #75-30-J4-P
2. 11-gauge steel
3. Octo-fluted pattern from 8-3/8 to 3-13/16 inches

The city decorative electrolier base must be New Orleans Family Base #75 Series Cast Iron Pedestal and Base.

The city decorative electrolier can be obtained from the following supplier:

Associated Lighting Representatives, Inc.
7777 Pardee Ln
Oakland, CA 94621
Telephone (510) 638-3800

The price quoted by Associated Lighting Representatives, Inc for city luminaires and decorative light standards, not including sales tax or shipping is:

Description	Manufacturer	Part number	Qty	Unit price	Total price
City Luminaire / Decorative light standard	Union Metal Corporation, LUMEC	RN30-145W64LED3K-G3-ACDR-LE3R-UNV-DMG-SMA-RC-BKTX, UNV-DMG-SMA-RC-BKTX, B3714-75-B40-Y1, 1 X 36 X 4 ANCHOR BOLTS	16	$121,520	$121,500

The above prices will be firm for orders placed on or before April 30, 2023, provided delivery is accepted within 90 days after the order is placed.

77-2.03 CONSTRUCTION

Not Used

77-2.04 PAYMENT

Not Used

77-3 RELOCATE WATER METER

77-3.01 GENERAL

Section 77-3 includes specifications for relocate water meter for the City of Santa Rosa.

77-3.02 MATERIALS

All materials must conform to the requirements as shown.

HDPE pipe must comply with section 64.

Drain rock bedding must comply with section 68 for 1-1/2” Class 3 permeable material.

77-3.03 CONSTRUCTION

Conform to details as shown on the plans, as specified in the City Water Distribution System Specifications for the relocate water meter.

Do not disconnect the existing water meter and assembly without written approval from the Engineer.

77-3.04 PAYMENT

Not Used

77-4 WATER MAIN CASING

77-4.01 GENERAL

Section 77-4 includes specifications for installing water main casing for existing City of Santa Rosa water line.

77-4.02 MATERIALS

All materials must conform to the requirements as shown.

Water supply line must consist of ductile iron pipe and fittings and must comply with section 20-2.13C(2)(b).

Timber planks must comply with section 57.

Reinforced concrete pipe must comply with section 65.

Miscellaneous metal must comply with section 75.

77-4.03 CONSTRUCTION

Not Used

77-4.04 PAYMENT

Not Used

77-5 SIGNAL AND LIGHTING (CITY STREET)

77-5.01 GENERAL

77-5.01A Summary

Section 77-5 includes specifications for constructing signal and lighting (City Street) at various locations.

Signal and lighting (City Street) include:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Cables
6. Standards
7. Signal heads
8. Service equipment enclosure
9. Controller assembly
10. Detectors
11. Accessible pedestrian signals
12. Push button assemblies
13. Pedestrian signal heads
14. Luminaires
15. Photoelectric control
16. Fuse splice connectors
17. Emergency vehicle detection system
18. Activated blank-out sign
19. Video image sensor camera detection system
20. Communication hardware

The components of signal and lighting system (City Street) are shown on the project plans.

77-5.01B Definitions

Not Used

77-5.01C Submittals

77-5.01C(1) General

Not Used

77-5.01C(2) Emergency Vehicle Detection System

Submit the manufacturer's QC test data for the emergency vehicle detection system as an informational submittal.

77-5.01D Quality Assurance

77-5.01D(1) General

Not Used

77-5.01D(2) Quality Control

77-5.01D(2)(a) General

Not Used

77-5.01D(2)(b) Emergency Vehicle Detection System

Perform range tests between the optical emitter and the emergency vehicle unit detector using a:

1. Class I signal at a distance of 1,000 feet
2. Class II signal at a distance of 1,800 feet

Set the range adjustments on the discriminator module to maximum for each test. Perform each test for 1 hour, during which the optical emitter must operate for 30 cycles, each consisting of a 1-minute on interval and a 1-minute off interval. For the entire test period, the optical emitter signal must cause the proper response from the controller unit during each on interval and no improper operation of either the controller unit or the monitor during each off interval.

77-5.02 MATERIALS

77-5.02A General

Not Used

77-5.02B Emergency Vehicle Detection System

77-5.02B(1) General

The emergency vehicle detection system includes an optical emitter assembly and emergency vehicle unit detector assemblies located at the traffic signal.

The frequency-based system must comply with Veh Code § 25352.

The optical emitter assembly must produce Class I (mass transit) and Class II (emergency) signals.

The modulation frequency of the light must be:

1. 9.639 ± 0.110 Hz for Class I signal
2. 14.035 ± 0.250 Hz for Class II signal

77-5.02B(2) Optical Emitter Assemblies

The emitter unit must:

1. Be controlled by a single maintained-contact switch on the respective emitter control unit. The switch must be located such that it is readily accessible to the vehicle driver.
2. Transmit the signal in only 1 direction.
3. Have hardware to allow mounting on various types of vehicles.
4. Have means for aligning and locking into position.
5. Include a filter for eliminating visible light.
6. Have a pilot light to indicate whether the emitter is energized.
7. Generate only 1 modulation frequency at a time, either for Class I or Class II signal.

77-5.02B(3) Unit Detector Assemblies

77-5.02B(3)(a) General

The emergency vehicle detection system's unit detector assembly must detect a Class I signal at ranges of up to 1,000 feet from the unit detector and a Class II signal at ranges up to 1,800 feet from the unit detector.

A unit detector assembly includes detector units, cables, and discriminator modules.

77-5.02B(3)(b) Detector Units

The unit detector includes a housing, 2 photocells, electronics, and a base.

The unit must weigh less than 2.5 pounds and have a maximum wind load area of 36 square inches.

The housing must be waterproof.

The photocell assemblies must detect signals from 2 different directions and be adjustable to a minimum of 180 degrees horizontally.

The reception angle for each photocell assembly must be a maximum of 8 degrees in all directions about the aiming axis of the unit.

The internal circuitry must be solid state and powered by the discriminator module.

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. Provide a cable entrance with male threads and gaskets to allow a waterproof cable connection.

77-5.02B(3)(c) Detector Cables

The cable must have 3 LDPE insulated conductors no. 20 stranded tinned copper. The conductors' minimum insulation thickness must be 25 mils and color coded: 1 yellow, 1 blue, and 1 orange.

