



REQUEST FOR PROPOSALS
(RFP # 2023-10)

For
Construction Management Services

For
State Route 37/Fairgrounds Drive Interchange Improvements
Project

Release Date: May 26, 2023

RESPONSES DUE:
3:00 PM, Wednesday, June 21, 2023

Four (4) complete hard copies and one digital copy (via flash drive) of each response must be received before 3:00 p.m. PST on June 21, 2023

Solano Transportation Authority
423 Main Street, Suisun City, CA 94585-2473

Table of Contents

INTRODUCTION	1
BACKGROUND	1
SERVICES TO BE PROVIDED	1
FUNDING.....	3
LOCAL PREFERENCE POLICY.....	3
PROPOSED PROJECT SCHEDULE.....	4
RFP SUBMITTAL REQUIREMENTS	4
SELECTION OF CONSULTANT & CRITERIA	6
SELECTION SCHEDULE.....	6
DISCLOSURE.....	7
PROTESTS AND APPEALS	7

List of Attachments

ATTACHMENT A – PROJECT PLANS AND SPECIFICATIONS
ATTACHMENT B – SAMPLE CONTRACT AGREEMENT
EXHIBIT 10-H – SAMPLE COST PROPOSAL STRUCTURE

INTRODUCTION

The Solano Transportation Authority (STA) is a Joint Powers Authority comprised of members including the cities of Benicia, Dixon, Fairfield, Rio Vista, Suisun City, Vacaville, and Vallejo, and the County of Solano. The STA serves as the Congestion Management Agency for Solano County and is responsible for countywide transportation planning and programming of State and Federal funding for transportation projects within the county. Over the past few years, STA has taken on significant additional responsibilities in the delivery of priority projects on the State Highway System.

STA will be taking the lead on construction of the **State Route 37/Fairgrounds Drive Interchange Improvements Project** (Project) which generally consists of widening of Fairgrounds Drive, median barriers for a pedestrian path, signal improvements, retaining wall and drainage improvements.

BACKGROUND

In 2004, Solano Transportation Authority (STA) developed long range plans for the I-80/I-680/I-780 transportation corridors by completing a Major Investment and Corridor Study. As part of the analysis for the I-80 portion, improvements were recommended for the I-80/ Redwood Parkway Interchange, SR 37/Fairgrounds Interchange, and the connecting Fairgrounds Drive segment. Since 2007, STA in partnership with the City of Vallejo and Solano County, have been working on studying improvements to the I-80/Redwood Parkway Interchange, Fairgrounds Drive improvements and the State Route 37/Fairgrounds Drive Interchange.

In March 2009, the Project Study Report (PSR) for this project was signed by Caltrans. The PSR recommended improvements to the Redwood Parkway/I-80 Interchange, widening of Fairgrounds Drive and improvements to Fairgrounds Drive/State Route (SR) 37 as an independent component project. A Project Report was approved for these improvements in June 2015.

The STA entered into a Funding Agreement with Solano County and the City for the environmental documentation and project approval for this Project. This Amendment provided funding contributions from the three agencies toward detailed preliminary engineering and final design (Plans, Specifications, and Estimate (PS&E).

The STA contracted in 2019 with consultant, WMH, to complete the PS&E. As part of the proposal from WMH, the consultant proposed to modify the interchange improvements to utilize a Diverging Diamond Interchange (DDI) strategy. The existing SR 37 Interchange is a tight diamond configuration with limited left-turn storage for Fairground Drive traffic accessing the freeway on ramps; however, the inclusion of the DDI will improve interchange operations and lower costs by reducing the project footprint, eliminating retaining walls and increasing vehicle throughput.

SERVICES TO BE PROVIDED

The STA intends to retain a qualified and committed professional Construction Management (CM) firm/team to be part of the STA implementation team. The successful CM firm shall advertise, award and administer the construction contract for the State Route 37/Fairgrounds Drive Interchange Improvements Project. The selected consultant will work closely with STA, Caltrans, Solano County, the City of Vallejo and SolTrans. Consultation with the Project designer-of-record will also be required, as needed for design clarifications. Nighttime operations are required for pavement overlay, k-rail placement, and striping and services will be required to accommodate contractual working hours.

The required construction management services will include, but not be limited to, the following:

Task 1 – Bidding Services

- Draft a public outreach plan that includes local traffic control for inclusion in the plans and specifications.
- Issue the contract plans and specifications for bid and host a pre-bid conference.
- Receive and review bids, bid bonds, insurance certificates and related submittals, and assist the STA in selecting a qualified bidder.

Task 2 – Construction Services

- Prepare and issue an award letter to the lowest responsible bidder.
- Act as construction project coordinator and the point of contact for all communications and interaction with the contractor, STA, affected local agencies and designer.
- Perform all Resident Engineer functions as required by Caltrans Standard Specifications, the project Special Provisions, and Caltrans Construction Manual.
- Conduct a pre-construction conference.
- Review and monitor the construction schedule. Prepare weekly reports documenting the progress of construction. Take photographs and videotape recordings of the construction progress on a regular basis.
- Schedule, manage and perform construction staking in accordance with the methods, procedures and requirements of Caltrans Surveys Manual and Caltrans Staking Information Booklet.
- Schedule, manage, perform and document all field and laboratory testing services. Materials testing shall conform to the requirements and frequencies as defined in the Caltrans construction Manual and the Caltrans Materials Testing Manuals.
- Evaluate, negotiate, recommend, and prepare change orders.
- Process submittals and monitor design consultant review activities.
- Prepare and recommend progress payments.
- Coordinate and meet construction oversight requirements of Caltrans and affected local agencies for work being performed within the respective jurisdictions.
- Identify potential claims and make recommendations to resolve said claims.
- Perform all construction administrative activities, including correspondence and document control.
- Perform field inspection activities, monitor contractor's performance and enforce all requirements of applicable codes, specifications, and contract drawings.
- Oversee the design clarification process.
- Oversee quality control and materials testing.

- Prepare as-built drawings; track, log and redline changes and certify that the project was built according to the as-built drawings. Provide as-built drawings to the STA design consultants for preparing CADD files.
- As required, provide coordination and review of contractor's detours and staging plans with Caltrans, engineering consultant and local agencies.
- Provide final inspection services and project closeout activities, including preparation of the final construction project report.
- Turn all construction documents over to the STA.
- All persons furnished by the consultant shall be its employees or agents subject to its supervision and control, and not STA or Caltrans employees or agents. Consultant personnel shall perform services in accordance with applicable Caltrans criteria and guidelines and are subject to the following general requirements:
- All reports, calculations, measurements, test data and other documentation shall be prepared on forms specified by or otherwise acceptable to Caltrans and/or the STA.
- Daily reports, extra work diaries, materials testing reports, and other reports shall be submitted in compliance with the Caltrans Construction Manual or other Caltrans procedures.
- Consultant shall provide for all transportation and communication requirements for the consultant's personnel.

FUNDING

STA and MTC have funding commitments for the construction phase of the State Route 37/Fairgrounds Drive Interchange Improvements Project; however, the current inflationary period may prove that additional funding is needed. As such, STA will enter into a contract with the selected firm for Construction Management Services but will initially only issue a Notice to Proceed (NTP) for Task 1 –Bidding Services. STA will only issue an NTP for Task 2 – Construction Services, when adequate construction funding is secured. Therefore, the consultant shall ensure the Cost Proposal includes a separate cost for Task 1 and Task 2 services.

LOCAL PREFERENCE POLICY

The STA has adopted a Local Preference Policy which encourages the hiring of local firms. While there is no goal for local firms for this Project, firms are encouraged to hire local firms(s). The STA has prepared a database of contact information for local firms for convenience purposes only and without guarantees as to the ability of such firms to provide the services. The Local Preference Policy and the Local Firms database can be obtained by contacting STA at (707) 424-6075, or can be found at <https://sta.ca.gov/operations/rfp-rfq-local-preference/>.

PROPOSED PROJECT SCHEDULE

STA is committed to delivering this project expeditiously. Presented in the table below is a preliminary schedule.

Preliminary Project Schedule	
State Route 37/Fairgrounds Drive Interchange Improvements Project	
Tasks	Completion Date
Select CM Consultant/STA Board Approval	August 2023
Final PS&E	October 2023
Advertise Project for Construction	November 2023
Award Construction Contract	February 2024
Start Construction	April 2024
Complete Construction	December 2024

RFP SUBMITTAL REQUIREMENTS

Please prepare your proposal in accordance with the following requirements.

1. *Proposal:* The proposals (excluding resumes and the transmittal letter) shall not exceed a total of 35 single-sided, 8.5" x 11" pages. Include sample projects or similar examples of past projects. Resumes shall be included in an appendix.
2. *Transmittal Letter:* The proposal shall be transmitted with a cover letter describing the firm's/team's interest and commitment to the proposed project. The letter shall state that the proposal shall be valid for a 90-day period and should include the name, title, address and telephone number of the individual to whom correspondence and other contacts should be directed during the consultant selection process. The person authorized by the firm/team to negotiate a contract with STA shall sign the cover letter.

Address the cover letter as follows:

Nick Burton, Director of Projects
Solano Transportation Authority
423 Main Street
Suisun City, California 94585

3. *Project Understanding:* This section shall clearly convey the consultant's understanding of the nature of the work, including coordination with and approvals from the STA and Caltrans.
4. *Approach and Management Plan:* This section shall provide the Consultant's approach and management plan for providing the required work and all services required for the Project, including coordination with the STA, Caltrans, Solano County, the City of Vallejo and SolTrans. Provide a detailed discussion of the Consultant's approach to the successful implementation of this Project. Include discussions of methodologies you believe are essential to accomplishing this Project, including engineering constraints, milestones, and required approvals relating to the Project. Discuss any problems, issues, or conflicts relating to this Project that may need to be resolved and the approach to resolving them, and how the

proposed team has handled unforeseen problems on similar projects in the past. Also demonstrate understanding of the complete AAA process and related services, including bid protests and claims resolution process.

5. *Qualifications and Experience:* The proposal shall provide the qualifications and experience of the consultant team that will be available for the State Route 37/Fairgrounds Drive Interchange Improvements Project. Please emphasize the specific qualifications and experience from projects similar to these projects for the Key Team Members. Key Team Members are expected to be committed for the duration of the project. Replacement of Key Team Members will not be permitted without prior consultation with and approval of the STA.
6. *Staffing Plan:* The proposal shall provide a staffing plan (detailed by quarter and major task) and an estimate of the total hours (detailed by position) required for providing construction management services for the State Route 37/Fairgrounds Drive Diverging Diamond Interchange Project. Discuss the workload, both current and anticipated, for all Key Team Members, and their capacity to perform the requested services for the Project according to the preliminary schedule. Discuss the firm/team's approach for completing the services for this project within budget.
7. *Work Plan and Schedule:* The Work Plan should be structured to include the following major tasks for the State Route 37/Fairgrounds Drive Diverging Diamond Interchange Project. The consultant should develop a milestone schedule and incorporate the activities in an overall milestone schedule. The Work Plan should be structured to include all major tasks.

This section shall include a description of how each major task and subtask of the project will be conducted, identification of deliverables for each major task and subtask, and a schedule. The Work Plan should be in sufficient detail to demonstrate a clear understanding of the project. The schedule should show the expected sequence of tasks and subtasks and include durations for the performance of each task, subtask, milestones, submittal dates and review periods for each submittal. Discuss the firm/team's approach for completing the requested services for this project on schedule.

8. *Cost Control:* A cost proposal should be submitted in a separate sealed envelope titled "State Route 37/Fairgrounds Drive Interchange Improvements Project - Consultant Cost Proposal." The cost submittal should be submitted on the Actual Cost-Plus-Fixed Fee form (Exhibit 10-H1) and indicate the number of anticipated hours by the Project Manager and Key Team Members. The estimated number of hours for other staff can be summarized in general categories as well.

Include information regarding your Federal Acquisition Regulations (FAR) multiplier and the FAR of any subconsultants. The STA will pay costs based on the FAR plus a negotiated fee, however the overall multiplier will not exceed 3.0. Also, please include a list of personnel positions proposed for performance of the services and the hourly salary range of each classification (including subconsultants).

9. *Quality Control/Quality Assurance Plan:* The consultant shall include in the proposal their Quality Control/Quality Assurance Plan that will be implemented on this project. The Plan shall be specific to the key personnel and included in the schedule for the project.
10. *References:* For each Key Team Member, provide at least three references (names and current phone numbers) from recent work (previous three years). Include a brief description of each project associated with the reference, and the role of the respective team member.
11. *Submittal of Proposals:* Four (4) hard copies and one digital copy (via flash drive) of your proposal are **due at the STA office no later than 3:00 p.m., June 21, 2023.**

SELECTION OF CONSULTANT & CRITERIA

The overall process will be to evaluate the technical components of all the proposals completely and independently from the cost component. The proposals will be evaluated and scored on a 100-point total basis using the following criteria:

1. Qualifications and specific experience of Key Team Members (25 points)
2. Project understanding approach, approval, and coordination processes (25 points)
3. Experience with similar types of projects (20 points)
4. Satisfaction of previous clients (15 points)
5. Schedule and capacity to provide qualified personnel (15 points)

Two or more of the firms/teams will be invited to an interview during the week of June 25, 2023. The Project Manager and Key Team Members should attend the interview. The evaluation / interview panel may include representatives from STA and other agencies, but the specific composition of the panel will not be revealed prior to the interviews. Costs for travel expenses and proposal preparation shall be borne by the consultants.

Once the top firm/team has been determined, STA staff will start contract negotiations with the firm/team. If contract negotiations are not successful, the second ranked firm/team may be asked to negotiate a contract with STA, etc. Provided the negotiations are proceeding well, the STA may elect to initiate a portion of the work scope with a Notice to Proceed (NTP), prior to execution of the contract.

SELECTION SCHEDULE

May 26, 2023	RFP released
May 31, 2023	Preproposal Meeting – STA Office
June 9, 2023	Deadline questions emailed to Nick Burton (nburton@sta.ca.gov)
June 14, 2023	Answers to questions posted on STA website
June 21, 2023	Proposals are due no later than 3:00 PM. <i>Late submittals will not be accepted.</i>
Week of June 26, 2023	Tentative panel interview date
July 3, 2023	Consultant Selection

If you have any questions regarding this RFP, please contact:

Nick Burton, Director of Projects
Solano Transportation Authority
423 Main Street
Suisun City, CA 94585
Phone (707) 424-6075
Fax (707) 424-6074
nburton@sta.ca.gov

DISCLOSURE

The master copy of each response to this RFP shall be retained for official files and will become a public record after the award of a contract unless the qualifications or specific parts of the qualifications can be shown to be exempt by law (Government Code section 7921.000 et seq.). Each Responding Firm may clearly label part of a submittal as "CONFIDENTIAL" if the Responding Firm agrees to indemnify and defend the STA for honoring such a designation. The failure to so label any information that is released by the STA shall constitute a complete waiver of all claims for damages caused by any release of the information. If a public records request for labeled information is received by the STA, the STA will notify the Responding Firm of the request and delay access to the material until seven (7) working days after notification to the Responding Firm. Within that time delay, it will be the duty of the Responding Firm to act in protection of its labeled information. Failure to so act shall constitute a complete waiver.

PROTESTS AND APPEALS

Any actual or prospective bidder, offer, or contractor who is aggrieved in connection with the Solicitations or Notice of Intent to Award a contract may protest to the Executive Director. The protest shall be submitted in writing to the Executive Director within seven (7) working days after such aggrieved person or company knows or should have known of the facts giving rise thereto. All letters of protest shall clearly identify the reasons for the protest. The protest also must state the law, rule, regulation, or policy upon which the protest is based. The Executive Director shall issue a written decision within ten (10) working days after receipt of the protest. The decision shall state the reason for the action taken; and inform the protester that a request of further administrative appeal of an adverse decision must be submitted in writing to the Clerk of the STA Board of Directors within seven (7) working days after receipt of the decision by the Executive Director.