The cable shield must be either tinned copper braid or aluminized polyester film with a nominal 20 percent overlap. Where film is used, provide a no. 20 stranded tinned bare drain wire.

The cable jacket must be rated 600 V(ac) and 80 degrees C and be black PVC with a minimum thickness of 43 mils.

The outside diameter of the cable must not exceed 0.35 inch.

The capacitance between any conductor and the other conductors and the shield must not exceed 48 pF per foot at 1,000 Hz.

77-5.02B(3)(d) Discriminator Modules

The discriminator module must be compatible with the controller unit and comply with Chapter 1 of TEES. Slots 12 and 13 of input file *J* are each wired to accept a 2-channel module.

The discriminator module must:

1. Have a single connector board and occupy one slot width of the input file.
2. Be capable of operating 2 channels, each of which must provide an independent output for each separate input.
3. Prevent transients received by the optical detector from affecting the controller assembly.
4. Consider a Class I or II valid only when received for more than 0.50 second. Once a valid signal is detected, the effect must be held by the module in the event of a temporary loss of the signal for a selected period. The period must be programmable from 4.5 to 11 seconds.
5. Provide an output for each channel that will result in a low or grounded condition of the appropriate input of the controller unit. For Class I, the output must be a 6.25 Hz ± 0.1 percent rectangular waveform with a 50 percent duty cycle. For Class II, the output must be a steady signal.

Each channel with its detectors must draw not more than 100 mA at 24 V(dc) or more than 100 mA at 120 V(ac). The power for the module, one detector input, and one detector output for each channel must be terminated at the edge connector pins as shown in the following table:

Edge Connector Pins Power Terminations

Pin	Assignment
A	DC ground
B	+24 V(dc)
C[c]	--
D	Detector input, Channel A
E	+24 V(dc) to detectors
F	Channel A output[a]
-	--
H	Channel A output[b]
J	Detector input, Channel B
K	DC ground to detectors
L	Chassis ground
M	AC-
N	AC+

Pin	Assignment
-	--
P[c]	--
-	--
R[c]	--
S[c]	--
T[c]	--
U[c]	--
V[c]	--
W	Channel B output[a]
X	Channel B output[b]
Y[c]	--
Z[c]	--
--	--

[a]Opto-isolated collector, slotted for keying
[b]Opto-isolated emitter, slotted for keying
[c]Not connected. May not be used by the manufacturer for any purpose

Two auxiliary inputs for each channel must enter the module through the front panel connector. The pin assignments for the connectors 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 opto-isolated NPN open collector transistor capable of sinking 50 mA at 30 V(ac) and compatible with the controller unit inputs.

The front panel of the module must have:

1. A handle to facilitate withdrawal
2. A control to set 3 separate range adjustments for each class
3. A control to trigger a test signal for each class
4. Signal and call indications for each class

The signal indication of the module must be activated when a valid signal has been received. The call indication must be activated when a steady signal has been received. These 2 indications may be accomplished with a single lamp that flashes to denote a signal and stays steady to denote a call.

The front panel must have a single circular, bayonet-captured, multipin connector for 2 auxiliary detector inputs for each channel. The connector must have a mechanical configuration complying with MIL-C-26482 for a 10-4 insert arrangement. The connector must consist of:

1. Wall-mounting receptacle with gold-plated pins
2. Plug with gold-plated sockets, cable clamp, and strain relief to allow a right angle turn within a maximum of 2-1/2 inches from the front panel's surface

77-5.02C Communication Hardware

The communication hardware must be an industrial ethernet extender or industrial ethernet switch and extender as manufactured by Atelis Networks (ML604D or ML684D), EtherWan, Cyrstal Rugged, or approved equal.

77-5.02D Activated LED Blank-out Signs

77-5.02D(1) General

The activated LED blank-out sign consists of enclosure, lens, light source, dimmer, and terminal block.

The activated LED blank-out sign must:

1. Be self-contained and require no assembly
2. Be compatible with the controller cabinet solid-state load switches, flashers, and conflict monitor.
3. Withstand mechanical shock and vibration including internal components.
4. Operate over a temperature range from -37 to 74 degrees C. Forced air mechanisms to cool the sign are not allowed.
5. Operate over a 95 to 135 V(ac), 60±3 Hz, and a power factor of 0.90 or greater, without perceptible flicker to the naked eye. Fluctuations in line voltage must have no visible effect on luminous intensity of the sign.
6. Light the display within 1 second after power is applied.
7. Have a minimum 48 month rated operational lifecycle.
8. Include stainless steel hardware.
9. Have a 24-inch by 24-inch display window

77-5.02D(2) Enclosures

The enclosure must:

1. Be NEMA 3R rated and watertight.
2. Be flame retardant under UL94VO.
3. Be made of 0.125-inch minimum thickness 5052-H32 aluminum sheet complying with ASTM B209. The reinforced area must withstand loads greater than 6,600 lb.
4. Have all exposed seams continuously welded using Gas Metal Arc Welding or Gas Tungsten Arc Welding. Weep holes must be designed to prevent the infiltration of insects or debris.
5. Have a door with stainless steel full-length continuous piano hinges and turn-lock style latch and keeper. The locking mechanism must not require tools to open the enclosure.
6. Include LED modules mounting board powder coated flat black.
7. Be powder coated satin black on all external surfaces.
8. Include a neoprene gasket strip to seal between door and lens.
9. Include a sun visor.

Mounting assembly must comply with section 86-1.02R (2).

77-5.02D(3) Lenses

Lens must be fabricated from a nominal 0.120-inch-thick matte finish polycarbonate polymer. The polymer must comply with ASTM D 3935.

77-5.02D(4) Light Sources

The activated LED blank-out sign light source must consist of LED modules arranged to form the symbols. The LED modules must:

1. Be weather tight and connect directly to the power source.
2. Have individually replaceable high intensity AlInGaP or InGaN LEDs rated for 100,000 hours of continuous operation.
3. Have manufacturer's name, trademark, model number, serial number, lot number, month and year of manufacture, rated voltage, power consumption, and volt-ampere, permanently marked on the back of the module.
4. Have an average luminous intensity of at least 1,547 foot-lambert throughout the operational lifecycle and operating temperature range.
5. Be wired so that the catastrophic loss or failure of one LED will not result in the loss of more than 5 percent of the sign's luminous intensity. The failure of an individual LED in a string must not result in the loss of the entire string or loss in symbol integrity.
6. Have a drive current limited to 75 percent of the LED module's maximum rated current.