ATTACHMENT A – PROJECT PLANS AND SPECIFICATIONS
(Plans are attached separately due to file size)



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISIONS
(100% Submittal)

FOR CONSTRUCTION ON AND ADJACENT TO STATE HIGHWAY
IN Solano COUNTY
FROM 0.5 MILES SOUTH OF FAIRGROUNDS ROAD
UNDERCROSSING TO 0.2 MILES NORTH OF FAIRGROUNDS ROAD
UNDERCROSSING

In District 04 on Route 37

For use in Connection with Standard Specifications **Dated 2022**,
Standard Plans **Dated 2022**, and Labor Surcharge And Equipment Rental Rates

Identified by
CONTRACT NO. 04-4A4414

04-Sol-37-PM 10.94

Project ID 0400020584

Dated: April 6, 2023

ORGANIZATION	3
DIVISION I GENERAL PROVISIONS	8
1 GENERAL.....	8
2 BIDDING.....	9
5 CONTROL OF WORK.....	9
6 CONTROL OF MATERIALS.....	10
7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC.....	15
8 PROSECUTION AND PROGRESS	16
DIVISION II GENERAL CONSTRUCTION	17
12 TEMPORARY TRAFFIC CONTROL.....	17
13 WATER POLLUTION CONTROL.....	25
14 ENVIRONMENTAL STEWARDSHIP	26
15 EXISTING FACILITIES.....	30
DIVISION III EARTHWORK AND LANDSCAPE.....	31
17 GENERAL.....	31
19 EARTHWORK	31
21 EROSION CONTROL	38
21 EROSION CONTROL	46
DIVISION IV SUBBASES AND BASES	47
23 GENERAL.....	47
DIVISION V SURFACINGS AND PAVEMENTS.....	48
36 GENERAL.....	48
39 ASPHALT CONCRETE	55
40 CONCRETE PAVEMENT.....	56
DIVISION VI STRUCTURES.....	56
51 CONCRETE STRUCTURES.....	56
DIVISION VII DRAINAGE FACILITIES	59
61 GENERAL.....	59
62 STORMWATER TREATMENT.....	59
DIVISION VIII MISCELLANEOUS CONSTRUCTION.....	60
73 CONCRETE CURBS AND SIDEWALKS	60
75 MISCELLANEOUS METAL	61
77 LOCAL INFRASTRUCTURE.....	64
80 FENCES	74
DIVISION IX TRAFFIC CONTROL DEVICES.....	74
81 MISCELLANEOUS TRAFFIC CONTROL DEVICES	74
83 RAILINGS AND BARRIERS.....	74
84 MARKINGS.....	77
DIVISION X ELECTRICAL WORK.....	77
86 GENERAL.....	77
87 ELECTRICAL SYSTEMS	79

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*.

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.

ABBREVIATIONS, LINES, SYMBOLS, AND LEGEND

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)

PAVEMENT MARKERS, TRAFFIC LINES, AND PAVEMENT MARKINGS

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
A24H	Pavement Markings Arrows

EXCAVATION AND BACKFILL

A62A	Excavation and Backfill - Miscellaneous Details
A62B	Limits of Payment for Excavation and Backfill - Bridge Surcharge and Wall
A62D	Excavation and Backfill - Concrete Pipe Culverts
RSP A62DA	Excavation and Backfill - Concrete Pipe Culverts - Indirect Design Method
A62F	Excavation and Backfill - Metal and Plastic Culverts

OBJECT MARKERS, DELINEATORS, CHANNELIZERS, AND BARRICADES

A73A	Object Markers
------	----------------

A73B	Markers
A73C	Delineators, Channelizers and Barricades
	SURVEYS
A74	Survey Monuments
	CONCRETE BARRIER TYPE 60 SERIES
A76A	Concrete Barrier Type 60M
RSP A76B	Concrete Barrier Type 60M
A76G	Concrete Barrier Type 60MS
RSP A76H	Concrete Barrier Type 60MS
	MIDWEST GUARDRAIL SYSTEM - STANDARD RAILING SECTIONS
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
	MINOR CONCRETE VEGETATION CONTROL - GUARDRAIL SYSTEM
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
A77N9	Minor Concrete Vegetation Control - Guardrail System - At Fixed Object
A77N10	Minor Concrete Vegetation Control - Guardrail System - At Fixed Object
A77N11	Minor Concrete Vegetation Control - Guardrail System - Miscellaneous Details
	MIDWEST GUARDRAIL SYSTEM - TYPICAL LAYOUTS FOR EMBANKMENTS
RSP A77P1	Midwest Guardrail System - Typical Layouts for Embankments
RSP A77P2	Midwest Guardrail System - Typical Layouts for Embankments
RSP A77P3	Midwest Guardrail System - Typical Layouts for Embankments
RSP A77P4	Midwest Guardrail System - Typical Layouts for Embankments
RSP A77P5	Midwest Guardrail System - Typical Layouts for Embankments
RSP A77P6	Midwest Guardrail System - Typical Layouts for Embankments
	MIDWEST GUARDRAIL SYSTEM - TYPICAL LAYOUTS FOR STRUCTURES
RSP A77Q1	Midwest Guardrail System - Typical Layouts for Structure Approach
RSP A77Q2	Midwest Guardrail System - Typical Layouts for Structure Approach and Between Structures
RSP A77Q3	Midwest Guardrail System - Typical Layouts for Structure Approach
RSP A77Q4	Midwest Guardrail System - Typical Layouts for Structure Departure
RSP A77Q5	Midwest Guardrail System - Typical Layouts for Structure Departure
	MIDWEST GUARDRAIL SYSTEM - CONNECTION DETAILS AND TRANSITION RAILING TO BRIDGE RAILINGS, ABUTMENTS AND WALLS
RSP A77U3A	Midwest Guardrail System - Connections to Abutments and Walls
RSP A77U3B	Midwest Guardrail System - Connections to Abutments and Walls
A77U4	Midwest Guardrail System - Transition Railing (Type WB-31)
	CRASH CUSHIONS
RSP A81A	Crash Cushion, Sand Filled (Unidirectional)
RSP A81B	Crash Cushion, Sand Filled (Unidirectional)
RSP A81C	Crash Cushion, Sand Filled (Bidirectional)

FENCES

A85	Chain Link Fence
A85A	Chain Link Fence Details
A85B	Chain Link Fence Details

CURBS, DRIVEWAYS, DIKES, CURB RAMPS, AND ACCESSIBLE PARKING

A87A	Curbs and Driveways
A87B	Hot Mix Asphalt Dikes
A88A	Curb Ramp Details
A88B	Curb Ramp and Island Passageway Details

PAVEMENTS

P1	Jointed Plain Concrete Pavement - New Construction
P74	Pavement Edge Treatments
P75	Pavement Edge Treatments - Overlays
P76	Pavement Edge Treatments - New Construction

DRAINAGE INLETS, PIPE INLETS AND GRATES

D72B	CIP Drainage Inlets - Types G1, G2, G3, G4, G5 and G6
D72C	CIP Drainage Inlets - Types G1, G2, G3, G4, G5 and G6
D72F	CIP Drainage Inlet Notes
D72G	CIP Drainage Inlet Tables
D75B	Concrete Pipe Inlets
D75C	Pipe Inlets - Ladder and Trash Rack Details
D77A	Grate Details No. 1
D77B	Grate Details No. 2

GUTTER AND INLET DEPRESSIONS

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

FLARED END SECTIONS

D94B	Concrete Flared End Sections
-------------	-------------------------------------

SLOTTED AND GRATED LINE DRAINS

D98D	Slotted Plastic Pipe Drain Details
-------------	---

GABIONS AND UNDERDRAINS

D102	Underdrains
-------------	--------------------

TEMPORARY CRASH CUSHIONS, RAILING AND TRAFFIC SCREEN

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)

TEMPORARY TRAFFIC CONTROL SYSTEMS

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
T14	Traffic Control System for Ramp Closure
T18	Traffic Control System Construction Work Zone Speed Limit Reduction on Freeways and Expressways
T20	Traffic Control System Construction Work Zone Speed Limit Reduction Details

TEMPORARY PEDESTRIAN ACCESS ROUTES

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

TEMPORARY WATER POLLUTION CONTROL

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)
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)

RETAINING WALLS

B3-1B	Retaining Wall Type 1 (Case 2)
	CHAIN LINK RAILING, CABLE RAILING AND TUBULAR HAND RAILING
B11-7	Chain Link Railing
B11-47	Cable Railing
B11-51	Tubular Handrailing

ROADSIDE SIGNS

RS1	Roadside Signs - Typical Installation Details No. 1
RS2	Roadside Signs - Wood Post - Typical Installation Details No. 2
RS4	Roadside Signs - Typical Installation Details No. 4

OVERHEAD AND ROADSIDE SIGNS PANELS

S89	Roadside Sign - Formed Single Sheet Aluminum Panel
S94	Roadside Framed Single Sheet Aluminum Signs, Rectangular Shape
S95	Roadside Single Sheet Aluminum Signs, Diamond Shape

ELECTRICAL SYSTEMS - LEGEND AND ABBREVIATIONS

ES-1A	Electrical Systems (Legend)
ES-1B	Electrical Systems (Legend)
ES-1C	Electrical Systems (Legend)

ELECTRICAL SYSTEMS - SERVICE EQUIPMENT AND WIRING DIAGRAMS

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)

ELECTRICAL SYSTEMS - CONTROLLER CABINETS

ES-3C	Electrical Systems (Controller Cabinet Foundation and Pad Details)
--------------	---

ES-3H	ELECTRICAL SYSTEMS - IRRIGATION CONTROLLER ENCLOSURE CABINET
	Electrical Systems (Irrigation Controller Enclosure Cabinet)
ES-3K	ELECTRICAL SYSTEMS - ELECTRONICS ASSEMBLY CONNECTION DIAGRAM
	Electrical Systems (Electronics Assembly Connection Diagram) (Battery Backup System)
ES-4A	ELECTRICAL SYSTEMS - SIGNAL HEADS, SIGNAL FACES AND MOUNTINGS
	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 - DETECTORS
	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 STANDARDS
	Electrical Systems (Lighting Standard, Types 15 and 21)
ES-6D	Electrical Systems (Lighting Standard, Types 15D and 21D, Double Luminaire Mast Arm)
ES-7A	ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING STANDARD, TYPE TS, AND PUSH BUTTON ASSEMBLY POST
	Electrical Systems (Signal and Lighting Standard, Type TS, and Push Button Assembly Post)
ES-7B	ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING STANDARDS
	Electrical Systems (Signal and Lighting Standard, Type 1 and Equipment Identification Characters)
ES-7C	Electrical Systems (Signal and Lighting Standard, Case 1 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-7H	Electrical Systems (Signal and Lighting Standard, Case 5 Signal Mast Arm Loading, Wind Velocity = 100 mph and Signal Mast Arm Lengths 60' to 65')
ES-7M	ELECTRICAL SYSTEMS - SIGNAL AND LIGHTING STANDARD DETAILS
	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
	Electrical Systems (Pedestrian Barricades)
ES-8A	ELECTRICAL SYSTEMS - PULL BOX
	Electrical Systems (Non-Traffic Pull Box)
ES-8B	Electrical Systems (Traffic Pull Box)
ES-9A	ELECTRICAL SYSTEMS - STRUCTURE INSTALLATIONS
	Electrical Systems (Structure Pull Box Installations)
ES-9B	Electrical Systems (Conduit Riser and Expansion Fitting, Structure Installations)
ES-9C	Electrical Systems (Structure Pull Box)
ES-9D	Electrical Systems (Structure Pull Box Installations)

ES-9E	Electrical Systems (Flush-Mounted Soffit, Pendant soffit and Wall-Mounted Luminaire Structure Installations)
	ELECTRICAL SYSTEMS - ISOFOOTCANDLE CURVES AND FOUNDATION DETAILS
ES-11	Electrical Systems (Foundation Installations)
	ELECTRICAL SYSTEMS - SPLICE INSULATION METHODS, KINKING AND BANDING DETAILS
ES-13A	Electrical Systems (Splice Insulation Methods Details)
ES-13B	Electrical Systems (Kinking and Banding Detail)
	TEMPORARY WOOD POLES
ES-18A	Temporary Wood Poles - General Notes
ES-18B	Temporary Wood Poles - Non-Guyed - No Signals on Spans
ES-18C	Temporary Wood Poles - Guyed - No Signals on Spans
ES-18D	Temporary Wood Poles - Guyed - With Signal Faces on Spans
ES-18E	Temporary Wood Poles - Non-Guyed - With Signal Faces on Span
ES-19A	Temporary Wood Poles - Details No. 1
ES-19B	Temporary Wood Poles - Details No. 2
ES-19C	Temporary Wood Poles - Details No. 3
ES-19D	Temporary Wood Poles - Details No. 4
ES-19E	Temporary Wood Poles - Details No. 5

AA

DIVISION I GENERAL PROVISIONS

1 GENERAL

Add to section 1-1.01:

Bid Items and Applicable Sections

Item code	Item description	Applicable section
129090A	TEMPORARY ALTERNATIVE CRASH CUSHION	12
200115	ROCK SURFACING	20
206759A	48 STATION IRRIGATION CONTROLLER (PEDESTAL MOUNTED)	20
510137	CAST-IN-PLACE REINFORCED CONCRETE JUNCTION	51
750090A	FINIALS AND RAILING	75
770090A	CORBELS	77
770103A	ELECTRIC SERVICE FOR IRRIGATION (CITY)	77
770100A	MODIFYING SIGNAL AND LIGHTING SYSTEMS (CITY)	77
770101A	INTERCONNECTION CONDUIT AND CABLE (CITY)	77
770190A	TEMPORARY LIGHTING (CITY STREET)	77
770200A	TEMPORARY SIGNAL AND LIGHTING (CITY)	77
770201A	TEMPORARY INTERCONNECTION CONDUIT AND CABLE (CITY)	77
770102A	EMERGENCY VEHICLE DETECTION SYSTEM (CITY)	77
820971A	RETROFLECTIVE SHEETING (TYPE IX)	82
820971A	RETROFLECTIVE SHEETING (TYPE XI)	82
872010A	TEMPORARY TRAFFIC MONITORING STATION SYSTEMS	87
872011A	TEMPORARY CHANGEABLE MESSAGE SIGN SYSTEMS	87

AA

2 BIDDING

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 <i>Information Handout</i>	City of Vallejo Standard Specifications & Standard Drawings-December 2011 Preliminary Site Investigation and Aerially Deposited Lead Survey Report, Redwood Parkway and Fairgrounds Drive Improvement Project, Vallejo, California Soil Investigation Report- August 2021 Geotechnical Design & Materials Report Storm Water Data Report Traffic Management Plan Inertial Profiling Data
Available as specified in the <i>Standard Specifications</i>	Survey Cross Sections in PDF format
Included with the project plans	Logs of test borings

AA

5 CONTROL OF WORK

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

Professionally facilitated project partnering is required.

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
04-0J7104	Sol-80-1.8/4.4	Vallejo-Redwood Pkwy	Bridge

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.

Replace section 5-1.36C(2) with:

5-1.36C(2) Nonhighway Facility Protection

The utilities shown in the following table may interfere with the work and must be exposed or protected in place. Make arrangements with the utility owner (1) to conduct or witness all exposures or (2) to request temporary deactivation of the utility.

Utilities to Be Exposed and/or Protected in Place During Construction	
Utility	Location
PG&E Gas	37+70 to 39+00

AA

6 CONTROL OF MATERIALS

Add to the beginning of section 6-1.02:

The Department furnishes you with:

- . Model 2070E controller assembly, including controller unit, completely wired controller cabinet, and detector sensor units
2. Components of battery backup system as follows:
 - 2.1. Inverter/charger unit
 - 2.2. Power transfer relay
 - 2.3. Manually-operated bypass switch
 - 2.5. Battery harness
 - 2.7. Utility interconnect wires
 - 2.8. Battery temperature probe
 - 2.9. Relay contact wires
3. [Model 2070E controller unit](#)

The Department furnishes you with completely wired controller cabinets with auxiliary equipment but without controller unit at [111 Grand Ave., Oakland CA 94612](#). At least 48 hours before you pick up the materials, inform the Engineer of what you will pick up and when you will pick it up.

The Department furnishes you , wiring harness, and controller assembly, including the controller unit and completely wired cabinet, at [30 Rickard Street, San Francisco, CA 94134](#). 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 6-1.06 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"

^aFor each mill providing 20,000 pounds or more on the project

^bFor each mill providing 5,000 pounds or more on the project

^cFor each manufacturer providing 2,000 square feet or more on the project

^dFor 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

AA

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.

Unregulated earth material exists throughout the job site.

Unregulated earth material containing lead has been detected to a depth of 4 feet within the job site. Unregulated levels of lead found range from to 33 mg/kg total lead with an average concentration of 13.4 mg/kg total lead as analyzed by EPA test method 6010 or EPA test method 7000 series and based upon a 95 percent upper confidence limit. Unregulated levels of lead on the job site have a predicted average soluble concentration of 0.44 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 2, San Francisco Bay

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

AA

8 PROSECUTION AND PROGRESS

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. Contractor-supplied biologist
2. Biological resource information program
3. CPM baseline schedule
4. WPCP or SWPPP, whichever applies
5. Notification of DRA or DRB nominee and disclosure statement
6. Natural resource protection plan
7. Contingency plan for opening closures to traffic
8. SSPC QP certifications

If the submittals for Contractor-supplied biologist and biological resource information program are authorized, you may enter the job site only to measure controlling field dimensions and locate utilities.

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. 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.

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.

Liquidated damages not completing [Courtyard Vallejo Napa Valley Hotel driveway](#) within [2 weeks](#) are \$[5,000](#) per day.

Liquidated damages for not [adhering to lane closure charts as described in Section 12-4.02C\(3\)\(j\) and 12-4.02\(3\)\(m\)](#) are described in the following chart:

Route	Damages per 10-minute interval
Fairgrounds Drive (Southbound)	\$35
Eastbound On-Ramp	\$685
Westbound Off-Ramp	\$2,222

AA

DIVISION II GENERAL CONSTRUCTION

12 TEMPORARY TRAFFIC CONTROL

Replace section 12-3.24 [of the RSS for Section 12](#) with:

12-3.24 [TEMPORARY ALTERNATIVE CRASH CUSHION](#)

12-3.24A [General](#)

12-3.24A(1) [Summary](#)

Section 12-3.24 includes specifications for constructing [temporary](#) alternative crash cushion [\(TACC\)](#).

12-3.24A(2) [Definitions](#)

Not Used

12-3.24A(3) [Submittals](#)

At least 10 days before installation, [submit the following manufacturer's documents for each model installed](#):

- [1. 2 copies of drawings](#)
- [2. 2 copies of installation instructions manual](#)
- [3. 2 copies of maintenance manual](#)
- [4. Certificate of compliance](#)

12-3.24A(4) [Quality Assurance](#)

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

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

12-3.24B [Materials](#)

The [temporary](#) alternative crash cushion must be one of the following or a Department-authorized equal:

- Type ACZ-350 - [temporary](#) alternative crash cushion must be ACZ-350 [temporary](#) alternative [crash cushion](#) manufactured by Energy Absorption Inc. and must include the connection components. Type

ACZ-350 [temporary](#) alternative crash cushion - Type ACZ-350 [temporary](#) alternative crash cushion must be test level 3, manufactured by Energy Absorption Inc. The ACZ-350 [temporary](#) alternative crash cushion [may](#) be obtained from the manufacturer:

Address	Telephone no.
NATIONAL TRENCH SAFETY SAN FRANCISCO BAY AREA 45945 WARM SPRINGS BLVD FREMONT CA 94539	(510) 490-2140

2. Type ABSORB – 350(TL-3) - Type ABSORB-350 [temporary](#) alternative crash cushion must be [crash](#) cushion test level 3 manufactured by Barrier Systems, Inc. Use the 9 element system to connect to temporary railing (Type K) and must include items detailed for Type ABSORB – 350 crash cushion shown on the plans. The ABSORB- 350 [temporary](#) alternative crash cushion [may](#) be obtained from the distributor:

Address	Telephone no.
STATEWIDE TRAFFIC SAFETY & SIGNS INC 522 LINDON LANE NIPOMO CA 93444	(802) 929-3723

3. Type SLED-SENTRY LONGITUDINAL ENERGY DISSIPATOR END TREATMENT A three module gating, non-redirective temporary [alternative](#) crash cushion must be SLED temporary [alternative](#) crash cushion manufactured by TraFFix Devices, Inc., and must include the connection components. Type SLED temporary [alternative](#) crash cushion - Type SLED temporary [alternative](#) crash cushion must be test level 3, manufactured by TraFFix Devices, Inc.,. The SLED temporary [alternative](#) crash cushion [may](#) be obtained from the manufacturer:

Address	Telephone no.
TRAFFIX DEVICES, INC 160 AVENIDA LA PATA SAN CLEMENTE, CA 92673	(949) 361-5663

4. Type ADIEM-350 -Type ADIEM-350 [temporary](#) alternative crash cushion must be [crash](#) cushion test level 3 manufactured by Trinity Industries, Inc, [and](#) must include the items shown on the manufacturer plans and installation instructions. The ADIEM-350 [temporary](#) alternative crash cushion [may](#) be obtained from the manufacturer:

Address	Telephone no.
CALIFORNIA DISTRIBUTOR CNW CONSTRUCTION 2419 PALMA DRIVE VENTURA CA 93003	(805) 642-0204

12-3.24C Construction

Install [temporary](#) alternative crash cushion under the manufacturer's instructions.

Attach a Type R or Type P marker panel to the front of the [temporary](#) alternative 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 [temporary](#) alternative crash cushion in place at each location, including times when work is not actively in progress.

Repair damaged [temporary](#) alternative 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.

12-3.24D 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. Shoulder closure
2. Speed reduction zone

For 5 days starting on the day of signal activation, place 1 PCMS in each direction of travel and display the following message in all caps: *Signal Ahead -- Prepare To Stop*.

Add to section 12-4.02A:

Temporary wood pedestrian ramp must be constructed at locations shown. Temporary wood pedestrian ramp must be skid resistant and free of irregularities. Maintain the ramp in good condition and keep clear of obstructions.

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

You may close the [Courtyard Vallejo Napa Valley Hotel entrance driveway](#) for a time not to exceed 2 weeks. Timing must be in coordination with hotel management, contact information below:

[Kaitlin Martinez](#)
[General Manager](#)
[Office: \(707\) 644-1200 Cell: \(707\) 656-9164](#)
[courtyard.com/sfovl_gm@courtyardnapa.com](#)

When the [entrance driveway](#) is closed, place a PCMS for the duration of the closure in advance with the message: [Entrance Closed](#). Place a PCMS at a location on the [entrance driveway](#) or connector for 7 days before the date of the planned closure with the message shown in the following table:

Message type	Message
Weekend	Entrance / Will Be / Closed – Next / Weekend
Weekday	Entrance / Will Be / Closed – This / Weekend

Notes:

"/" separates each line of text on the PCMS display.

"–" denotes where the PCMS display flashes the next line of text.

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

Chart No. J1 Complete Ramp Closure Hours																											
County: <u>SOL</u>							Route/Direction: <u>37/EB</u>							Post Mile: <u>10.76</u>													
Closure limits: <u>Off-ramp to Fairgrounds Drive</u>																											
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	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																		<u>C</u>	<u>C</u>		
Fri	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																		<u>C</u>	<u>C</u>		
Sat	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																		<u>C</u>	<u>C</u>		
Sun	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																		<u>C</u>	<u>C</u>		

Legend:

C Ramp may be closed completely.

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

REMARKS: See detour plan MI-2

Chart No. J2 Complete Ramp Closure Hours																											
County: <u>SOL</u>										Route/Direction: <u>37/EB</u>										Post Mile: <u>R11.05</u>							
Closure limits: <u>On-ramp from Fairgrounds Drive</u>																											
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	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																			<u>C</u>	<u>C</u>		
Fri	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																			<u>C</u>	<u>C</u>		
Sat	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																		<u>C</u>	<u>C</u>		
Sun	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																		<u>C</u>	<u>C</u>		
Legend:																											
<div>C</div>		Ramp may be closed completely.																									
<div></div>		Work is allowed within the highway where a shoulder or lane closure is not required.																									
REMARKS: <u>See detour plan MI-4</u>																											

Chart No. <u>J3</u> <u>Complete Ramp Closure Hours</u>																										
County: <u>SOL</u>										Route/Direction: <u>37/WB</u>										Post Mile: <u>R11.09</u>						
Closure limits: <u>Off-ramp to Fairgrounds Drive</u>																										
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	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																				<u>C</u>	
Fri	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																					
Sat	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																				
Sun	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																				
Legend:																										
<u>C</u>	Ramp may be closed completely.																									
	Work is allowed within the highway where a shoulder or lane closure is not required.																									
REMARKS: <u>See detour plan MI-5</u>																										

Chart No. <u>J4</u> <u>Complete Ramp Closure Hours</u>																									
County: <u>SOL</u>							Route/Direction: <u>37/WB</u>							Post Mile: <u>10.80</u>											
Closure limits: <u>On-ramp from Fairgrounds Drive</u>																									
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	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>
Fri	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>
Sat	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>
Sun	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>																<u>C</u>	<u>C</u>	<u>C</u>	<u>C</u>
Legend:																									
<div>C</div> Ramp may be closed completely.																									
<div></div> Work is allowed within the highway where a shoulder or lane closure is not required.																									
REMARKS: <u>See detour plan MI-3</u>																									

Chart No. <u>M2</u> <u>City Street Lane Requirements and Hours of Work</u>																											
Location: <u>Fairgrounds Drive</u>														Direction: <u>SB</u>													
Closure limits: <u>Fairgrounds Drive (between Southern Six Flags Exit & WB Ramps)</u>																											
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	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>		
Fri	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>		
Sat	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>		
Sun	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>		
Legend:																											
<div><div>1</div> Provide at least 1 city street lane open in the direction of travel.</div>																											
REMARKS: The number of through traffic lanes in each direction of travel is <u>two</u> .																											

Chart No. <u>M3</u> <u>City Street Lane Requirements and Hours of Work</u>																									
Location: <u>Fairgrounds Drive</u>							Direction: <u>NB</u>																		
Closure limits: <u>Fairgrounds Drive (between WB Ramps & Gateway Drive)</u>																									
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	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Fri	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Sat	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Sun	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Legend:																									
<div>1</div>		Provide at least 1 city street lane open in the direction of travel.																							
REMARKS: The number of through traffic lanes in each direction of travel is <u>two</u> .																									

Chart No. <u>M4</u> <u>City Street Lane Requirements and Hours of Work</u>																									
Location: <u>Fairgrounds Drive</u>													Direction: <u>SB</u>												
Closure limits: <u>Fairgrounds Drive (between WB Ramps & Gateway Drive)</u>																									
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	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Fri	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>																<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Sat	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Sun	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>
Legend:																									
<div>1</div>		Provide at least 1 city street lane open in the direction of travel.																							
REMARKS: The number of through traffic lanes in each direction of travel is <u>two</u> .																									

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.

12-4.02C(12)(b) Materials

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.

Test the receiving water under the test methods for the WQOs shown in the following table:

Quality characteristic	Test method	Detection limit (min)	Requirement
Turbidity during activities for in-water work (NTU)	Field test with a calibrated portable instrument (Measured at downstream sampling location)	1	Must not exceed 20 percent above natural background
pH	Field test with a calibrated portable instrument (Measured at downstream sampling location)	0.2	Lower WQO = 6.5 Upper WQO = 8.5 And any change greater than 0.5 units from the natural background
Temperature (°F)	Field test with a calibrated portable instrument	0.1	Must not be increased 5 degrees above the natural background
Dissolved oxygen (mg/L)	Field test with a calibrated portable instrument	1	Must not be reduced below 7 mg/L

Inspect paved roads at job site access points for street sweeping daily if earthwork and other sediment- or debris-generating activities , or if the NWS predicts precipitation.

This project's risk level is 2.

The following RWQCBs will review the authorized SWPPP:

- Replace section 13-3.01D(2) with:**

AA

Add to the end of section 14-1.02:

An ESA exists on this project.

Before starting job site activities, install [high-visibility fence](#) to protect the ESA and mark its boundaries.

Access to an ESA other than that described is prohibited.

Archaeological monitoring is appropriate during excavation from the surface to 5 feet deep for (1) northbound lane of Fairgrounds Drive; (2) if signal foundations rather than mast arms are replaced, then at the locations of the traffic signals at the intersection of Fairgrounds Drive and the Six Flags driveway into the parking area south of Lake Chabot; and (3) at three other locations within the same intersection as described under Signal Modifications. Monitoring can be limited to the area east of the site (outside of APE) and the current southbound lane of Fairgrounds Drive, and approximately 165 feet (50 meters)

[north and south of where archaeological materials were observed outside the APE](#), the project limits are shown.

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 activity from [9](#) p.m. to [6](#) 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
Sawcutting	9:00 p.m.	6:00 a.m.	Monday	Saturday
Coldplaning	9:00 p.m.	6:00 a.m.	Monday	Saturday
Remove Concrete Barrier	9:00 p.m.	6:00 a.m.	Monday	Saturday
Paving Operations	9:00 p.m.	6:00 a.m.	Monday	Saturday
Remove Concrete Pavement	9:00 p.m.	6:00 a.m.	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 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 [60](#) 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 [30](#) days after the start of accumulation of the residue.

Replace the RSS for 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 [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

Stockpile Locations	
Material	Location
Caltrans electrical equipment	30 Rickard Street, San Francisco, CA 94134
City electrical equipment	City of Vallejo Corporation Yard at 111 Amador Street, Vallejo, CA 94590

AA

DIVISION III EARTHWORK AND LANDSCAPE
17 GENERAL

Add to section 17-2.03A:

Clear and grub State-owned property. Do not use the State-owned property after clearing and grubbing is complete unless authorized. Clearing and grubbing off the job site is change order work.

Clear and grub State-owned property. Do not use the State-owned property after clearing and grubbing is complete unless authorized.

Replace the 4th paragraph in section 17-2.03A with:

Clear and grub vegetation only within the excavation and embankment slope lines.

AA

19 EARTHWORK

Add between the 8th and 9th paragraphs of section 19-2.03G:

Roughen embankment slopes to receive erosion control materials by either track-walking or rolling with a sheepsfoot roller. Track-walk slopes by running track-mounted equipment perpendicular to the slope contours.

Roughen excavation slopes and flat surfaces to receive erosion control materials by scarifying to a depth of [4 to 8](#) inches.

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 section 19-7.02C:

Imported borrow placed within 4 feet of the finished grade must have an R-value of at least [20](#).

Process the imported borrow to comply with the grading requirements.

Strip materials that adversely affect the imported borrow properties.

AA

Add to section 20-1.02C:

Select herbicides from the following table:

Herbicide name	Herbicide type					
	Preemergent (granular)	Preemergent (non granular)	Post- emergent	Selectiv e	Non- selective	Systemic
Clopyralid	--	--	--	--	X	--
Dithiopyr	--	X	--	--	--	--
Fluazifop-P-Butyl	--	--	--	X	--	--
Imazapyr	--	--	--	--	X	--
Pendimethalin	X	X	X	--	--	--
Triclopyr	--	--	--	--	--	X

Add to section 20-1.03C(3):

Control weeds within the areas shown.

In groundcover areas and within the area extending beyond the outer limits of the groundcover to the adjacent edges of shoulders, dikes, curbs, sidewalks, walls, existing planting, and fences, control weeds with pesticides or by hand pulling. In mulched areas and within the area extending beyond the outer limits of the mulched areas to the adjacent edges of shoulders, dikes, curbs, sidewalks, walls, existing planting, and fences, control weeds with pesticides or by hand pulling. Within 2 feet of the edges of paved shoulders, dikes, curbs, and sidewalks, control weeds with pesticides or by hand pulling.

Where the plants are to be planted more than 15 feet apart and are located outside of groundcover areas, control weeds with pesticides or by hand pulling within an area 6 feet in diameter centered at each plant location. Hand pull weeds within and on the plant basin walls, spot treat with pesticides outside of the plant basin.

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 *Reserved* in section 20-1.03E with:

Do not perform planting work in cultivated areas for a period of [14](#) days after:

1. Cultivation is complete
2. Irrigation systems have been installed

For cultivated areas, keep the soil sufficiently moist to germinate weeds. Weeds that germinate must be controlled by the use of pesticides.

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.

Add to section 20-2.01A(4)(b):

Use for irrigation mainline pipe reconnection as shown.

Add to the 1st paragraph of section 20-2.01B(7):

Valve boxes must not have side openings [except valve boxes used for gate valves](#).

Replace item 1 in the list in the 2nd paragraph of section 20-2.01B(7) with:

1. [Concrete](#)

Add to the list in the 2nd paragraph of section 20-2.01B(7):

4. [Secured using a Penta Head 1/2-13UNC security bolt with high strength lock thread adhesive](#).

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, 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](#), [dark green](#)

Add to section 20-2.05B:

Flow sensor cable must be rated 600V and 194 degree F, be UL listed as Type TC, comply with specifications of ICEA/NEMA and:

1. Consist of 2 no. [16 AWG](#) minimum stranded copper conductors. Insulated conductor must be color coded with a PVC or nylon jacket.
2. 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.
3. 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.
4. Have an outside diameter of [0.42](#) to [0.45](#) inch.
5. Be UV resistant and direct burial type.
6. Have no splices between components except where shown.

Add to the list in the 1st paragraph of section 20-2.06B(2)(a):

17. Be EPA WaterSense® approved.

Add after the 1st paragraph of section 20-2.06B(2)(a):

Before the irrigation system functional test begins, furnish [2](#) remote access devices.

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 [3G or 4G cellular](#). 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: [508 Irwin Street, San Rafael, CA 94901](#)
Business phone number: [\(415\) 454-6581](#)
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 (EA)	Quantity	Extended price	Controller and Remote Access Device identification
WeatherTRAK Optiflow XR 24 Station Wall Mount Controller Item No.: WTOXR-C-24-SPT	\$12,298.00	2	\$24,596	ICC 'A', ICC 'B'
WeatherTRAK Optiflow XR 48 Station Wall Mount Controller Item No.: WTOXR-C-48-SPT	\$13,898.00	1	\$13,898.00	ICC 'F'
WeatherTRAK Optiflow XR Front Entry Chassis WTOXR-C-24-CH2	\$6,167.00	1	\$6,167.00	ICC 'S'
4 Year Cellular Service Item No.: CIM-OFS-4YA	\$1,286.00	4	\$5,144.00	ICC 'A', ICC 'B', ICC 'F', ICC 'S'

These prices are good until [7-1-2023 for the WeatherTRAK products](#).

Delete items [2.1](#), [2.2](#), [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 20-2.06C:

Install door locks under the manufacturer's instructions. Furnish 2 keys for each door lock before Contract acceptance.

Add to section 20-3.01B(3)(a):

Soil amendment must be [from the following](#):

- [1. Compost must be medium and coarse particle size under section 21-2.02K.](#)
- [2. Nitrolized fir bark.](#)

Add to the list in paragraph 2 of section 20-4.01A:

8. Disease control.

Add to section 20-4.01A:

This project has a Type 2 plant establishment period.