The LED module for the arrow must be lunar white with measured chromatically coordinates:

1. x: not less than 0.270, nor greater than 0.330
2. y: not less than 0.272, nor greater than 0.355

The LED modules for the other symbols must be the following color:

Symbol	Color	Wavelength
Circle	Red	700–635 nm
Slash	Red	700–635 nm

77-5.02D(5) Dimmers

The dimmer must:

1. Be a two-level, bright and dim levels
2. Operate the sign display at full intensity under the bright level
3. Reduce the sign display intensity by approximately 50 percent under the dim level
4. Operate the sign display at full intensity in the event of a failure
5. Be controlled either by a photoelectric unit mounted on the enclosure or by an external 120 V(ac) signal

77-5.02D(6) Terminal blocks

Terminal blocks must be light duty, rated at 600 V(ac) and 5 A, and have 6 screw-type terminal positions. Terminal screws must be binder head, No. 6 by 1/8-inch.

77-5.02E Video Image Sensor Camera Detection System

The video image sensor camera detection system must be the City GRIDSMART single-camera detection system.

77-5.03 CONSTRUCTION

77-5.03A General

Not Used

77-5.03B Emergency Vehicle Detection System

77-5.03B(1) General

Provide an optical emitter assembly for testing the system.

Perform the system tests in the presence of the Engineer.

77-5.03B(2) Optical Detector Assemblies

Install emergency vehicle unit detectors on the signal heads.

Aim each unit detector under the manufacturer's instructions.

Install emergency vehicle unit cable between each optical detector and the controller cabinet. Do not splice the cable. Terminate the cable under the manufacturer's instructions.

Except for the 24 V(dc) power, field wire the primary optical detectors to terminate on the terminal TB-9 in the controller cabinet 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)

Field wire the auxiliary optical detectors to terminal TB-0 in the controller cabinet as shown in the following table:

For module 1 (J-12)		For module 2 (J-13)	
Position	Assignment	Position	Assignment
1	+24 V(dc) from (J-12E)	7	+24 V(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

77-5.03C Communication Hardware

Install communication hardware under the manufacturer's instructions.

77-5.03D Activated LED Blank-out Signs

Install the activated LED blank-out sign on the signal standard under the manufacturer's instructions.

Install the activated LED blank-out sign such that its members are arranged symmetrically and plumb or level. Orient each mounting assembly to allow maximum horizontal clearance to the adjacent roadway.

For a bracket-mounted assembly, bolt the terminal compartment or pole plate to the pole or standard.

After installing the assembly, clean and paint the exposed threads of the galvanized conduit brackets and bracket areas damaged by the wrench or vise jaws. Use a wire brush to clean and apply 3 coats of un-thinned, organic zinc-rich primer. Do not use an aerosol primer.

Install a terminal block in the back panel.

Install the conductors on the terminal block and secure the terminal compartment cover.

Verify the minimum horizontal clearance between any part of the blank-out sign and the face of curb is 24 inches or greater.

77-5.03E Video Image Sensor Camera Detection System

Install, trouble shoot, set-up an adjust detection zones, and resolve all technical issues for the video image sensor camera detection system.

77-5.04 PAYMENT

Not Used

77-6 TEMPORARY SIGNAL AND LIGHTING (CITY STREET)

77-6.01 GENERAL

Section 77-6 includes specifications for constructing temporary signal and lighting (City Street) at various locations.

77-6.02 MATERIALS

Not Used

77-6.03 CONSTRUCTION

Not Used

77-6.04 PAYMENT

Not Used

77-7 SIGNAL INTERCONNECT (CITY STREET)

77-7.01 GENERAL

77-7.01A Summary

Section 77-7 includes specifications for constructing signal interconnect (City Street).

77-7.01B Definitions

Not Used

77-7.01C Submittals

Submit:

1. Manufacturer's product data
2. Manufacturer's certificate of compliance
3. Manufacturer's instructions

77-7.01D Quality Assurance

Not Used

77-7.02 MATERIALS

The signal interconnect cable must be loose tube, gel-free, dielectric, non-armored cable, singlemode optical fiber for outdoor and conduit use as manufactured by Corning ALTOS (048ZU4-T4F22D20), Belden, Panduit, or approved equal.

77-7.03 CONSTRUCTION

Not Used

77-7.04 PAYMENT

Not Used

^^

DIVISION IX TRAFFIC CONTROL DEVICES

83 RAILINGS AND BARRIERS

Replace section 83-2.01B with:

83-2.01B Minor Concrete Vegetation Control

83-2.01B(1) General

83-2.01B(1)(a) Summary

Section 83-2.01B includes specifications for constructing minor concrete vegetation control around railing and barrier posts.

Constructing minor concrete vegetation control includes clearing and excavation.

83-2.01B(1)(b) Definitions

Not Used

83-2.01B(1)(c) Submittals

Submit a mix design for the minor concrete to be used for vegetation control. The mix design must show proportions of:

1. Coarse aggregate
2. Fine aggregate

3. Cementitious material
4. Reinforcing fiber
5. Water

Include compressive strength test results with the mix design.

Submit a certificate of compliance for the crumb rubber aggregate, if used. Include the quantity in pounds of crumb rubber.

83-2.01B(1)(d) Quality Assurance

Not Used

83-2.01B(2) Materials

83-2.01B(2)(a) General

Not Used

83-2.01B(2)(b) Minor Concrete

83-2.01B(2)(b)(i) General

Concrete for vegetation control must comply with the specifications for minor concrete, except the concrete:

1. Must include reinforcing fibers
2. May include crumb rubber aggregate
3. Must contain:
   3.1. At least 505 pounds of cementitious material per cubic yard, if crumb rubber aggregate is used
   3.2. At least 400 pounds of cementitious material per cubic yard, if crumb rubber aggregate is not used
4. Must have a maximum aggregate size of 3/8 inch

All ingredients must be added at the concrete plant before delivery to the job site.

You may use volumetric proportioning complying with ASTM C685/C685M or as specified.

The minor concrete must have a 28-day compressive strength from 1,400 to 2,500 psi.

83-2.01B(2)(b)(ii) Crumb Rubber Aggregate

Crumb rubber aggregate must consist of ground or granulated scrap tire rubber from automobile and truck tires. Do not use tire buffings.

Crumb rubber aggregate must be ground and granulated at ambient temperature.

The crumb rubber aggregate gradation must comply with the requirements shown in the following table:

Gradation Requirements

Sieve size	Percentage passing
1/2"	100
3/8"	90–100
1/4"	35–45
No. 4	5–15
No. 8	0–5
No. 16	0

Crumb rubber aggregate must not contain more than 0.01 percent of wire by mass and must be free of oils and volatile organic compounds.

Do not commingle crumb rubber from different sources.

The crumb rubber aggregate must be 3.5 ± 0.5 percent by weight of the concrete.

83-2.01B(2)(b)(iii) Reinforcing Fibers

Reinforcing fibers for minor concrete must be:

1. Manufactured specifically for use as concrete reinforcement from one of the following:
   1.1. Polypropylene, polyethylene, or a combination of both.
   1.2. Copolymer of polypropylene and polyethylene.
2. Blended ratio from 4 to 5.67 parts by weight of macro synthetic fibers to 1 part by weight of micro synthetic fibers. Synthetic fibers must be:
   2.1. Nonfibrillated macro fibers with individual fiber lengths less than 2 ± 1/2 inches.
   2.2. Fibrillated or monofilament micro fibers of various lengths and thicknesses.
3. Supplied in sealed, degradable bags of appropriate size for adding whole bags to concrete batches.
4. From a commercial source.

The reinforcing fiber content of the minor concrete must be from 5 to 6 lb/cu yd.

83-2.01B(2)(b)(iv) Coloring Agent

Not Used

83-2.01B(2)(c) Block-Out Material

The block-out material must be a commercially available expanded polystyrene foam with a compressive strength of 13 ± 5 psi at 10 percent deformation when tested under ASTM D1621.

If authorized, you may substitute an alternative block-out material that complies with the compressive strength requirements of the expanded polystyrene foam.

83-2.01B(2)(d) Backfill Material

Backfill material must be Class 2 aggregate base complying with section 26.

83-2.01B(3) Construction

83-2.01B(3)(a) General

Not Used

83-2.01B(3)(b) Clearing

Clear areas to receive minor concrete vegetation control of vegetation, trash, and debris. Dispose of the removed material.

83-2.01B(3)(c) Earthwork

Excavate or backfill areas to receive minor concrete vegetation control.

If the minor concrete vegetation control abuts the existing surfacing, and the edge of the existing surfacing is not on a neat line, cut the surfacing on a neat line to a minimum depth of 2 inches before removing the surfacing.

Perform grading so that the finished elevation of the minor concrete vegetation control maintains the existing or planned flow lines, slope gradients, contours, and existing surfacing.

Grade the areas to receive minor concrete vegetation control to a smooth, uniform surface and compact to a relative compaction of at least 90 percent.

83-2.01B(3)(d) Block Outs

For block-out material supplied in more than 1 piece, tape the pieces together to make a smooth surface on the top and sides.

Ensure that the block-out material does not move during concrete placement.

83-2.01B(3)(e) Forming

Forming must comply with section 73-1.03C.

Leave forms in place for at least 12 hours after surface finishing.

83-2.01B(3)(f) Minor Concrete

Strike off and compact the minor concrete until a layer of mortar is brought to the surface. Match the finished grade to the adjacent section of minor concrete vegetation control, pavement, shoulder, or existing grade.

Construct contraction joints by scoring concrete with a grooving tool and rounding corners with an edger tool.

If the curing compound method is used for colored concrete, use curing compound no. 6.

83-2.01B(3)(g) Backfill Material

Backfill material required for minor concrete vegetation control under existing guardrail or barrier is change order work. Excavate or backfill areas to receive vegetation control.

83-2.01B(4) Payment

Not Used

Replace item 1 in the list in the 2nd paragraph of section 83-2.02C(1)(a) with:

1. Wood line posts.

Replace item 2 in the list in the 2nd paragraph of section 83-2.02C(1)(a) with:

2. Wood blocks for line posts.

Add to section 83-2.02C(1)(a):

The exposed bolt threads on guardrail beyond the nut that are more than 0.5 inch must be cut off.

Replace section 83-2.04B with:

83-2.04B Alternative In-line Terminal—TL-3

83-2.04B(1) General

83-2.04B(1)(a) Summary

Section 83-2.04B includes specifications for constructing alternative in-line terminal—TL-3.

83-2.04B(1)(b) Definitions

Not Used

83-2.04B(1)(c) Submittals

At least 10 days before installation, submit the following from the manufacturer for each model of the in-line terminal used:

1. A certificate of compliance
2. A minimum of 2 copies of drawings
3. Installation instruction manual
4. Maintenance manual

For each in-line terminal, submit a completed manufacturer's installation checklist within 10 days after installation. The checklist must be completed by personnel that have been trained by the manufacturer. The checklist must include the following:

1. Contract number
2. Name of installation contractor
3. Flare offset used in layout
4. Date of installation
5. Location on the project by post mile, and by station if stationing shown on plans
6. Name and signature of individual completing the checklist.

83-2.04B(1)(d) Quality Assurance

The Engineer signs and dates the completed checklists, verifying the in-line terminal system at each location was assembled and installed under the manufacturer's instructions and as described.

Use personnel trained by the manufacturer to install in-line terminals. A record of training provided by the manufacturer may be requested by the Engineer at any time.