No plant establishment work is required for planting areas that are maintained by the Marriott Hotel and Carl's Jr.

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 days before start of the next seasonal period. Remote irrigation control system watering schedule must use the remote irrigation control system software program.

Maintain a neat and presentable job site during plant establishment including areas not visible to the public.

Add to section 20-4.03C:

Apply organic fertilizer to the plants during the 1st week of March and September of each year.

Replace section 20-4.03D with:

20-4.03D Weed Control

Control weeds under section 20-1.03C(3) and by

1. Hand pulling:
 - 1.1. In plant basins, including basin walls
 - 1.2. In hydroseed and shrub planting areas
2. Pesticide use:
 - 2.1 In mulched areas and shrub planting areas outside of plant basins
 - 2.2 Within medians, pavement, curbs, sidewalks, and other surfaced areas
 - 2.3 As spot application in hydroseed and shrub planting areas
3. Mowing:
 - 3.1. Outside of mulched areas
 - 3.2 Outside of shrub planting areas where weeds are controlled by hand pulling or pesticides
 - 3.3 In hydroseed areas

04/02/2021 LH***

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).

Replace item 2 in the list in the 1st paragraph of section 20-2.10B(10)(a) with:

2. Be glass-filled nylon.

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 under section 21-2.02K.
2. Nitrolized fir bark.

This project has a Type 2 plant establishment period.

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 days before start of the next seasonal period. Remote irrigation control system watering schedule must use the remote irrigation control system software program.

Add before 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.

Apply organic 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).

Replace Reserved in section 20-5.03E with:

20-5.03E Rock Surfacing

20-5.03E(1) General

20-5.03E(1)(a) Summary

Section 20-5.03E includes specifications for constructing rock surfacing.

20-5.03E(1)(b) Definitions

Not Used

20-5.03E(1)(c) Submittals

Submit a 5-pound sample of the rock at least 30 days before constructing rock surfacing.

20-5.03E(1)(d) Quality Assurance

20-5.03E(1)(d)(i) General

Not Used

20-5.03E(1)(d)(ii) Test Plot

Prepare a test plot for rock surfacing. Test plot must be

1. Constructed at an authorized location
2. At least 3 feet by 12 feet
3. Constructed using the materials, equipment, and methods to be used in the work
4. Authorized before starting rock surfacing work

Notify the Engineer at least 7 days before constructing the test plot.

Obtain authorization of the test plot before starting the rock surfacing work. The Engineer uses the authorized test plot to determine the acceptability of the rock surfacing work. If the test plot is not incorporated into the work, dispose of it after the rock surfacing work is complete and authorized. Notify the Engineer before disposing of the test plot.

20-5.03E(2) Materials

Rock material must be Noyo river rocks, or equal, and must come from a single source. Surface texture of rock must be smooth. Color must be tan.

Rocks must be 4-inches to 6-inches in diameter.

1. Rocks must comply with the following gradation requirements:

Gradation Requirements

<u>Screen size</u> <u>(inches)</u>	<u>Percentage passing</u>
<u>6</u>	<u>100</u>
<u>5</u>	<u>30-85</u>
<u>4</u>	<u>0-30</u>

20-5.03E(3) Construction

Rocks are to be placed without concrete setting bed and without grout.

Each rock must touch the surface of adjacent rocks. Rock adjacent to walls and curbs must touch the vertical surfaces of the adjacent walls and curbs as shown.

20-5.03E(4) Payment

The payment quantity for rock surfacing is the area measured parallel to the surface of the rock surface.

Replace section 20-5.08 with:

20-5.08 ROOT CONTROL BARRIERS

20-5.08A General

20-5.08A(1) Summary

Section 20-5.08 includes specifications for placing root control barriers.

20-5.08A(2) Definitions

Not Used

20-5.08A(3) Submittals

1. Submit sample panel of root control barrier complete with reinforcing ridges and locking strips.
2. Submit manufacturer's brochure and specifications.

1. Root control barriers to be clean, free of cracks and bends.

1. Polyethylene or copolymer polypropylene, 0.080" inches thick, 24 inches long x 36 inches deep.
2. Root barriers containing polystyrene will not be accepted.
3. Copolymer polypropylene barriers with UV inhibitors and the following minimum properties:
 - a. Tensile Stress @ Yield (ASTM D-638): 3800 PSI (26,200 kPa or kN/m²)
 - b. Elongation @ Yield (ASTM D-638): 10 %
 - c. Tensile Modulus (ASTM D-638): 155,000 PSI
 - d. Flexural Modulus (ASTM D-790): 45,000 PSI (999,739 kPa or kN/m²)
 - d. Notched Izod Impact (ASTM D-256A): 0,4-4,0
 - e. Hardness Shore (ASTM D-2240): P66
4. Size: 36-inch deep x 24-inch long sections with raised structurally reinforcing ridges on inner surface spaced not more than 6 inches to 8 inches apart. Ends of barrier lock together with integral or external locking strip.

1. Place 10-foot long sections of root control barrier behind median curbs, each side of tree. Center barriers on trees.
2. Where concrete paver maintenance paths are installed, place root control barriers between path and tree next to maintenance path and on opposite side of tree, place root control barrier at back of curb.
3. Install barriers according to manufacturer's specifications.
4. Avoid damage to root control barriers when installing irrigation system.
5. Top of root control barrier to conform to finish grade of soil.

Not Used

Check and test existing irrigation facilities when removing and operating existing irrigation system.

AA

Replace section 21-2.02K with:

Compost must be derived from one or a combination of the following types of materials:

- 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 3/8-inch sieve	TMECC 02.02-B	100 95	-- --
Gradation Medium:(dry weight % passing) 2-inch sieve 3/8-inch sieve	TMECC 02.02-B	95 40	-- 55
Gradation Coarse:(dry weight % passing) 3-inch sieve 3/8-inch sieve	TMECC 02.02-B	95 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	6–8.5	6-8.5
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).

Add to section 21-2.02P:

Straw must be certified weed free from the harvest site by the local County Agricultural Commission or the Department of Food and Agriculture.

AA

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	--
Dithiopyr	--	X	--	--	--	--
Fluazifop-P-Butyl	--	--	--	X	--	--
Imazapyr	--	--	--	--	X	--
Pendimethalin	X	X	X	--	--	--
Triclopyr	--	--	--	--	--	X

Add to section 20-1.03C(3):

Control weeds within the areas shown.

In groundcover areas and within the area extending beyond the outer limits of the groundcover to the adjacent edges of shoulders, dikes, curbs, sidewalks, walls, existing planting, and fences, control weeds with pesticides or by hand pulling. In mulched areas and within the area extending beyond the outer limits of the mulched areas to the adjacent edges of shoulders, dikes, curbs, sidewalks, walls, existing planting, and fences, control weeds with pesticides or by hand pulling. Within 2 feet of the edges of paved shoulders, dikes, curbs, and sidewalks, control weeds with pesticides or by hand pulling.

Where the plants are to be planted more than 15 feet apart and are located outside of groundcover areas, control weeds with pesticides or by hand pulling within an area 6 feet in diameter centered at each plant location. Hand pull weeds within and on the plant basin walls, spot treat with pesticides outside of the plant basin.

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 *Reserved* in section 20-1.03E with:

Do not perform planting work in cultivated areas for a period of [14](#) days after:

1. Cultivation is complete
2. Irrigation systems have been installed

For cultivated areas, keep the soil sufficiently moist to germinate weeds. Weeds that germinate must be controlled by the use of pesticides.

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.

Add to section 20-2.01A(4)(b):

Use for irrigation mainline pipe reconnection as shown.

Add to the 1st paragraph of section 20-2.01B(7):

Valve boxes must not have side openings [except valve boxes used for gate valves.](#)

Replace item 1 in the list in the 2nd paragraph of section 20-2.01B(7) with:

1. [Concrete](#)

Add to the list in the 2nd paragraph of section 20-2.01B(7):

4. [Secured using a Penta Head 1/2-13UNC security bolt with high strength lock thread adhesive.](#)

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, 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](#), [dark green](#)

Add to section 20-2.05B:

Flow sensor cable must be rated 600V and 194 degree F, be UL listed as Type TC, comply with specifications of ICEA/NEMA and:

1. Consist of 2 no. [16 AWG](#) minimum stranded copper conductors. Insulated conductor must be color coded with a PVC or nylon jacket.
2. 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.
3. 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.
4. Have an outside diameter of [0.42](#) to [0.45](#) inch.
5. Be UV resistant and direct burial type.
6. Have no splices between components except where shown.

Add to the list in the 1st paragraph of section 20-2.06B(2)(a):

17. Be EPA WaterSense® approved.

Add after the 1st paragraph of section 20-2.06B(2)(a):

Before the irrigation system functional test begins, furnish [2](#) remote access devices.

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 [3G or 4G cellular](#). 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: [508 Irwin Street, San Rafael, CA 94901](#)
Business phone number: [\(415\) 454-6581](#)
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 (EA)	Quantity	Extended price	Controller and Remote Access Device identification
WeatherTRAK Optiflow XR 24 Station Wall Mount Controller Item No.: WTOXR-C-24-SPT	\$10,148.00	3	\$30,444.00	ICC 'A', ICC 'B', ICC 'S'
WeatherTRAK Optiflow XR 48 Station Wall Mount Controller Item No.: WTOXR-C-48-SPT	\$11,668.00	1	\$11,668.00	ICC 'F'
4 Year Cellular Service Item No.: CIM-OFS-4YA	\$1,286.00	4	\$5,144.00	ICC 'A', ICC 'B', ICC 'F', ICC 'S'

These prices are good until [Dec 31, 2021](#).

Delete items [2.1](#), [2.2](#), [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:

- 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 20-2.06C:

Install door locks under the manufacturer's instructions. Furnish 2 keys for each door lock before Contract acceptance.

Add to section 20-3.01B(3)(a):

Soil amendment must be [from the following](#):

- [Compost must be medium and coarse particle size under section 21-2.02K.](#)
- [Nitrolized fir bark.](#)

[Add to the list in paragraph 2 of section 20-4.01A:](#)

- [Disease control.](#)

Add to section 20-4.01A:

This project has a Type 2 plant establishment period.

[No plant establishment work is required for planting areas that are maintained by the Marriott Hotel and Carl's Jr.](#)

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 days before start of the next seasonal period. Remote irrigation control system watering schedule must use the remote irrigation control system software program.

6. 5Add before 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 organic fertilizer to the plants during the 1st week of [March](#) and [September](#) of each year.

Replace section 20-4.03D with:

20-4.03D Weed Control

Control weeds under section 20-1.03C(3) and by

1. Hand pulling:
 - 1.1. In plant basins, including basin walls
 - 1.2. In hydroseed andshrub planting areas
2. Pesticide use:
 - 2.1 In mulched areas and shrub planting areas outside of plant basins
 - 2.2 Within medians, pavement, curbs, sidewalks, and other surfaced areas
 - 2.3 As spot application in hydroseed and shrubplanting areas
3. Mowing:
 - 3.1. Outside of mulched areas
 - 3.2 Outside of shrubplanting areas where weeds are controlled by hand pulling or pesticides
 - 3.3 In hydroseed areas

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).

Replace item 2 in the list in the 1st paragraph of section 20-2.10B(10)(a) with:

2. Be [glass-filled nylon](#).

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 under section 21-2.02K.
2. Nitrolized fir bark.

Section 20-3.01B(9). Use if steel stakes for foliage protectors are not allowed.

Replace the 3rd paragraph of section 20-3.01B(9) with:

Support stakes must be 3 inch nominal diameter or 3 inch by 3 inch nominal size wood stakes a minimum of 10 feet long. Wood stakes must be straight.

This project has a Type 2 plant establishment period.

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 days before start of the next seasonal period. Remote irrigation control system watering schedule must use the remote irrigation control system software program.

Add before 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.

Apply organic 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).

Replace Reserved in section 20-5.03E with:

20-5.03E Rock Surfacing

20-5.03E(1) General

20-5.03E(1)(a) Summary

Section 20-5.03E includes specifications for constructing rock surfacing.

20-5.03E(1)(b) Definitions

Not Used

20-5.03E(1)(c) Submittals

Submit a 5-pound sample of the rock at least 30 days before constructing rock surfacing.

20-5.03E(1)(d) Quality Assurance

20-5.03E(1)(d)(i) General

Not Used

20-5.03E(1)(d)(ii) Test Plot

Prepare a test plot for rock surfacing. Test plot must be

1. Constructed at an authorized location
2. At least 3 feet by 12 feet
3. Constructed using the materials, equipment, and methods to be used in the work
4. Authorized before starting rock surfacing work

Notify the Engineer at least 7 days before constructing the test plot.

Obtain authorization of the test plot before starting the rock surfacing work. The Engineer uses the authorized test plot to determine the acceptability of the rock surfacing work. If the test plot is not incorporated into the work, dispose of it after the rock surfacing work is complete and authorized. Notify the Engineer before disposing of the test plot.

20-5.03E(2) Materials

Rock material must be Noyo river rocks, or equal, and must come from a single source. Surface texture of rock must be smooth. Color must be tan.

Rocks must be 4-inches to 6-inches in diameter.

1. Rocks must comply with the following gradation requirements:

Gradation Requirements

<u>Screen size (inches)</u>	<u>Percentage passing</u>
<u>6</u>	<u>100</u>
<u>5</u>	<u>30-85</u>
<u>4</u>	<u>0-30</u>

20-5.03E(3) Construction

Rocks are to be placed without concrete setting bed and without grout.

Each rock must touch the surface of adjacent rocks. Rock adjacent to walls and curbs must touch the vertical surfaces of the adjacent walls and curbs as shown.

20-5.03E(4) Payment

The payment quantity for rock surfacing is the area measured parallel to the surface of the rock surface.

Replace section 20-5.08 with:

20-5.08 ROOT CONTROL BARRIERS

20-5.08A General

20-5.08A(1) Summary

Section 20-5.08 includes specifications for placing root control barriers.

20-5.08A(2) Definitions

Not Used

20-5.08A(3) Submittals

1. Submit sample panel of root control barrier complete with reinforcing ridges and locking strips.
2. Submit manufacturer's brochure and specifications.

20-5.08A(4) Quality Assurance

1. Root control barriers to be clean, free of cracks and bends.

20-5.08B Materials

1. Polyethylene or copolymer polypropylene, 0.080" inches thick, 24 inches long x 36 inches deep.
2. Root barriers containing polystyrene will not be accepted.
3. Copolymer polypropylene barriers with UV inhibitors and the following minimum properties:
 - a. Tensile Stress @ Yield (ASTM D-638): 3800 PSI (26,200 kPa or kN/m²)
 - b. Elongation @ Yield (ASTM D-638): 10 %
 - c. Tensile Modulus (ASTM D-638): 155,000 PSI
 - d. Flexural Modulus (ASTM D-790): 45,000 PSI (999,739 kPa or kN/m²)
 - d. Notched Izod Impact (ASTM D-256A): 0,4-4,0
 - e. Hardness Shore (ASTM D-2240): P66
4. Size: 36-inch deep x 24-inch long sections with raised structurally reinforcing ridges on inner surface spaced not more than 6 inches to 8 inches apart. Ends of barrier lock together with integral or external locking strip.

20-5.08C Construction

1. Place 10-foot long sections of root control barrier behind median curbs, each side of tree. Center barriers on trees.
2. Where concrete paver maintenance paths are installed, place root control barriers between path and tree next to maintenance path and on opposite side of tree, place root control barrier at back of curb.
3. Install barriers according to manufacturer's specifications.
4. Avoid damage to root control barriers when installing irrigation system.
5. Top of root control barrier to conform to finish grade of soil.

20-5.08D Payment

Not Used

[Add to section 20-10.02C\(2\):](#)

[Check and test existing irrigation facilities when removing and operating existing irrigation system.](#)

AA

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 3/8-inch sieve	TMECC 02.02-B	100 95	-- --
Gradation Medium:(dry weight % passing) 2-inch sieve 3/8-inch sieve	TMECC 02.02-B	95 40	-- 55
Gradation Coarse:(dry weight % passing) 3-inch sieve 3/8-inch sieve	TMECC 02.02-B	95 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	6–8.5	6-8.5
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).

Add to section 21-2.02P:

Straw must be certified weed free from the harvest site by the local County Agricultural Commission or the Department of Food and Agriculture.

AA

DIVISION IV SUBBASES AND BASES
23 GENERAL

AA

DIVISION V SURFACINGS AND PAVEMENTS

36 GENERAL

Replace section 36-3 with:

36-3 PAVEMENT SMOOTHNESS

36-3.01 GENERAL

36-3.01A Summary

Section 36-3 includes specifications for measuring the smoothness of pavement surfaces.

36-3.01B Definitions

Area of Localized Roughness (ALR): Continuous moving average of the 25-foot International Roughness Index (IRI) values for each wheel path using a 250-mm filter.

Mean Roughness Index (MRI): Average of the 0.1-mile IRI values for the left and right wheel paths for the same traffic lane using a 250-mm filter.

Wheel paths: Pair of parallel lines 3 feet left and right of the center of a traffic lane. Left and right wheel paths are based on the direction of travel.