83-2.04B(2) Materials

Alternative in-line terminal must be one of the following or a Department-authorized equal:

1. MAX-Tension Tangent Guardrail End Treatment is a tangent, re-directive gating guardrail terminal manufactured by Barrier Systems, Inc. The terminal has a length of 55'-1/2" and can be flared for an offset of 0 to 2 feet at the head. The MAX-Tension terminal is available from the distributor:

Address	Telephone no.
STATEWIDE SAFETY AND SIGNS INC 130 GROBRIC COURT FAIRFIELD CA 94533	(800) 770-2644

2. MASH Sequentially Kinking Terminal (MSKT) is a tangent, re-directive end terminal manufactured by Road Systems, Inc. The terminal length is 50'-0" and can be flared for an offset of 0 to 2 feet at the head. The MSKT terminal is available from the distributor:

Address	Telephone no.
UNIVERSAL INDUSTRIAL SALES PO BOX 699 PLEASANT GROVE UT 84062	(801) 785-0505
GREGORY INDUSTRIES INC 4100 13TH ST SW CANTON OH 44708	(330) 477-4800

3. SPIG Guardrail End Terminal (SGET) is a tangent, re-directive gating end terminal manufactured by SPIG Industries, LLC. The terminal has a length of 50'-0" and can be flared for an offset of 0 to 2 feet at the head. The SGET terminal is available from the manufacturer:

Address	Telephone no.
SPIG INDUSTRY, LLC 14675 INDUSTRIAL PARK ROAD BRISTOL VA 24202	(276) 644-9510

4. Soft-Stop Guardrail Terminal is a tangent, re-directive gating end terminal manufactured by Trinity Highway Products, LLC/Valtir, LLC. The terminal length is 50'-9 1/2" and can be flared for an offset of 0 to 2 feet at the head. The Soft-Stop terminal is available from the manufacturer:

Address	Telephone no.
TRINITY HIGHWAY-PRODUCTS, LLC/VALTIR, LLC 15601 DALLAS PARKWAY, STE 525 ADDISON TX 75001	Telephone: (888) 323-6374

83-2.04B(3) Construction

Install alternative in-line terminal under the manufacturer's installation instructions. A copy of the Caltrans-approved manufacturer's drawings and installation manual must be onsite for each installed model of terminal.

Identify each terminal by painting the terminal type in 2-inch-high, neat, black letters and figures on the backside of the rail element between post numbers 4 and 5. Paint must be metallic acrylic resin type spray paint. Before applying paint, clean the surface of dirt, grease, oil, salt, or other contaminants and allow to dry.

The posts must be, at your option, driven with or without pilot holes, or placed in drilled holes. Space around the posts 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.

To install MAX-Tension terminal, use an I-beam W6x9x6 post at post 1 and install W6x8.5 or W6x9 at post positions after post 1. Use 8-inch or 12-inch wood or plastic blocks.

To install MSKT terminal, use a W6x15 at lower section post 1 with a soil plate attached and a 6-by-6-by-1/8-inch tube section at upper section post 1. Install a W6x9 or W6x8.5 post assembly top and post assembly bottom at post 2. Install W6x9 or W6x8.5 at posts 3 through 8. Attach a 9'-4-1/2" W-beam MGS rail section to post 3. Use 8-inch or 12-inch wood or plastic blocks.

To install SGET terminal, use a 5.5-by-7.5-by-50-inch wood breakaway post at post 1 and install 4”x6”x6’ post at post positions after post 1. Use 8-inch wood or plastic blocks.

To install Soft-Stop terminal, use W6 x 8.5 steel yielding terminal posts for posts 1 and 2 and standard W6 x 8.5 steel posts for the other posts. Use 8-inch or 12-inch wood or plastic blocks.

83-2.04B(4) Payment

Not Used

Replace section 83-2.10 with:

83-2.10 ORNAMENTAL RAILING

83-2.10A General

Section 83-2.10 includes specifications for constructing ornamental railing.

83-2.10A(1) Summary

Ornamental railing must be metal railing consisting of steel frames fabricated from structural tubing and plates, and other required steel pickets and welded wire reinforcement, hardware and fittings, and ball style post caps.

Prepare and paint the exposed galvanized surfaces of the railing under section 59-3 except the 2nd finish coat color must match color no. 34062 of FED-STD-595.

Welded wire reinforcement, shown as welded wire fabric, must comply with section 52.

83-2.10A(2) Qualifications

Demonstrate at least 5 years of experience fabricating and installing similar fences and railings, including at least three successful projects in California.

83-2.10A(3) Submittals

Submit 3 copies of shop drawings. Shop drawings must include the following:

1. Names of the painting contractor and any subcontractors to be used.
2. 1 copy of each applicable ASTM and SSPC specification and qualification procedure.
3. Coating manufacturer's guidelines and instructions for surface preparation, painting, drying, curing, handling, shipping, and storage of painted components and assembled sections. Include testing methods and maximum allowable levels for soluble salts.
4. Materials, methods, and equipment to be used.

5. Methods to control environmental conditions.
6. Methods to protect the coating during curing, shipping, handling, and storage.
7. Detailed paint repair plan for damaged areas.
8. Examples of proposed daily reports for testing to be performed, including type of testing, location, lot size, time, weather conditions, test personnel, and results.
9. Documentation of compliance with section 83-2.10A(2).

83-2.10A(4) Quality Control

Deliver to the site a full-size painted railing section mock-up with welded wire reinforcement in place. The mock-up must be:

1. Constructed and finished using the personnel, materials, equipment, and methods to be used in the work
2. Placed at an authorized location
3. Authorized before starting work

The Engineer uses the authorized mock-up to determine acceptability of the work.

If it remains undamaged, you may install the authorized mock-up into the permanent railing.

If not incorporated into the work, dispose of the mock-up after the ornamental railing is installed and authorized. Notify the Engineer before disposing of the mock-up.

83-2.10B Materials

Structural shapes, plates, bars and bolts must comply with section 55-1.02.

Structural tubing steel must comply with ASTM A500/A500M or A501.

Self-drilling screws must be commercial quality.

83-2.10C Construction

Do not weld railing components after painting.

After installation, if less than 2% of the total painted surface area of a section of railing has been damaged, repair with a coating recommended by the manufacturer.

After installation, if 2% or more of the total painted surface area of a section of railing has been damaged, repaint the entire section.

83-2.10D Payment

Not Used

Add to section 83-3.01A:

City logo surface texture must comply with section 51-1.03G.

Add to section 83-3.04:

Concrete barrier (Type 732SW Modified 1) and concrete barrier (Type 732SW Modified 2) are paid for as concrete barrier (Type 732SW Modified).