36-3.01C Submittals

36-3.01C(1) General

Not used

36-3.01C(2) Inertial Profiler Data

At least 15 days before measuring pavement smoothness with an inertial profiler, you must register with the Department's secure file sharing system. To obtain information on the registration process, send an e-mail with your contact information to asphalt.smoothness@dot.ca.gov for asphalt and concrete.smoothness@dot.ca.gov for concrete surfaces.

Submit electronic copy of the raw profile data as a PPF file on an authorized data storage device within 12 hours or on the same day of completing smoothness measurement, with a coordinated video or images taken at intervals no greater than 52.8 feet for the existing and baseline profiles. Also, submit a printout or a PDF file listing the following:

1. Profile data collection time and date
2. Data collection software version used
3. Sensor serial number
4. Low- and high-pass filter used
5. 0.1-MRI values

Within 2 business days after each day of profiling, submit the profile information to the Engineer and to the Department's secure file sharing system. After submitting the profile information to the Department's file sharing system, send a notification of your electronic submittal to the Engineer and to the above electronic mailbox address with the names of the files submitted.

For each surface subject to inertial profile smoothness requirements, the profile data information must include:

1. Raw profile data for each lane
2. ProVAL ride quality analysis report for the MRI of each lane in a PDF file. Report the following:
 - 2.1. Listing of MRI values for 0.1-mile segments or portions thereof
 - 2.2. Input data including the specified MRI threshold and fixed segment length
 - 2.3. Raw profile data name selections
 - 2.4. Areas exempt from inertial profile smoothness requirements
3. ProVAL ride quality analysis report for the IRI of the left and right wheel paths of each lane in a PDF file. Report the following:
 - 3.1. Listing of ALR

- 3.2. Input data including the specified area of the localized roughness threshold and continuous segment length
- 3.3. Raw profile data name selections
- 3.4. Areas exempt from inertial profile smoothness
4. GPS data file for each lane. Submit the data file in GPS eXchange file format.
5. Manufacturer's recommended calibration and verification test results for the inertial profiler.
6. Inertial profiler's calibration and verification test results, including results for bounce, block, and the distance measurement instrument.
7. Completed Pavement Smoothness Inertial Profiler Submittal Record.

Submit Asphalt Concrete Pavement Smoothness Corrections Information or Concrete Pavement Smoothness Corrections Information with your final profile data information submittal.

Submit the raw profile data in an unfiltered pavement profile standard (PPF) file format. Use the following file naming convention:

YYYYMMDD_TTCCCRRR_EA_D_L_W_B_E_X_PT.EXT

where:

YYYY = year

MM = month, leading zero

DD = day of the month, leading zero

TT = district, leading zero

CCC = county, 2- or 3-letter abbreviation as shown in section 1-1.08

RRR = route number with no leading zeros

EA = Contract number, excluding the district identification number, expressed as 6 characters

D = traffic direction, *NB*, *SB*, *WB*, or *EB*

L = lane number from left to right in the direction of travel

W = wheel path, *L* for left, *R* for right, or *B* for both

B = beginning station to the nearest foot, such as 10+20, or beginning postmile to the nearest hundredth, such as 25.06 with no leading zero.

E = ending station to the nearest foot, such as 14+20, or ending postmile to the nearest hundredth, such as 28.06 with no leading zero.

X = profile operation, *EXIST* for existing pavement, *BASELINE* for existing pavement after performing repairs, *PAVE* for after paving, and *FINAL* for completed pavement documentation of compliance.

PT = type of pavement surface profiled, such as Type A HMA, RHMA-G, OGFC, JPCP, or CRCP

EXT = "PPF" for raw profile data file extension.

If you are submitting multiple inertial profiler data files, compress the files into a .ZIP file format and submit them using the file-naming convention *TT_EA_X_YYYYMMDD.zip*.

36-3.01C(3) Smoothness Corrective Grinding Plan

At least 2 business days before performing corrective grinding for areas that do not meet the smoothness requirements, submit a corrective grinding plan as an informational submittal.

The corrective grinding plan must include:

1. Grinder make and model
2. Grinder wheelbase in feet, measured from the front centerline to the back centerline of the single wheel or tandem wheel spread
3. Grinder head position in feet, measured relative to the centerline of the front single wheel or the front tandem wheel spread
4. Tandem wheel spreads in feet
5. Tabular listing of the planned corrective grinding, including:
 - 5.1. Begin and End locations in stationing to the nearest foot
 - 5.2. Width of grind, such as left half lane, right half lane, or full-width lane
 - 5.3. Corresponding grinder head depths to the nearest 0.01 inch
 - 5.4. Direction of grind such as forward, reverse, forward-forward, reverse-reverse, forward-reverse, reverse-forward

6. Forecasted improvement in terms of the MRI and ALR values

36-3.01C(4) Straightedge Measurements

Within 2 business days of measuring smoothness with a straightedge, submit a list of the areas requiring smoothness correction or a report stating there are no areas requiring smoothness correction. Identify the areas requiring smoothness correction by:

1. Location number
2. District-County-Route
3. Beginning station or postmile to the nearest 0.01 mile
4. For correction areas within a traffic lane:
 - 4.1. Lane direction, *NB*, *SB*, *EB*, or *WB*
 - 4.2. Lane number from left to right in the direction of travel
 - 4.3. Wheel path, *L* for left, *R* for right, or *B* for both
5. For correction areas not within a traffic lane:
 - 5.1. Identify the pavement area, such as shoulder, weigh station, or turnout
 - 5.2. Direction and distance from the centerline, *L* for left or *R* for right
6. Estimated size of correction area

36-3.01C(5) Smoothness Quality Control Plan

Submit a written Smoothness Quality Control Plan to the Engineer at or before Preconstruction Meeting, except the layout plan. Submit the layout plan as an addendum to the Smoothness Quality Control Plan no later than 3 days after the EXIST profile is collected. The plan must include:

1. Organization: Contact names, organizational chart, telephone numbers, current certifications and titles, and roles and responsibilities of personnel for monitoring smoothness, collecting profile data, submitting data, pay adjustment requests and reports, and implementing corrective actions.
2. Inertial profiler certification:
 - 2.1. Inertial profiler certification issued by the Department
 - 2.2. Operator certification for the inertial profiler issued by the Department
 - 2.3. Manufacturer's instructions and test procedures for calibration and verification of the inertial profiler
3. Schedule: The methods and timing used for monitoring and/or testing ride quality throughout the placement operation process. Indicate the approximate timing of acceptance testing for the profile operations defined in section 36-3.01C(6)(b) in relation to placement operations.
4. Layout plan:
 - 4.1 Establish semipermanent reference points at the beginning and end of the project based on the plans. For each profile run, define additional semipermanent reference points for the starting and end position of each run. Show the position and name of each semipermanent reference point. These reference points must be located outside of the traveled way perpendicular to the starting position of each lane. Where starting positions are adjacent to each other but staggered, use separate starting positions. Semipermanent reference points used to establish the beginning position of a profile run must be labeled in the field and in the pavement profiles using the following naming convention:

XXX-D-L-STA-VAL

where:

XXX = "Beg" for the beginning of each profile run, "End" for the end of each profile run, "ExB" for the beginning point of the areas excluded from inertial profiler testing and "ExE" for the end point of the areas excluded from inertial profiler testing.

D = traffic direction, *NB*, *SB*, *WB*, or *EB*.

L = lane number from left to right in the direction of travel, such as "1", "2", or "3."

STA= station to the nearest foot, such as 10+20. Do not use postmiles.

VAL= use "INC" where the value of stationing in the pavement profile data file (*.PPF) will increase in the direction of travel. Use "DEC" where the absolute value of the

stationing in the pavement profile data file (*.PPF) will decrease in the direction of travel.

Use the same label name regardless of the stage of the profile.

- 4.2 For each semipermanent reference point, include a KMZ file with:
 - 4.2.1 Color photographs clearly displaying the physical label used to define the semipermanent reference points.
 - 4.2.2 Listing of GPS coordinates.

Semipermanent reference points, wherever possible, must be recorded by inertial profilers using electronic eye readings of reflectors.

36-3.01C(6) Smoothness Payment Adjustment Request

36-3.01C(6)(a) General

Smoothness payment adjustment data includes a ProVAL project file and a payment adjustment spreadsheet for each lane.

36-3.01C(6)(b) ProVAL Project File

After completing final corrections, submit an electronic ProVAL project (PVP) file for each lane using the same naming convention listed in section 36-3.01C(2), except:

1. B = use the common beginning station found in all profiles included in the PVP file followed by the postmile to the nearest tenth of a mile, such as 528 +00(10.0).
2. E = use the ending station found in the FINAL profile followed by the postmile to the nearest tenth of a mile such as 681+12(12.9).
3. X = PAYADJ.
4. EXT = "PVP" for ProVAL project file extension.

Use a single PVP file for each lane. Each PVP file must contain the PPF files from the profile operation shown in the Profiles Needed by Smoothness Table.

Profiles Needed by Smoothness Table

Profile	Section 39: Existing Pavements	Section 39: New Construction or New Alignments	Section 40: Concrete Target 60/67.5/75	Section 40: Grind Concrete Percent Improvement
EXIST	X			X
BASELINE	X			X
PAVE	X	X	X	
FINAL	X	X	X	X

Establish and maintain stationing to allow for direct comparison of smoothness data between you and the Engineer in subsequent tests. The profiles must:

1. Align with each other in ProVAL.
2. Use the same beginning station position in all profiles files and in a single PVP project file.
3. Use the same semipermanent reference points for the beginning and ending positions of each profile and semipermanent reference points required by section 36-3.01C(2).
4. For alignment purposes, the end station determined from the profiles distance measuring instrumentation of each sequentially numbered 0.1-mile segment or portion thereof in the BASELINE, PAVE and FINAL profiles must be no greater than 20 feet in the first mile when compared to the same sequentially numbered segment end station in the EXIST profile. For locations more than 1 mile but less than 2.5 miles, the difference must be prorated from 20 feet to 50 feet. For locations more than 2.5 miles from the beginning position of the profile, the difference must be no greater than 50 feet. Where these differences create an additional sequentially numbered segment and when needed to bring the sequentially numbered segments back into alignment, the event defining the ending position of the partial segment in the PPF file of the BASELINE, PAVE and FINAL profiles may be

adjusted no more than 20 feet within the first 2.5 miles, and no more than 50 feet at all other locations. Include the same leave-out sections referenced to the same semipermanent reference points.

36-3.01C(6)(c) Payment Adjustment Spreadsheet

For each lane, submit payment adjustment spreadsheet using the Department-furnished worksheet. Data must be exported directly from the ProVAL project file Ride Quality module into the corresponding worksheet using the following settings:

1. Analysis Type set to "Fixed Interval"
2. Ride Quality Index set to "MRI"
3. Threshold (not applicable)
4. Segment Length (ft) set to "528.00"

Obtain the worksheet from the following site:

<https://dot.ca.gov/programs/construction/pavement-smoothness>

When sequentially numbered segments are misaligned and adjustments are required as described in section 36-3.01C(6)(b), make the adjustments within the ProVAL project file before exporting data to a worksheet and notify the Engineer when this occurs.

36-3.01C(7) Inertial Profiler Verification Test

Within 2 business days after the annual cross-correlation testing, submit a ProVAL profiler certification analysis report for the test results to the Engineer and to the electronic mailbox address:

smoothness@dot.ca.gov

36-3.01D Quality Assurance

36-3.01D(1) General

Not Used

36-3.01D(2) Certifications

The inertial profiler must display a current certification decal showing the expiration date.

The operator must be certified for each model of inertial profiler operated.

The certifications issued by the Department for the inertial profiler and operator must not be expired.

36-3.01D(3) Quality Control

36-3.01D(3)(a) General

Not Used

36-3.01D(3)(b) Smoothness Measurement

36-3.01D(3)(b)(i) General

Measure pavement smoothness using an inertial profiler.

The following areas are excluded from MRI smoothness requirements but are subject to ALR:

1. Continuous pavement less than 1000 feet in length
2. Ramps
3. Turn lanes
4. Acceleration and deceleration lanes

The following areas are excluded from smoothness measurement with an inertial profiler but are subject to the 12-foot straightedge measurement:

1. Areas within 15 feet of manholes, weigh-in-motion, railroad crossing, cattle guards, bus pad, and transverse gutter pans

2. Sections of traffic lane immediately adjacent to ETW where the distance between ETW and the longitudinal gutter pan is less than or equal to 8 feet
3. Areas within 25 feet each side from the intersection radius
4. Areas within 25 feet each side from the roundabout radius
5. Shoulders
6. Miscellaneous areas such as medians, gore areas, turnouts, and maintenance pullouts
7. Areas within 15 feet of the beginning of an approach slab or bridge, and 40 feet beyond the end of a departure slab or bridge
8. Horizontal curves with a centerline radius less than the following and within the superelevation transition of such curves:
 - 8.1. 150 feet for asphalt pavements
 - 8.2. 300 feet for concrete pavements
9. Pavement length less than 25 feet
10. Areas of hot mix asphalt with a single opportunity within 20 feet of locations where localized roughness exceeds 160 inches per mile on the BASELINE profile after filtering the profile with the ProVAL Moving Average Low Pass (MALP) filter with a 30-foot short cutoff wavelength
11. HMA placed under concrete pavement

Where measurement with inertial profiler is required:

1. Determine the pavement smoothness by obtaining the IRI for the left and right wheel paths on each traffic lane.
2. Determine the MRI and ALR using FHWA's engineering software ProVAL.

Where OGFC is required, test the pavement smoothness of the final asphalt or concrete pavement surface before placing OGFC and after placing OGFC.

36-3.01D(3)(b)(ii) Inertial Profiler Calibration and Verification Tests

Notify the Engineer at least 2 business days before performing calibration and verification testing of the inertial profiler.

Conduct the following calibration and verification tests in the Engineer's presence each day before profiling:

1. Block test to verify the accuracy of the height sensor under California Test 387
2. Bounce test to verify the combined accuracy of the height sensor and accelerometer under California Test 387
3. Distance measurement instrument test to verify the accuracy of the distance measuring instrument under California Test 387
4. Manufacturer's recommended tests

Conduct a cross-correlation verification test of the inertial profiler in the Engineer's presence before performing the initial profiling. A verification test must be performed at least annually. Conduct 5 repeat runs of the inertial profiler on an authorized 0.1-mile test section. Calculate a cross-correlation to determine the repeatability of your device under California Test 387 using a ProVAL profiler certification analysis with a 3-foot maximum offset. The cross-correlation must be a minimum of 0.92.

36-3.01D(3)(b)(iii) Collecting and Analyzing Data

Operate the inertial profiler under the manufacturer's instructions. Collect profiling data under AASHTO R 57 at 1-inch recording intervals using a minimum 4-inch line laser sensor and analyze IRI using a 250-mm filter.

Establish semipermanent reference points for aligning inertial profiler runs and locating potential corrective grinding. Maintain semipermanent reference points until Department acceptance testing is completed.

While collecting the profile data to determine the IRI values, record semipermanent reference points at the beginning and end of the profile run and the beginning and end of the following locations in the raw profile data:

1. Bridge approach slabs

2. Bridges
3. Culverts visible on the roadway surface
4. Railroad crossings
5. At-grade intersections
6. Project limits
7. Change in pavement type

Profile the left and right wheel paths of each lane. Determine the MRI for 0.1-mile fixed segments using the ProVAL ride quality analysis with a 250-mm filter. Calculate the MRI of each lane. Segments less than 0.05 mile will not be evaluated for MRI but must comply with ALR requirement. Segments greater than or equal to 0.05 mile and less than or equal to 0.10 mile must comply with the MRI specifications for a 0.1-mile segment. Pay adjustments for segments greater than or equal to 0.05 mile and less than or equal to 0.10 mile will be calculated based on a prorated length. Determine the ALR using ProVAL with the average IRI values for each wheel path using a 25-foot continuous interval and a 250-mm filter.

36-3.01D(4) Department Acceptance

36-3.01D(4)(a) General

The Department accepts pavement surfaces for smoothness based on compliance with the smoothness specifications for the type of pavement surface specified.

For areas that require pavement smoothness determined using a 12-foot straightedge, the pavement surface must not vary from the lower edge of the straightedge by more than:

1. 0.01 foot when the straightedge is laid parallel with the traffic lane centerline
2. 0.02 foot when the straightedge is laid perpendicular to the centerline and extends from edge to edge of a traffic lane
3. 0.02 foot when the straightedge is laid within 24 feet of a pavement conform

36-3.01D(4)(b) Profile Verification

The Engineer may perform verification testing using the Department's inertial profiler. The Engineer notifies you of the Department's intention to perform verification testing. Your acceptance test results are considered acceptable and will be used for incentive and disincentive payments if your mean MRI is within 10 percent of the Department's mean MRI obtained over the same selected project length. When your test results are not considered acceptable, the Department's MRI values will be used in the calculation for incentive and disincentive payments for that evaluated length and the Department will have 15 days to complete an evaluation of both profiler certifications.

You and the Engineer must work together to avoid potential conflicts and to resolve disputes regarding test result discrepancies. Notify the Engineer within 5 business days of receiving the verification test result if you will dispute it. An independent third party will perform referee testing over the same selected project length. Before the third party participates in a dispute resolution, their profiler and operator must be certified under the Department's Profiler Certification Program. The independent third party must have no prior direct involvement with this Contract or no current direct involvement with you. The mean MRI value used in the calculation for incentive and disincentive payments will be from the party whose mean MRI value is closer to the independent third party and the other party pays for the independent third party's testing.

36-3.02 MATERIALS

Not Used

36-3.03 CONSTRUCTION

Notify the Engineer of the start location by station and start time at least 2 business days before each day of profiling.

Before profiling, remove foreign objects from the pavement surface and mark the beginning and ending station on the pavement shoulder. The stationing must be the same when profiling more than 1 surface.

36-3.04 PAYMENT

Not Used

36-4 RESIDUE CONTAINING LEAD FROM PAINT AND THERMOPLASTIC

Section 36-4 includes specifications for performing work involving residue from grinding and cold planing that contains lead from paint and thermoplastic.

Not Used

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:

- Management of this material exposes workers to health hazards that must be addressed in your lead compliance plan.

Not Used

[illegible]

Replace the 2nd paragraph of section 39-2.02A(1) with:

Produce Type A HMA using a WMA additive technology.

Replace *Reserved* in section 39-2.02B(3) with:

The grade of asphalt binder for Type A HMA must be 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**.

AA

40 CONCRETE PAVEMENT

Add section 40-1.02B

40-1.02G Sand Finish Shake-on Color Hardener

Sand finish color shake-on hardener for concrete surface textures Type A and Type B. Lithium silicate chemical hardener, reactive surface etch solution and modified acrylic semi-penetrating low gloss sealer, manufactured by Bomanite.

Custom color for concrete surface texture Type A is AMS-STD 13531. Custom color for concrete surface texture Type B is AMS-STD 15107. AMS-STD code numbers are for color only. Code numbers do not apply for finish and interior/exterior applications.

Add to section 40-1.03H(3)

Prepare concrete surface and apply sand finish shake-on hardener to pavement to receive concrete surface textures Type A and Type B according to Bomanite manufacturer's directions. Apply lithium silicate chemical hardener, reactive surface etch solution and modified acrylic semi-penetrating low gloss sealer according to manufacturer's directions.

Finished application must have complete, uniform, dense and even Type A and Type B coloration, free of gray concrete showing through and free of mottling, skips, drips, pits, bubbles and peeling.

AA

DIVISION VI STRUCTURES

AA

51 CONCRETE STRUCTURES

Add to section 51-1.01A:

Use colored concrete spray-on veneer for median corbels and barriers, and barriers at the sides of Fairgrounds Drive under SR37 overcrossing. Color is custom color Painted Desert, referred to as Type C Concrete Surface Texture. Color chip provided by Engineer.

Use 15 1/2-inches x 7 1/5-inches x 2-inches split face concrete masonry veneer units by Basalite, color 002, for retaining wall #1, to match masonry units on existing retaining wall on Fairgrounds Drive in northwest quadrant of SR37 and Fairgrounds Drive interchange.

Add to section 51-1.01C(1):

Submit shop drawings for each concrete formed texture shown at concrete barriers and corbels.

After shop drawings are authorized, submit to the Engineer an electronic 3D PDF file for complete corbels and concrete barriers showing concrete surface textures. Include:

1. Contract no.
2. Contractor's name
3. Date of 3D PDF file

Add to section 51-1.01C(6):

Submit technical data, manufacturer's installation instructions, and a work plan for mixing, application, finishing and curing spray-on concrete veneer. Spray-on concrete veneer is an opaque emulsion, and is a mixture of color pigment, Portland cement powder, quartz, titanium dioxide, iron oxides and bonding agents.

Submit technical data, manufacturer's installation instructions and a work plan for color and mixing shake-on hardener.

Submit one, 4-foot by 6-foot concrete test sample with Type A concrete surface texture finish for stamped sand texture finish and application of shake-on hardener custom color.

Submit one 4-foot by 6-foot concrete test sample with Type B concrete surface texture for stamped sand texture finish and application of shake-on hardener custom color.

Submit one 4-foot by 4-foot concrete test sample with Type C concrete surface texture for formed light sandblast texture and application of spray-on concrete veneer with custom color.

Submit one 4-foot by 4-foot concrete test sample with Type E concrete surface texture for formed flute texture.

Submit one 4-foot by 4-foot concrete test sample with Type G concrete surface texture for smooth troweled texture and application of spray-on concrete veneer with custom color.

Submit one, 4-foot by 4-foot concrete test sample for spray-on concrete veneer with smooth texture finish. Apply 1-foot by 4-foot stripe of mat sealer on test sample.

Veneer is an opaque emulsion of Portland Cement, quartz, titanium dioxide, iron oxides and bonding agents.

Each test sample must be documented with the following:

1. Manufacturer's name.
2. Date of color mixing.
3. Name and serial number of color mix.
4. Name and serial number of mat finish sealer.
5. Project number.

Finished applications on samples must have uniform, dense and even stain coloration, free of gray concrete showing through and free of mottling, skips, drips, pits, bubbles and peeling. Surface must be free of efflorescence and powdering.

Add section 51-1.01C(8):

Submit one 4-foot by 4-foot concrete test sample with Type D concrete surface texture for formed rib texture. Concrete is plain concrete color with no application of color veneer.

Submit one 4-foot by 4-foot concrete test sample with Type F concrete surface texture for formed smooth texture. Concrete is plain concrete color with no application of color veneer.

Submit one 4-foot by 4-foot sample with Type H concrete surface texture for concrete masonry unit veneer texture.

Each test sample must be documented with the following:

1. Manufacturer's name.
2. Date of forming.
3. Name and serial number of formed finish.
4. Name and serial number of mat finish sealer.
5. Project number.

Replace item 2 in the list in the 1st paragraph of section 51-1.01D(2)(c) with:

2. At least 5 by 5 feet by 5 inches deep

Add to section 51-1.01D(2)(c):

The areas of concrete surface texture to be depicted on each test panel are as shown.

Add after 7th paragraph of section 51-1.03C(2)(a):

Horizontal joints in form liner patterns on median barriers and corbels are not allowed.

Replace item 2 in the list in the 1st paragraph of section 51-1.01D(2)(c) with:

2. At least 5 by 5 feet by 5 inches deep

Add to section 51-1.01D(2)(c):

The areas of concrete surface texture to be depicted on each test panel are as shown.

Add to section 51-1.02G:

Color of grout for concrete masonry unit veneer must match grout color of concrete masonry units at existing retaining wall in the northwest quadrant of SR37/Fairgrounds Drive interchange.

Add to section 51-1.03D(5):

Composition of concrete veneer that is to be sprayed-on is an opaque emulsion of color pigment, Portland Cement, quartz, titanium dioxide, iron oxides and bonding agents.

Apply Painted Desert color spray-on concrete veneer. The finished applications of sprayed-on concrete veneer must have complete, uniform, dense and even Painted Desert coloration, free of gray concrete showing through and free of mottling, skips, drips, pits, bubbles and peeling.

Finishes of all sprayed-on concrete veneer must be free of efflorescence and powdering.

Apply a water-based mat finish sealer to all sprayed-on concrete veneered surfaces. Finished applications of sealer must have complete, uniform, dense and even coverage and free of mottling, skips, drips, pits, bubbles and peeling.

The spray-on concrete veneer is for all surfaces as shown on concrete barriers at sides of Fairgrounds Drive under SR37 overcrossing, at median barriers on surface facing sidewalk, on top of barrier, on surface of barrier facing traffic lanes that are shown to receive concrete surface texture Type C, and on all surfaces of median corbels.

Construct concrete masonry units veneer for retaining wall #1. Construct in running bond pattern to match existing wall. Construct masonry units horizontally level to match existing retaining wall. Match grout color of existing wall. Finish must be free of efflorescence and powdering.

Add section 51-1.02K:

51-1.02K Concrete Masonry Units Veneer

Concrete masonry veneer units must match existing concrete masonry units at existing retaining wall in the northwest quadrant of SR37/Fairgrounds Drive interchange. Veneer is by Basalite, color #002, manufacture date 20, split face, light weight. Size of concrete masonry veneer is unit is 7 1/2-inches x 15 1/2-inches by 2-inches.

The concrete surfacetexture at [retaining wall #1](#) must match the texture, color, and pattern of the [concrete surface texture on existing retaining walls](#) at [WB on-ramp of SR37/Fairgrounds Drive interchange and as shown](#).

62-16.02 MATERIALS

Trash net crash must be stainless steel and comply with ASTM A276 Type 304 or galvanized steel. Galvanized steel clamps for trash net clamp must be designed to allow removal and replacement of the trash net using common tools. Stainless steel clamps for trash net clamps must be tamper-proof.

Nylon zip ties must be heavy duty and UV resistant.

62-16.02B(1) General

Openings in the net material must trap particles 5mm and larger. Each opening must be at least 0.02 square inches.

1. Be stable from -20 to +115 degrees F without melting, deforming or loss of mechanical and chemical properties.
2. Be unaffected by chemical pH from 4.5 to 7.5
3. Have a minimum abrasion resistance of 40 cycles under ASTM D3884 with non-resilient wheels with medium coarse abrasive action and a load of 1,000 grams per wheel

Trash Net Properties

Quality characteristic	Test method	Requirement
Tensile strength, direction of fabric wales (min,lb)	ASTM D5034	250
Tensile strength, direction of fabric courses (min,lb)	ASTM D5034	220
Apparent elongation (min,%)	ASTM D5034	100
Burst strength (min,lb)	ASTM D3787	250

Disposal trash net fabric must be knotless and knitted. Seams must be rolled and stitched and withstand a burst strength of 250 pounds when tested under ASTM D3787.

Payment for Trash Net included in in the payment of Alternative Pipe Culvert.

[illegible]

DIVISION VIII MISCELLANEOUS CONSTRUCTION

73 CONCRETE CURBS AND SIDEWALKS

Concrete must be minor concrete complying with section 90-2 and may contain returned plastic concrete complying with section 90-9.

Add to section 73-3.01A:

The concrete of the waves in the concrete paving at the SR37/Fairgrounds Drive interchange islands must be pigmented using a powdered shake-on hardener. The color must match color no. 35193 of AMS-STD-595. Apply concrete sealer to pigmented surfaces.

Scored line at the concrete sidewalk must made 1/2-inch deep and impart the pattern as shown.

Add to section 73-3.01A:

The concrete of Type A must be pigmented using a powdered shake-on hardener with non-native quartz aggregate. The color must match color no. 13531 of AMS-STD-595. Apply concrete sealer to pigmented surfaces.

The concrete of Type B must be pigmented using a powdered shake-on hardener. The color must match color no. 15107 of AMS-STD-595. Apply concrete sealer to pigmented surfaces.

Use the AMS-STD color numbers for the custom color only. The numbers do not apply to finish or exterior/interior applications.

Add to section 73-3.01A:

Scored line at the concrete paving for wave pattern must made 1/2 inch deep and impart the pattern as shown.

Add to section 73-4.04:

The concrete of Type A and Type B must be a Sandscape Texture by Bomanite. Install according to manufacturer's specifications.

AA

75 MISCELLANEOUS METAL

Replace Reserved in section 75 with:

75-9.00 STAINLESS STEEL FINIALS AND RAILINGS

75-9.01 General

75-9.01A Summary

Section 75-6 includes specifications for constructing stainless steel finials and railings.

75-9.01B Definitions

Railing includes railing, posts, and anchor.

Finial includes steel cylinder and anchor dowel.

Type I finish is stainless steel and satin finish acrylic polyurethane coating.

Austenitic is a type of stainless steel that is composed of a maximum 0.15% carbon and a minimum of 15% chromium.

75.9.01C Submittals

75-9.01C(1) Manufacturer's Name, Product Information, and Installation Instructions

Submit manufacturer's name, product information, and installation instructions for stainless steel, satin finish acrylic polyurethane clear coat, and curing and finishing compounds. Submit within 60 days of award of contract.

75-9.01C(2) Work Plan

Submit a work plan within 30 days before the start of job activities for construction of the finials and railings. The work plan must have a detailed description of the following work activities:

1. Fabrication of stainless steel finials and railings.
2. Mixing, delivery, placement, finishing and curing of acrylic polyurethane coating for finials and railings.
3. Fabrication and coating finials and railings must include the following:
 - 3.1. Names of the fabrication, acrylic polyurethane finishing contractors.
 - 3.2. Fabrication methods and equipment.
4. Methods to protect the finials and railings during curing, shipping, handling, and storage.
5. Repair of damaged areas.

75-9.01C(3) Certificate of Compliance

Submit certificate of compliance for:

1. Austenitic stainless steel
2. Acrylic polyurethane
3. Anchor bonding material

75-9.01C(4) Shop Drawings

Submit shop drawings for the following:

1. Stainless steel finial
2. Stainless steel railing

75-9.01C(5) Samples

Submit the following:

1. A 6-inches by 6-inches by 3/8-inches thick finished stainless steel plate with application of satin finish acrylic polyurethane clear coat.
2. Full-sized finished finial.
3. An 8-feet long finished section of railing.

Label 6-inches by 6-inches steel plate, finial, and railing samples with the following:

1. Manufacturer's name
2. Name and identification number of steel plate, finial, and railing
3. Name and identification number of acrylic polyurethane clear coat
4. Contract number, EA 04-4A4414

75-9.01C(6) 3D PDF

Submit within 40 days of constructing finial and railing an electronic 3D PDF file of complete finial and 6-foot segment of railing that includes at least one post. Provide the following information with the 3D PDF file:

1. Project number, EA 04-4A4414
2. Contractor's Name
3. Date of 3D PDF

75-9.01D Quality Assurance

75-9.01D(1) General

Not Used

75-9.01D(2) Quality Control

75-9.01D(2)(a) General

The Engineer may inspect finials and railings at the fabrication plant or the job site. The Engineer rejects finials and railings fabricated incorrectly. The Engineer will reject finials and railings that are damaged or defective before or after installation.

Manufacture one finial and one railing. Do not apply acrylic polyurethane coating to the manufactured finial and railing until authorized. Coated acrylic polyurethane finial and railing must be authorized before installation at the job site.

Satin finish acrylic polyurethane coatings must be same quality of durable commercial quality new automobile body finishes.

Immediately after fabrication of finials and railings, wrap each item in protective plastic bubble wrap and protect against damage during handling and delivery.

75-9.02 Materials

75-6.02A General

Stainless steel must be austenitic stainless steel composed of a maximum of 0.15% carbon and a minimum of 16% chromium.

75-9.02B Finials and Railings

Stainless steel finials and railings must be fabricated as shown.

All corners and edges are to be eased and ground smooth with no sharp points or edges.

Finials and railings must be uniformly smooth throughout all surfaces with no pits, bulges, scratches, divots, patch marks, burrs, or discoloration. Finish must be natural satin, hand-polished faces, bead-blasted returns.

Spray coat surfaces with a 2-part hardened satin finish acrylic polyurethane clear coat, lead and mercury-free.

Acrylic polyurethane finish must adhere permanently to stainless steel surface without bubbling, cracking, peeling, flaking. Finish must be UV protected and not yellow in exterior exposures.

75-9.02C Adhesives

Chemical adhesives for bonding dowels must be on the Authorized Material List for chemical adhesive/cartridge epoxies. The chemical adhesive must be appropriate for the installation conditions.

75-9.03 Construction

Comply with section 75 for miscellaneous metals.

Finial must be a smooth curve without angular bends.

Railings must be continuous curved shape as shown without abrupt changes or angles in vertical alignment.

Apply waterproof non-shrinking grout to anchor holes in barriers and corbels before inserting stainless steel. Attach finials and railings as shown and manufacturer's instructions.

75-9.05 Payment

Not Used

AA

77 LOCAL INFRASTRUCTURE

[Replace section 77-1 with:](#)

77-1 LIGHTING (CITY STREET)

77-1.01 GENERAL

Section 77-1 includes specifications for lighting (City Street).

Lighting system for City Street includes removing, adjusting, or adding:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Standards
6. Luminaires
7. Service equipment enclosure
8. Photoelectric control
9. Fuse splice connectors

77-1.02 MATERIALS

The electrical materials must comply with City of Vallejo Standard Specifications, section 86 and these special provisions.

Barrier mounted luminaire must be BEGA 15W LED recessed wall luminaire, and model number is 33058-K4-COL or approved equal.

Soffit light must be Gardco 22W LED junction box mounted luminaire, and model number is SVPG-140L-450-NW-G2-SBO-5-UNV-COL or approved equal.

Decorative street light must be KW 16' round non-tapered steel pole with Gardco 95W LED luminaire, model number are KW-RSP16-4.0-11-COL-DM2180-BC and SFRA-140L-2100-NW-G2-AR-5-UNV-COL or approved equal.

City standard cobra head luminaire must be Leotek 54W LED luminaire, and model number is GCJ3-30J-MV-40K-3R-GY-080-PCR7-CR-RWG or approved equal.