^^

84 MARKINGS

Replace the 2nd paragraph of section 84-2.01A of the SS for section 84-2 with:

Traffic stripes and pavement markings must comply with ASTM D6628 for daytime and nighttime color and the following:

1. The daytime luminance factor (Y), for green bike lane pavement markings shall be at least 7, but no more than 35. Color chromaticity limits for green bike lane pavement markings at daytime must plot within the boundaries shown in the following table:

Daytime Chromaticity Coordinates for Green Bike Lane Pavement Marking (Corner Points)

1		2		3		4	
X	Y	X	Y	X	Y	X	Y
0.230	0.754	0.266	0.500	0.367	0.500	0.444	0.555

2. Color chromaticity limits for green bike lane pavement markings at nighttime must plot within the boundaries shown in the following table:

Nighttime Chromaticity Coordinates for Green Bike Lane Pavement Marking (Corner Points)

1		2		3		4	
X	Y	X	Y	X	Y	X	Y
0.230	0.754	0.336	0.540	0.450	0.500	0.479	0.520

3. The daytime luminance factor (Y), for green route shield pavement markings shall be at least 6, but no more than 15. Color chromaticity limits for green route shield pavement markings at daytime must plot within the boundaries shown in the following table:

Daytime Chromaticity Coordinates for Green Route Shield Pavement Marking (Corner Points)

1		2		3		4	
X	Y	X	Y	X	Y	X	Y
0.230	0.399	0.166	0.364	0.286	0.446	0.207	0.771

4. Color chromaticity limits for green route shield markings at nighttime must plot within the boundaries shown in the following table:

Nighttime Chromaticity Coordinates for Green Route Shield Pavement Marking (Corner Points)

1		2		3		4	
X	Y	X	Y	X	Y	X	Y
0.007	0.570	0.200	0.500	0.322	0.590	0.193	0.782

5. The daytime luminance factor (Y), for red route shield pavement markings, shall be at least 6, but no more than 15. Color chromaticity limits for red route shield pavement markings at daytime must plot within the boundaries shown in the following table:

Daytime Chromaticity Coordinates for Red Route Shield Pavement Marking (Corner Points)

1		2		3		4	
X	Y	X	Y	X	Y	X	Y
0.648	0.351	0.735	0.265	0.629	0.281	0.565	0.346

6. Color chromaticity limits for red route shield pavement markings at nighttime must plot within the boundaries shown in the following table:

Nighttime Chromaticity Coordinates for Red Route Shield Pavement Marking (Corner Points)

1		2		3		4	
X	Y	X	Y	X	Y	X	Y
0.650	0.348	0.620	0.348	0.712	0.255	0.735	0.265

7. The daytime luminance factor (Y), for blue route shield pavement markings, shall be at least 5, but no more than 14. Color chromaticity limits for blue route shield pavement markings at daytime must plot within the boundaries shown in the following table:

Daytime Chromaticity Coordinates for Blue Route Shield Pavement Marking (Corner Points)

1		2		3		4	
X	Y	X	Y	X	Y	X	Y
0.078	0.171	0.150	0.220	0.210	0.160	0.137	0.038

8. Color chromaticity limits for blue route shield pavement markings at nighttime must plot within the boundaries shown in the following table:

Nighttime Chromaticity Coordinates for Blue Route Shield Pavement Marking (Corner Points)

1		2		3		4	
X	Y	X	Y	X	Y	X	Y
0.033	0.370	0.180	0.370	0.230	0.240	0.091	0.133

Replace pavement marking and its definition in section 84-2.01B of the SS for section 84-2 with:

pavement marking: Transverse marking which includes shoulder or gore marking, traffic island marking, word or numeral or symbol marking, arrow, limit line, stop line, yield line, crosswalk marking, speed measurement marking, speed reduction marking, speed hump marking, parking space marking, route shield marking, toll lane marking, transit lane marking, and bike lane marking.

Must include Warranty Bond Form for item Traffic Tape (Warranty) and make sure the form is listed in SSP_2-1.06B table and include the form as part of the final information handout as well.

Replace section 84-6 with:

84-6 TRAFFIC STRIPE TAPE WARRANTY

84-6.01 GENERAL

84-6.01A Summary

Section 84-6 includes the warranty requirements for traffic stripe tape.

Traffic stripe tape must comply with section 84-2.

Traffic stripe tape must be measured under the test methods and frequencies shown in the following table:

Test Methods and Frequencies for Traffic Stripes

Quality characteristic	Test method	Minimum sampling and testing frequency	Requirement
Durability (min, %)	ASTM D913	Visual	100
Initial retroreflectivity (min, $mcd \cdot m^{-2} \cdot lx^{-1}$) White Yellow	ASTM E1710	ASTM D7585[a,b]	 700 500
Color ((x,y) chromaticity coordinates) Daytime Nighttime	ASTM D6628	Per lot number	 Table 1 Table 2

[a]Use the referee evaluation protocol for project length less than 10 miles. For project lengths greater than or equal to 10 miles, add one evaluation for every additional mile.
[b]Measure retroreflectivity at least 48 hours after placement and within 30 days of applying the traffic stripes.

84-6.01B Definitions

Not Used

84-6.01C Submittals

84-6.01C(1) General

Twenty five days before placing the traffic stripe tape, submit to the Engineer and the Division of Maintenance:

1. Contractor's traffic stripe tape warranty for durability, color, and retroreflectivity
2. Completed Warranty Bond form (TOTE-1)
3. Name of the manufacturer's representative or name and certificate of the manufacturer certified contractor, who will monitor the installation

Before contract acceptance, submit in electronic format to maintenance.striping.warranty.contact@dot.ca.gov and to the Engineer, in an authorized data-storage device, the following information:

1. Project identification number
2. Project location information, including:
   2.1. District
   2.2. County
   2.3. Route
3. Stripe information, including:
   3.1. Standard plan detail number
   3.2. Contrast as *y* or *n*
   3.3. Date installed as mm/dd/yyyy
   3.4. Initial retroreflectivity number to 1 decimal place

During the warranty period:

1. Within 20 days of receiving notification from the Division of Maintenance that traffic stripes are deficient, submit a traffic stripe replacement plan and schedule to the Division of Maintenance
2. Within 5 days of installation of the replacement traffic stripe tape, submit the retroreflectivity and color test data

84-6.01D Quality Assurance

84-6.01D(1) General

Not Used

84-6.01D(2) Warranty

84-6.01D(2)(a) General

The warranty period:

1. For traffic stripe tape is 4 years
2. Starts the day after Construction Contract Acceptance (CCA date)

The warranty bond must be equal to 100 percent of the total payment for the bid items subject to the warranty. The bond must be in effect for the entire warranty period, including the time to perform corrective work. Each bond must be provided by a surety licensed to do business in the State.