77-1.03 CONSTRUCTION

Install electrical material under City of Vallejo Standard Specifications, section 87 and these special provisions.

Install NEMA outdoor rated junction box for soffit light per manufacturer recommendation.

77-1.04 PAYMENT

[Not Used](#)

77-2 SIGNAL AND LIGHTING (CITY)

77-2.01 GENERAL

Section 77-2 includes specifications for signal and lighting (City).

Signal and lighting (City) includes:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Cables
6. Standards
7. Signal heads
8. Internally illuminated street name signs

9. Service equipment enclosure
10. Controller assembly
11. Detectors
12. Accessible pedestrian signals (2-wire)
13. Push button assemblies
14. Pedestrian signal heads
15. Luminaires
16. Photoelectric control
17. Fuse splice connectors
18. Battery backup system
19. Global positioning emergency vehicle detection system.

See Appendix A Section 7 for City of Vallejo Traffic Signal Specifications.

77-2.02 MATERIALS

The electrical materials must comply with City of Vallejo Standard Specifications, section 86 and these special provisions.

77-2.03 CONSTRUCTION

Install electrical material under City of Vallejo Standard Specifications, section 87 and these special provisions.

77-2.04 PAYMENT

[Not Used](#)

77-3 INTERCONNECTION CONDUIT AND CABLE (CITY)

77-3.01 GENERAL

Section 77-3 includes specifications for interconnection conduit and cable (City).

Interconnection conduit and cable (City) includes removing, adjusting, or adding:

1. Pull boxes
2. Conduit
3. Cables

77-3.02 MATERIALS

The electrical materials must comply with City of Vallejo Standard Specifications, section 86 and these special provisions.

The SIC must be specified as BSCC-HDPE-12P 20 AWG-300V-60C, has 12 pairs of #20, stranded, tinned, copper conductors. Alternative must be Rural Electrical (REA) PE-22. In either case, both types must meet the Caltrans standard specification for interconnect cable. Each pair has a conductor insulated in black. The other conductor is insulated in color; a different color for each pair. Each pair is shielded and individually wrapped such that the shields are insulated from one another.

77-3.03 CONSTRUCTION

Install electrical material under City of Vallejo Standard Specifications, section 87 and these special provisions.

Throughout the cable plant the Contractor must be required to pull and store excess cable slack at designated intervals. These intervals must be each communication pull box, and each hub or controller. Six feet of slack must be stored at each pull box and 20 feet of slack at main pull box adjacent to each hub or controller cabinet.

Signal interconnect cable (SIC) must be secured to the frame of the controller cabinet. Terminate SIC cable on terminal strip. Install a patch cable between the terminal strip and the lightning protection, and between the lightning protection and the modem. Crimp and solder all SIC and patch cable lugs. The cable must be taped where the sheathing ends.

New SIC conductors may be pulled in without removing the existing SIC when the conduit only contains SIC cable.

At the controller cabinet blue-black and red-black are the pairs being used. The other pairs will be spare and tie wrapped accordingly for future use. The end of each wire is stripped, lugged, crimped and soldered with 60/40 rosin core solder, heated with no flame source. Each lug is then screwed to the terminal strip. The two shield wires are soldered together and earth grounded at one end of the cable only. The end closes to the hub.

77-3.04 PAYMENT

[Not Used](#)

77-4 ELECTRIC SERVICE FOR IRRIGATION (CITY)

77-4.01 GENERAL

Section 77-4 includes specifications for electric service for irrigation (City).

Electric service for irrigation system (City) includes removing, adjusting, or adding:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Service equipment enclosure

77-4.02 MATERIALS

The electrical materials must comply with City of Vallejo Standard Specifications, section 86 and these special provisions.

77-4.03 CONSTRUCTION

Install electrical material under City of Vallejo Standard Specifications, section 87 and these special provisions.

77-4.04 PAYMENT

[Not Used](#)

77-5 MODIFYING SIGNAL AND LIGHTING (CITY)

77-5.01 GENERAL

Section 77-5 includes specifications for modifying signal and lighting (City).

Signal and lighting (City) includes removing, adjusting, or adding:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Cables
6. Standards
7. Signal heads
8. Internally illuminated street name signs
9. Pedestrian barricade
10. Controller assembly
11. Detectors
12. Accessible pedestrian signals (2-wire)
13. Push button assemblies
14. Pedestrian signal heads
15. Luminaires
16. Photoelectric control

17. Fuse splice connectors
18. Emergency vehicle detection system

77-5.02 MATERIALS

The electrical materials must comply with City of Vallejo Standard Specifications, section 86 and these special provisions.

77-5.03 CONSTRUCTION

Install electrical material under City of Vallejo Standard Specifications, section 87 and these special provisions.

77-5.04 PAYMENT

[Not Used](#)

77-6 EMERGENCY VEHICLE DETECTION SYSTEM (CITY)

77-6.01 GENERAL

77-6.01A Summary

Section 77-6 includes specifications for constructing emergency vehicle detection system (City).

The emergency vehicle detection system (City) includes of an optical emitter assembly and optical detector assemblies located at the traffic signal.

The components of an emergency vehicle detection system (City) are shown on the project plans.

77-6.01B Definitions

[Not Used](#)

77-6.01C Submittals

Submit manufacturer's documentation and test data showing compliance with the QA requirements.

77-6.01D Quality Assurance

77-6.01D(1) General

The emergency vehicle detection system's optical detector assembly must detect a Class I signal at ranges of up to 1,000 feet from the optical detector and a Class II signal at ranges up to 1,800 feet from the optical detector.

77-6.01D(2) Quality Control

Perform range tests between the optical emitter and the optical 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 Model 170E/2070L controller unit during each on interval and no improper operation of either the controller unit or the monitor during each off interval.

77-6.02 MATERIALS

77-6.02A General

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

77-6.02B 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 one 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 one modulation frequency at a time, either for Class I or Class II signal.

77-6.02C Optical Detector Assemblies

77-6.02C(1) General

An optical detector assembly includes detector units, cables, and discriminator modules.

77-6.02C(2) Detector Units

The detector unit 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. A cable entrance must be provided which must have male threads and gaskets to allow a waterproof cable connection.

77-6.02D(3) 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, a no. 20 stranded tinned bare drain wire must be provided.

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.

77-6.02D(4) Discriminator Modules

The discriminator module must be compatible with a Department-furnished Model 170E/2070L 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.

- Prevent transients received by the optical detector from affecting the Model 170E/2070L controller assembly.
- 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.
- Provide an output for each channel that will result in a low or grounded condition of the appropriate input of a Model 170E/2070L controller unit. For Class I, the output must be a 6.25 Hz \pm 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	Pin	Assignment
A	DC ground	-	--
B	+24 V(dc)	P ^c	--
C ^c	--	-	--
D	Detector input, Channel A	R ^c	--
E	+24 V(dc) to detectors	S ^c	--
F	Channel A output ^a	T ^c	--
-	--	U ^c	--
H	Channel A output ^b	V ^c	--
J	Detector input, Channel B	W	Channel B output ^a
K	DC ground to detectors	X	Channel B output ^b
L	Chassis ground	Y ^c	--
M	AC-	Z ^c	--
N	AC+	--	--

^aOpto-isolated collector, slotted for keying

^bOpto-isolated emitter, slotted for keying

^cNot 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:

- Auxiliary detector 1 input, Channel A
- Auxiliary detector 2 input, Channel A
- Auxiliary detector 1 input, Channel B
- 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 Model 170E/2070L controller unit inputs.

The front panel of the module must have:

- A handle to facilitate withdrawal
- A control to set 3 separate range adjustments for each class
- A control to trigger a test signal for each class
- 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:

- 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

77-6.03 CONSTRUCTION

77-6.03A General

Provide an optical emitter assembly for testing the system.

Perform the system tests in the presence of the Engineer.

77-6.03B Optical Detector Assemblies

Install the detector units on the signal mast arms.

Aim each optical detector under the manufacturer's instructions.

Install cables 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

77-6.04 PAYMENT

[Not Used](#)

77-7 TEMPORARY LIGHTING (CITY STREET)

77-7.01 GENERAL

Section 77-7 includes specifications for temporary lighting (City Street).

77-7.02 MATERIALS

The electrical materials must comply with section 77-1.

A temporary lighting (City Street) consists of lighting systems in City street, a power source and wood poles.

77-7.03 CONSTRUCTION

The system must comply with the specifications for lighting (City street) in section 77-1, except the equipment may be mounted on a wood pole.

77-7.04 PAYMENT

[Not Used](#)

77-8 TEMPORARY SIGNAL AND LIGHTING (CITY)

77-8.01 GENERAL

Section 77-8 includes specifications for temporary signal and lighting (City).

77-8.02 MATERIALS

The electrical materials must comply with section 77-2.

A temporary signal and lighting (City) consists of signal and lighting systems in City intersections, a power source and wood poles.

77-8.03 CONSTRUCTION

The system must comply with the specifications for signal and lighting (City) in section 77-2, except the signal heads may be mounted on a wood pole, mast arm, tether wire or trailer.

77-8.04 PAYMENT

[Not Used](#)

77-9 TEMPORARY INTERCONNECT CONDUIT AND CABLE (CITY)

77-9.01 GENERAL

Section 77-9 includes specifications for temporary interconnect conduit and cable (City).

77-9.02 MATERIALS

The electrical materials must comply with section 77-3.

A temporary interconnect conduit and cable (City) consists of interconnect conduit and cable systems in City street and wood poles.

77-9.03 CONSTRUCTION

The system must comply with the specifications for interconnect conduit and cable (City) in section 77-3, except the equipment may be mounted on a wood pole.

77-9.04 PAYMENT

[Not Used](#)

77-10 CORBEL

77-10.00 CORBEL

77-10.01 General

77-10.01A Summary

[Section 77-10 includes specifications for providing and installing concrete corbels in local infrastructure.](#)

[Earthwork must comply with section 19-3.](#)

[Reinforcement must comply with section 52.](#)

77-10.01B Definitions

[Not Used](#)

77-10.01C Submittals

77-10.01C(1) Manufacturer's Name, Product Information, and Installation Instructions

[Submit manufacturer's name and product information and installation instructions for concrete veneer and integral color of veneer. Submit within 60 days of award of contract.](#)

77-10.01C(2) Work Plan

Submit a work plan within 30 days before the start of job activities for construction of the corbels. The work plan must have a detailed description of the following work activities:

1. Mixing, delivery, placement, finishing, and curing of colored concrete spray-on veneer.
2. Methods to protect the corbel during construction of median barrier, stainless steel finial and stainless steel railing.
3. Repair of damaged areas.

77-10.01C(3) Certificate of Compliance

Submit certificate of compliance for:

1. Reinforcing steel
2. Color pigment and admixtures.
3. Form liner release agents

77-10.01C(4) Shop Drawings

Submit shop drawings for the corbel.

77-10.01C(5) Samples

Submit the following:

1. Color chip used for spray on veneer required for the corbels.

Label samples with the following:

1. Manufacturer's name
3. Name and identification number of color chip for spray on concrete veneer.
4. Contract number, EA 04-4A4414

77-10.01C(6) 3D PDF

Submit within 40 days of constructing concrete corbel, an electronic 3D PDF file of complete concrete corbel. The 3D PDF file must show full corbel with Type C formed light sandblast finish and Type E formed vertical groove finish. Provide the following information with the 3D PDF file:

1. Project number, EA 04-4A4414
2. Contractor's Name
3. Date of 3D PDF

77-10.01D Quality Assurance

77-10.01D(1) General

Not Used

77-10.01D(2) Test Panels

Upon acceptance of 3D PDF file, prepare one test panel for colored concrete surface texture for corbels as shown. Comply with section 51-1.01D(2)(c).

Cementitious materials, aggregates, and color pigments from the same sources used in the authorized test panel must be used for the concrete corbel and spray-on colored concrete veneer in the completed work.

Label each test panel with:

1. Name and serial number of test panel
2. Date of fabrication
3. Manufacturer's name and serial number of concrete corbel.
4. Manufacturer's name and serial number of color for spray-on concrete veneer.
5. Contract number EA 04-4A4414

Spray-on colored veneer of the authorized test panel complying with section 51-1.01D(2)(c).

The test panel must be:

1. Veneered using the same personnel, materials, equipment, and methods to be used in the work
2. Accessible for viewing
3. Displayed in an upright position near the work
4. Authorized for veneer before starting the spray-on concrete veneer work

If ordered, construct additional test panels until a satisfactory texture surface and veneer color are attained.

The Engineer uses the authorized test panel to determine the acceptability of the textured and colored concrete surfaces.

Finished applications on samples must have uniform, dense and even veneer coloration, free of gray concrete showing through and free of mottling, skips, drips, pits, bubbles and peeling. Surface must be free of efflorescence and powdering.

Dispose of the test panels when authorized.

77-10.01D(3) Corbel

The Engineer may inspect corbel at the fabrication plant or the job site. The Engineer rejects corbels that are fabricated incorrectly. The Engineer will reject damaged corbels before or after installation.

Manufacture one corbel. Do not apply spray on colored veneer until authorized. Veneered corbel must be authorized before installation the remaining three corbels.

Immediately after fabrication of corbel wrap each corbel in protective wrap and protect against damage during construction of adjacent structures.

77-10.02 Materials

77-10.02A General

Not Used

77-10.02B Concrete

77-10.02B(1) General

Construct corbels using minor concrete. Comply with sections 90-2. Aggregate for concrete must comply with the gradation requirements for fine aggregate.

77-10.02D Concrete Veneer

Concrete veneer color is a custom formula and must match Desert Sand color chip provided by Engineer.

Veneer is an opaque emulsion of Portland Cement, quartz, titanium dioxide, iron oxides and bonding agents.

77-10.03 Construction

Comply with section 51 for minor colored concrete structures and concrete surface finish and textures.

Form liner pattern must be a smooth curve without angular bends.

Horizontal joints in form liner pattern are not allowed.

Apply waterproof non-shrinking grout to formed hole in corbel before inserting stainless steel finial and railing anchors. Grout must not be visible on the surface of finished corbel or median barrier. Top of grout in formed anchor holes must be 0.50-inches below top of finish grade of spray on concrete veneer. Touch up spray-on concrete veneer must cover tops of grout holes and grout. Finish grade of veneer at grout holes must match finish grade of veneer on adjacent surfaces for a smooth and even veneered surface throughout top of corbels and top of median barriers.

Apply concrete veneer according to manufacturer's instructions. Finished applications of veneer must have uniform, dense and even veneer coloration, free of gray concrete showing through and free of mottling, skips, drips, pits, bubbles and peeling. Surface must be free of efflorescence and powdering.

[Do not sand blast concrete surfaces.](#)

[Apply anti-graffiti coating complying with section 78-4.06 and manufacturer's instructions. Finish must be smooth and uniform and without discoloring concrete.](#)

77-10.04 Payment

[Not Used](#)

AA

80 FENCES

Replace section 80-2.02A with:

80-2.02A General

Posts must be [metal](#).

AA

DIVISION IX TRAFFIC CONTROL DEVICES

81 MISCELLANEOUS TRAFFIC CONTROL DEVICES

AA

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 $2 \pm 1/2$ 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

The concrete color must match color no. [35193 of AMS-STD-595](#).

The coloring agent must be integral to the concrete mix and added at the concrete plant.

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.

Electrical work must comply with part 4 of the *California MUTCD* and 8 CA Code of Regs, chapter 4, subchapter 5, "Electrical Safety Orders."

Add to the list in the 2nd paragraph of section 86-1.02C(1):

15. [CITY OF VALLEJO on pull box covers for city electrical systems](#)

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 3rd paragraph of section 86-1.02G of the RSS for 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 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 16th 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)

1. The Engineer
2. Department's Electrical and Signal Maintenance Superintendent at (415) 330-6500

Add between the 22nd and 23rd paragraphs of section 87-1.03A:

Where a Type A 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 conduit for underground installation.

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 [Fairground Drive](#) and [Route 37 Eastbound On and Off ramps](#)
2. Intersection of [Fairground Drive](#) and [Route 37 Westbound On and Off ramps](#)
3. [Intersection of Fairground Drive and Sage Street](#)
4. [Intersection of Fairground Drive and Northern Six Flags Exit](#)

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* <[Fairground Drive](#)>. *Wait.*
2. [During the pedestrian clearance interval, the message heard must be *Wait to Cross* <Sage Street>. *Wait.*](#)
3. [During the pedestrian clearance interval, the message heard must be *Wait to Cross* < Northern Six Flags Exit >. *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 1st and 2nd sentences in the 2nd paragraph of section 87-1.03V(2):

Saw the slots to allow a minimum of 2 inches of sealant above the top of the uppermost loop wire in the slot.

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](#)

Replace section 87-9 with:

87-9 GLOBAL POSITIONING EMERGENCY VEHICLE DETECTION SYSTEM

87-9.01 GENERAL

87-9.01A Summary

Section 87-9 includes specifications for constructing global positioning emergency vehicle detection system.

Global positioning emergency vehicle detection system includes:

1. Conductors
2. Cables
3. GPEVD receiver
4. GPEVD emitter
5. GPEVD phase discriminator
6. GPEVD software

The components of a global positioning emergency vehicle detection system are shown on the project plans.