You are responsible for the costs of removing and replacing traffic stripes that are noncompliant with the performance requirements during the warranty period. These costs include, but are not limited to, surface preparation, material, equipment, labor, encroachment permit fees, and traffic control. All warranty work must be performed at no cost to the Department. The replacement materials will only be covered by the remainder of the original warranty period.

The warranty does not cover damages due to acts of God.

84-6.01D(3) Quality Control

Traffic stripes must maintain the performance requirements throughout the warranty period as follows:

1. Daytime and nighttime color chromaticity coordinates
2. Retained retroreflectivity of 175 $mcd \cdot m^{-2} \cdot lx^{-1}$
3. Minimum 90 percent durability rating for any 400-foot segment

84-6.02 MATERIALS

Traffic stripe tape must be on the authorized material list for signing and delineation materials.

Traffic stripe tape must have a precoated, pressure-sensitive adhesive.

Traffic stripe tape must have an embossed pattern of raised surfaces.

During the warranty period, the replacement materials must comply with section 84-2 and meet or exceed the performance of the original materials.

84-6.03 CONSTRUCTION

A manufacturer's representative must be present during the installation or a manufacturer-certified contractor must install the traffic stripe tape.

During the warranty period:

1. Department's Division of Maintenance will monitor the traffic stripes for compliance with performance requirements and will notify you and the surety of any deficient traffic stripes.
2. Before any work is performed, coordinate with the Division of Maintenance to obtain approval for the traffic control.
3. Replace defective traffic strips within 30 days of the traffic stripe replacement plan and schedule submittal.

4. Measure the replacement traffic stripe retroreflectivity, durability, and daytime and nighttime color.
5. If work does not start within 72 hours of the time identified in the replacement plan schedule, the surety will be billed $3000.00 for each day until the replacement work starts. If work does not start within the time identified, the Department may replace the defective material or install temporary pavement delineation until the work starts and will bill the surety for the cost of the replacement or repairs.

84-6.04 PAYMENT

Not Used

Replace section 84-9.03B with:

84-9.03B Remove Traffic Stripes and Pavement Markings Containing Lead

Residue from the removal of painted or thermoplastic traffic stripes and pavement markings contains lead from the paint or thermoplastic. The average lead concentrations are less than 1,000 mg/kg total lead and 5 mg/L soluble lead. This residue:

1. Is a nonhazardous waste
2. Does not contain heavy metals in concentrations exceeding the thresholds established by the Health and Safety Code and 22 CA Code of Regs
3. Is not regulated under the Federal Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 et seq.

Management of this material exposes workers to health hazards that must be addressed in your lead compliance plan.

^^

DIVISION X ELECTRICAL WORK

86 GENERAL

Replace the 1st and 2nd paragraphs of section 86-1.01A with:

Section 86 includes general specifications for electrical work.

Electrical work must comply with part 4 of the *California MUTCD* and 8 CA Code of Regs, chapter 4, subchapter 5, "Electrical Safety Orders."

Replace the 6th paragraph of section 86-1.01C(1) with:

Submit a schedule of values within 30 days of Contract approval.

Replace the 6th paragraph of section 86-1.02B(1) with:

Conduit used for horizontal directional drilling must be 4 in. X 20 ft. Schedule 40 PVC Directional Drilling Conduit.

Add to the list in the 2nd paragraph of section 86-1.02C(1) or section 86-1.02C:

15. CITY on city and pull boxes
16. LIGHTING for City Street lighting system
17. TRAFFIC SIGNAL for City traffic signal system

Replace the 2nd paragraph or section 86-1.02D(3) with:

The warning tape must have a printed message that reads: *CAUTION: CALTRANS FACILITIES BELOW CALL* 1 - (510) 286-6915.

Add to the end of section 86-1.02F(2)(a):

Conductors must be copper including bonding jumpers and equipment grounding conductors.

Replace the 2nd paragraph of section 86-1.02F(2)(c)(ii) with:

An equipment grounding conductor must be bare.

Replace the 1st sentence in the 2nd paragraph of section 86-1.02F(3)(d)(ii) with:

The individual conductors in the cable must be solid copper complying with ASTM B3 with Type THWN insulation.

Replace the 1st sentence in the 1st paragraph of section 86-1.02F(3)(d)(v) with:

Signal interconnect cable must be a 3-pair type with stranded, tinned, copper no. 20 conductors.

Replace the 3rd paragraph of section 86-1.02G with:

The self-adhesive reflective labels must:

1. Be from 3 to 7 mils thick
2. Have all black capital characters on a white background
3. Extend beyond the character by a minimum of 1/4 inch
4. Be coated with translucent luster surface finish ultraviolet protectant 2 to 3 mils thick
5. Be affixable with permanent adhesive
6. Have minimum 7-year expected performance life

Replace the 15th paragraph of section 86-1.02P(2) with:

Circuit breakers used as disconnects must have a minimum interrupting capacity of 42,000 A, rms, for 120/240 V(ac) services and 30,000 A, rms, for 480 V(ac) services.

Replace the 1st sentence in the 16th paragraph of section 86-1.02P(2) with:

The interior of the enclosure must accept cable-in/cable-out circuit breakers. The circuit breakers must be mounted on nonenergized clips and vertically with the up position of the handle being the *ON* position.

Replace the 18th paragraph of section 86-1.02P(2) with:

Nameplate must be installed:

1. Adjacent to the breaker on the dead front panel. The characters must be a minimum of 1/8 inch high.
2. Adjacent to the component on the back panel. The characters must be a minimum of 1/8 inch high.
3. At the top exterior of the door panel. The nameplate must include the system number, voltage, number of phases and service address engraved in minimum 3/16-inch-high characters.

Add to the end of section 86-1.02(P)(2):

Provide a clearance of 24 inches minimum between the bottom of the lowest circuit breaker and the bottom of the service equipment enclosure for a Type III-A series.

Add to section 86-1.02Q(2)(a):

The cabinet components include:

1. Multiple AC outlet strip
2. RJ-11 modular jack
3. RJ-45 modular jack
4. DC terminal block
5. U-shape DIN rail bracket

The multiple AC outlet strip must:

1. Be 19-inch, rack mountable
2. Have a minimum of 6 receptacle outlets
3. Be rated for 15 A, 125 V(ac)
4. Have internal 12 A, 125 V(ac) circuit breaker
5. Be rated for 36,000 A surge current protection from Hot to Neutral
6. Have a UL 1449 rating for a minimum 400 V
7. Have a minimum 6-foot-long cord

The RJ-11 modular jack must:

1. Be DIN rail mounting
2. Have 6 interface positions
3. Be rated for 120 V and 1 A
4. Have dimensions of 2 inches (D) by 1.5 inches (W) by 3.25 inches (H)
5. Have a screw clamp connection

The RJ-45 modular jack must:

1. Be DIN rail mounting
2. Have 8 interface positions
3. Be rated for 120 V and 1 A
4. Have dimensions of 2 inches (D) by 1.5 inches (W) by 3.25 inches (H)
5. Have a screw clamp connection

The DC terminal block must:

1. Be rated for 250 V(ac)/DC voltage and 30 A current
2. Have an operating temperature from -13 to 122 degrees F
3. Have a maximum size of 3.9 inches (D) by 2.7 inches (W) by 2.7 inches (H)
4. Have a wire size for the input terminals of 26-10 AWG solid/strand
5. Have a wire size for the output terminals of 26-12 AWG solid/strand
6. Have a torque of at least 4.4 in-lb.

The U-shape DIN-rail must be:

1. Aluminum sheet metal
2. 19-inch, rack mountable
3. 6 rack unit (RU) high
4. 10 inches deep

Add to the list in the 2nd paragraph of section 86-1.02R(4)(a):

4. Be made of metal

Replace section 86-1.02V with:

86-1.02V Loop Detector Marker

Loop detector marker must:

1. Be disk marker complying with the requirements for fiber optic disk marker under section 87-19.02H
2. Have markings *CALTRANS* and *LOOP* on top of the disk

^^

87 ELECTRICAL SYSTEMS

Replace the 3rd paragraph of section 87-1.03A with:

At least 3 business days before performing work on the existing system, notify:

1. The Engineer
2. Department's Electrical and Signal Maintenance Superintendent at (415) 330-6500

Replace the 1st sentence in the 9th paragraph of section 87-1.03A with:

The shutdown of traffic signal systems is allowed only between the hours of 9.00 pm and 6.00 am.

Add between the 22nd and 23rd paragraphs of section 87-1.03A:

Where a Type A or a Type B loop detector is shown, a Type E loop detector may be substituted. Use only one type loop detector per system.

Where a Type D loop detector is shown, a Type F loop detector may be substituted. Use only one type of loop detector per system.

Add between the 23rd and 24th paragraphs of section 87-1.03A:

When replacing loops, test each loop and the detector lead-in cable circuit for continuity, ground, and insulation resistance at the controller cabinet before connecting detector lead-in cable to the terminal block (1) before and (2) after replacing. Submit test results:

1. 1 day before starting loop replacement at each location
2. 1 day after replacement at all locations is completed

Add to the end of section 87-1.03B(1):

Where 6 or more 3-inch conduit enter a no. 6 pull box, the conduit must enter at an angle not greater than 45 degrees from the horizontal.

Add to the beginning of section 87-1.03B(3)(a):

Use Type 3, Schedule 80 conduit in a foundation and between a foundation and the nearest pull box.

Add between the 6th and 7th paragraph of section 87-1.03B(3)(a):

You may use the trench-in-pavement method to install conduit under existing pavement:

1. For temporary conduit
2. If the delay to vehicles will be less than 5 minutes.

Install conduit to a depth of 14 inches for the trench-in-pavement method. Do not use the trench-in-pavement method for conduit installation under freeway lanes, freeway connectors or freeway ramps.

Conduit shown under a sidewalk may be installed in the street within 3 feet of and parallel to the face of the curb. Install pull boxes behind the curb.

Replace the 3rd paragraph of section 87-1.03C(2)(a) with:

Install a pull box on a bed of crushed rock.

Replace the 1st paragraph of section 87-1.03F(2)(c)(ii) with:

Install a Type B loop detector lead-in cable in conduit.

Replace the 1st paragraph of section 87-1.03F(3)(c)(ii) with:

Use a Type 2 loop wire. Use only Type 2 loop wire for Type E and F loop detectors.

Delete the 3rd paragraph of section 87-1.03G.

Replace the 2nd paragraph of section 87-1.03H(2) with:

Use Method B to insulate a splice.

Add between the 1st and 2nd paragraphs of section 87-1.03J:

Use coupling nuts (Sleeve nuts) on Type 1-B Standard.

Add to the end of section 87-1.03L(2)(a):

Run the grounded conductor from the service equipment enclosure to the controller cabinet without splicing to any other grounded conductor.

Add to the end of section 87-1.03Q(1):

Install a DIN-rail mounting bracket in the controller cabinet.

Add to the end section 87-1.03T:

A manufacturer's representative must program the accessible pedestrian signals at the following intersections:

1. Intersection of Hearn Avenue and Corby Avenue
2. Intersection of Hearn Avenue and Santa Rosa Avenue

When the extended pushbutton press is used, program the signals with messages for each street as follows:

1. During the pedestrian clearance interval, the message heard must be *Wait to Cross* Hearn Avenue, Corby Avenue or Santa Rosa Avenue. *Wait*.

Replace the 1st paragraph of section 87-1.03V(1) with:

Installing a detector includes installing inductive loop conductors, sealant, conduit, pull boxes and markers.

Add to the end of section 87-1.03V(1):

Where 1 or more traffic signal detectors consist of a sequence of 4 loops in a single lane, locate the front loop closest to limit line or crosswalk 1 foot from the line. Connect the set of 3 or 4 loops assigned to the same loop detector lead-in cable (DLC) in series for traffic signal system.

Add between the 9th and 10th paragraphs of section 87-1.03V(2):

Use elastomeric sealant or hot-melt rubberized sealant to fill slots.

Add to section 87-1.03V:

87-1.03V(4) Loop Detector Marker

Install loop detector marker under section 81:

1. On the paved shoulder, aligned with the first upstream loop
2. Within 6 inches from the edge of pavement