87-9.01B Definitions

GPEVD: Global positioning emergency vehicle detection.

GIS: Geographical information system.

GPS: Global Positioning System.

GPEVDS: A matched system of emergency response vehicle equipment and intersection equipment that utilizes data encoded radio communication to identify the presence of the emergency vehicles, to advance to and/or hold a desired traffic signal display selected from phases normally available.

GPEVD emitter: GPS based equipment installed at the emergency response vehicles that transmits a priority request to equipped intersections when passing through a pre-defined zone.

GPEVD receiver: GPS based radios installed at an intersection that communicates with emergency response vehicles' GPEVD emitter and process data to GPEVD phase discriminator.

GPEVD phase discriminator: The phase discriminator, with phase selector card, is GPEVD equipment located inside the Model 332L controller cabinet to process the vehicle data to the Model 2070E controller unit to request priority for the approaching emergency response vehicle.

87-9.01C Submittals

Submit a certificate of compliance and test data for the global positioning emergency vehicle detection system.

Provide ten GPEVDS operations and maintenance manuals. The manuals must include:

1. Comprehensive system overview
2. Theory of operation
3. Preemption system sequence of operation
4. Preventive maintenance procedures

5. Diagnostic and troubleshooting procedures
6. Corrective maintenance and repair procedures
7. Data retrieval and data query at the controller
8. Parts lists with catalogue numbers

Submit on a CD-ROM the software that interfaces with the GPEVD phase discriminator.

Submit two copies of diagnostic software.

87-9.01D Quality Assurance

The GPEVDS must communicate with the emergency response vehicles and other intersection radios at distances up to 2,500 feet with no obstructed direct line of site, unless defined otherwise.

The GPEVDS must be fully compatible with the Department furnished Model 2070E controller unit and must not compromise normal operation and safety provisions.

The GPEVDS must comply with Part 90 of FCC rules, and as follows:

1. These devices must not cause harmful interference
2. GPEVD emitter and receiver frequencies must not require FCC licensing
3. Systems must be installed in compliance with local authorities having jurisdiction

87-9.02 MATERIALS

87-9.02A General

The GPEVDS must be one of the following, or an approved equal:

1. IntelliCon System manufactured by EVIEWS Safety Systems, Inc., 3000 NE 30th Place Suite 300, Fort Lauderdale, FL 33306, telephone (954) 523-4095.
2. EMTRAC Systems manufactured by KM Enterprise, 320 South 11th Street, Mt. Vernon, IL 62864, telephone (618) 242-2678.
3. Opticom GPS System manufactured by Global Traffic Technologies LLC., 7800 Third Street North, St. Paul, MN 55128-5441, telephone (800) 258-4610.

87-9.02B GPEVD Receiver

The GPEVD receiver must be waterproof and include a GPS antenna within the module. The receivers must:

1. Fully communicate with the emergency response vehicles emitter.
2. Detect the signal from emitter either at a distance of up to 2,500 feet or at a pre-programmed distance.
3. Communicate emitter signal with other intersections radio at a distance of up to 2,500 feet or at a pre-programmed distance.

87-9.02C GPEVD Emitter

The GPEVD emitter must include a GPS antenna. The emitter 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 one direction.
3. Have hardware to allow mounting on various types of vehicles.
4. Have means for aligning and locking into position.
5. Have light to indicate whether the emitter is energized.

87-9.02D GPEVD Phase Discriminator

The GPEVD phase discriminator must:

1. Transmit an emergency priority request to the Model 2070E controller unit for the approaching emergency response vehicle.
2. Process the emergency response vehicle request for preemption only when all of the following is true:
 - 2.1. The vehicle is in a predefined approach corridor.

- 2.2. The vehicle is heading toward the intersection.
- 2.3. The vehicle radio and GPEVD emitter is requesting priority.
- 2.4. The vehicle's turn signal status is not to turn away from approaching traffic signal.
- 2.5. The vehicle IDs is verified against a list or a range of valid preprogrammed IDs.
3. Operate on a first-come, first-served basis for emergency vehicles.
4. Not override rail priority requests from Train or Light rail.
5. Be fully compatible and usable with a 2070E controller unit and to be mounted in the input file of a Model 332L controller cabinet.
6. Conform to the TEES, Chapter 1.
7. Be capable of operating 2 channels, each of which must provide an independent output for each separate input.
8. Receive electric power from the controller cabinet at either 24 V(dc) or 120 V(ac).
9. Prevent transients received by the GPEVD receiver from affecting the Model 2070E controller assembly.
10. Record each preemption request as a separate event.
11. Have the capability of storing a log of 200 to 1000 of the most recent events. When the log is full, the GPEVD phase discriminator will drop the oldest entry to accommodate a new entry.
12. Store the records in non-volatile memory which retains the record if power terminates.
13. Allow user to download preemption data at the signal cabinet using either a direct connection via the computer's communication (COM) port, EIA 232 interface port, or a modem for remotely retrieving data.
14. Be fully compatible with GPS and IR technologies.
15. Record final greens at the end of call, duration of final greens, time call ended.

87-9.02E GPEVD Cables

The connecting cables must meet manufacturer specifications and the following:

1. Requirements of APCEA-S-61-402/NEMA WC 5, Section 7.4, 600-V(ac) control cable, 167 °F, Type B.
2. Conductors must have a minimum average insulation thickness of 35 mils. Insulation of individual conductors must be color coded.
3. Shield must be tinned copper braid with a nominal 20 percent overlap.
4. Jacket must be black polycarbonate thermoplastic with minimum ratings of 600 V(ac) and 75 °C with a minimum average thickness of 43 mils. The jacket must be marked as required by IPCEA/NEMA.
5. No splices in the cable run between GPEVD receiver and the controller cabinet are allowed.

87-9.02F GPEVDS Software

Program the traffic signal controller located at:

1. Intersection of [Fairgrounds Drive](#) and [Route 37 Eastbound On and Off Ramps](#)
2. Intersection of [Fairgrounds Drive](#) and [Sage Street](#)

The GPEVDS software must:

1. Allow user to set up user defined system parameters, acceptable distance to process the signal received from emergency response vehicle, configure approach maps, record and view emergency vehicle activities, and conduct system health check
2. Run on most IBM™-compatible computers equipped with at least 64MB RAM, Windows™, 10, 8, 7, Vista or XP (D02), color VGA display capability, and Internet Explorer™ 5.5 or higher
3. Accommodate operation via a mouse or via the keyboard, or in combination
4. Accommodate resetting and/or retrieving logged preempt records from phase discriminator, viewing activity screens, displaying and/or downloading records
5. Allow user, using an IBM PC-compatible computer and the system interface software, to download records and retrieve data stored of previous activities showing:
 - 5.1. Emitter ID number, vehicle classification, emergency code, agency ID
 - 5.2. Date and time of preemption/priority, direction or approach channel, duration of request
 - 5.3. Final greens at end of call, duration of final greens, time call ended in real time plus maximum signal intensity
 - 5.4. Vehicle location information

- 5.5. Signal strength, serial number, and radio channel
- 5.6. Priority output and preemption status
6. Provide real-time activity screen that will display the information about tracked vehicles, distance, heading and velocity of vehicles in approach corridor, source of the call vehicle or intersection
7. Show location of all in-range vehicles in real-time on a GIS map
8. Create preemption zones directly on a GIS map

87-9.03 CONSTRUCTION

87-9.03A General

Provide a GPEVD emitter for testing the system. Install GPEVD receiver in unobstructed direct line-of-sight per the manufacturer's recommendation for horizontal and vertical cone of vision for GPEVD phase discriminator and emitter.

Program the GPEVD phase discriminator with authorized emergency response vehicle identification(s) at the signal location.

Connect and terminate wiring of GPEVDS inside the Department furnished Model 332L controller cabinet. The Model 332L controller cabinet is wired to allow GPEVDS per the following details:

1. Slots 12 and 13 of input file "J" have each been wired to accept a 2-channel module.
2. Field wiring for the primary detectors, except 24 V (dc) power, terminates on either terminal board TB-9 in the controller cabinet or on the rear of input file "J". Where TB-9 is used, position assignments are as follows:

Position	Assignment
4	Channel A detector input, 1st module (Slot J-12)
5	Channel B detector input, 1st module (Slot J-12)
7	Channel A detector input, 2nd module (Slot J-13)
8	Channel B detector input, 2nd module (Slot J-13)

The 24 V (dc) cabinet power is available at Position 1 of terminal board T-3 in the controller cabinet.

87-9.03B GPEVDS Testing

Notify the Engineer a minimum 15 working days prior to testing. Provide all test data results for review before final approval.

Perform the following tests in the presence of the Engineer:

1. Test preemption system between emergency response vehicle and the traffic signal location with a distance of up to 2500'.
2. The GPEVDS used for testing must consist of a GPEVD emitter, receiver, cables and discriminator module.
3. Conduct tests for a period of one hour, during which the emitter must be operated for 30 cycles, each consisting of a one minute "on" interval and a one minute "off" interval. During the total test period the emitter signal must cause the proper response from the Model 2070E controller unit during each "on" interval and there must be no improper operation of either the Model 2070E controller unit or the monitor during each "off" interval
4. There must be at least ten attempted activations of the preemption system utilizing 10 different unauthorized ID codes to verify that the identification feature has been activated and is screening the preemption requests. If any of the unauthorized ID code preemption requests is granted, the error must be corrected and a new set of ten unauthorized ID coded attempts must be made

87-9.03C Training

Arrange for certified manufacturer's representative(s) to provide training and notify the Engineer a minimum of 15 working days prior to training. The time and location of each training session must be agreed upon by you and the Engineer. If no agreement can be reached, the Engineer will determine the time and location.

Provide a minimum of 16 hours of training for GPEVDS for up to 25 department and local agency staff.

Training must include both classroom and on-the-job (hands-on) instruction on installation, service and operation of the GPEVDS, and cover the following:

1. Operating procedures and system overview
2. Diagnostic, service, preventive maintenance and repair procedures
3. Download records, data retrieval, and data query at the controller of activity showing class, code, priority, direction, call duration, final greens at end of call, duration of final greens, time call ended in real time plus maximum signal intensity (vehicle location information)
4. How to align, program, adjust, calibrate and maintain the system

87-9.04 PAYMENT

Not Used

Replace section 87-15 with:

87-15 CELLULAR DATA MODEM WIRELESS ASSEMBLY

87-15.01 GENERAL

87-15.01A Summary

Section 87-15 includes specifications for installing cellular data modem (CDM) wireless assembly.

87-15.01B Definitions

Not Used

87-15.01C Submittals

87-15.01C(1) General

Not Used

87-15.01C(2) Manuals

Submit 2 copies of the operations and maintenance manual to the Engineer.

The manual must include:

1. General:
 - 1.1. Overall description of the equipment design features (including any modification if applicable), performance, and applications
 - 1.2. Equipment specifications summary
 - 1.3. Equipment installation instructions
2. Operations:
 - 2.1. Configuration detail step instructions
 - 2.2. Operation of the cellular data wireless assembly
3. Service and Maintenance:
 - 3.1. Recommended test operational performance
 - 3.2. Trouble shooting information, resetting instructions

87-15.01C(3) Warranty

Submit a 5-year manufacturer's replacement warranty against defects in materials and workmanship of the cellular data modem wireless assembly.

The 5-year warranty period starts at Contract acceptance. The manufacturer must replace or repair any modem and power supply that exhibits failure due to workmanship or material defects within 60 months of acceptance of the installation of the cellular data wireless assembly. Provide replacement within 7 days after receipt of failed parts at your expense. The Department will pay for shipping of the failed parts. Replacement of failed parts must be delivered to:

CALTRANS MAINTENANCE ELECTRICAL SHOP
30 RICKARD STREET
SAN FRANCISCO CA 94134
(415) 330-6500

87-15.01D Quality Assurance

87-15.01D(1) General

Not Used

87-15.01D(2) Testing

The cellular data wireless assembly will be inspected and tested by the Engineer. The Department may reject any unit, which is not in compliance with the specifications.

The CDM assembly must comply with Federal Communications Commission (FCC) Title 47, Subpart B, section 15 regulations concerning the emission of electronic noise.

87-15.02 MATERIALS

87-15.02A General

The cellular data wireless assembly must include a modem with DIN-rail mountable hardware, an antenna, a category 5E patch cable, and a DIN-rail mountable power supply.

The cellular data wireless assembly must operate at a frequency of 60 \pm 3 Hz. Voltage fluctuation ranging from 90 to 135 V(ac). The rated voltage for measurements must be 120 V(ac).

87-15.02B Modem

The modem must comply with minimum requirements shown in the following table:

Quality characteristic	Requirement
Wireless communications	3G/4G/LTE-Advanced Pro include band 14 and FirstNet Ready
SIM slots	Single SIM slot accessible through the front panel door cover
Carrier selection	SIM-based auto-carrier selection
Support MQTT Protocol	--
Cellular antenna connectors	Two SMA female connectors, Main and AUX
GPS antenna connector	One active SMA female GPS connector
Input voltage (V(dc))	9 — 33
Power consumption (W)	Maximum 10
Operating temperature (°F)	-22 — 158
LED indicators	Power, GPS, integrated modem (connection status), signal strength
Network port	Four LAN/WAN switchable 10/100/1000 Ethernet ports
Management and support	24 x 7 support included

Modem must provide fast 600 Mbps downlink and 150 Mbps uplink speeds over LTE-Advanced Pro and 1.3 Gbps over 802.11ac Wi-Fi and Gigabit 4-port Ethernet. The modem must support 26 LTE frequency bands, including band 14 for Public Safety. The modem must support MQTT (MQ Telemetry Transport) v5.0 protocol, which allows one-to-one, many-to-one or one-to-many communication patterns.

Submit the modem to the Engineer. Allow 14 days for activation and configuration by the Department. Once the modem has been activated and configured, it will be returned for installation prior to testing.

The modem must be configurable remotely through the cellular data network or locally through modem Ethernet port.

87-15.02C Power Supply

87-15.02C(1) General

The power supply must have the following electrical characteristics:

Quality characteristic	Requirement
Power rating (W)	40 Min
Input voltage (V(ac))	120
Output voltage (V(ac))	10 — 30
Output current (A)	2
Surge protected/Isolation	--

The power supply must be DIN-rail mountable and both input and output terminals must be the screw type.

87-15.02C(2) Antenna

The antenna must be a multiple-band diversity/multiple-input and multiple-output (MIMO) antenna of a low-profile design with integrated ground plane for outdoor permanent mount using threaded bolt on a metallic structure and compatible with 4G/LTE communications.

The antenna housing must include three 4-foot antenna cables, 1 antenna assembly, 2 separate antennas for LTE/cellular, and 1 antenna for GPS.

87-15.03 CONSTRUCTION

Before permanently installing the modem and antenna, verify location signal strength meets manufacturer's requirements.

The complete and functional cellular data wireless assembly must be installed as shown and must comply with section 87.

Mount the modem and power supply on cabinet DIN-rail mounting bracket.

Mount the antenna to the top of the cabinet using threaded bolt. Route and secure the antenna cables with cable ties to avoid interfere with the fan assembly and other cabinet equipment.

Demonstrate that the modem is connected to the cellular data carrier's network and the LED indicators show a signal. Complete and submit to the Engineer a copy of documentation form for each modem certifying that the modem is fully functional on the date specified.

87-15.04 PAYMENT

Not Used

Add to section 87-20.02 of the RSS [for section 87-20](#):

87-20.02D Temporary Traffic Monitoring Station Systems

[A temporary traffic monitoring station system consists of a traffic monitoring station system, a power source and wood poles.](#)

[System must comply with the specifications for a traffic monitoring station system in section 87-6, except it may use wood poles.](#)

Add to section 87-20.02 of the RSS [for section 87-20](#):

87-20.02E Temporary Changeable Message Sign Systems

[A temporary changeable message sign system consists of a changeable message sign system, a power source and wood poles.](#)

[System must comply with the specifications for a changeable message sign system in section 87-12, except it may use wood poles and wood platform for controller assembly foundation.](#)

Replace section 87-20.02J of the RSS for section 87-20 with:

87-20.02J Temporary Signal Systems

87-20.02J(1) General

Section 87-20.02J includes specification for constructing temporary signal system.

The system must comply with the specifications for signal and lighting systems in section 87-4, except signal heads may be mounted on a wood pole, mast arm, or tether wire.

Temporary signal systems include providing, maintaining, adjusting, and removing:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Cables
6. Wood poles
7. Signal heads
8. Detectors
9. Video detection [assembly](#)
12. Luminaires
13. Department-furnished controller assembly
14. Service equipment enclosure

The components of a temporary signal system are shown on the project plans.

87-20.02J(2) MATERIALS

87-20.02J(2)(a) General

Not Used

87-20.02J(2)(b) Video Detection Assembly

87-20.02J(2)(b)(i) General

The VDA includes, video image detection sensors, video image detection processors, video image detection cables.

Detection zones must be created with a graphic user interface that allows setup, configuration, and calibration of lanes.

All components installed outside the cabinet must be corrosion resistant, weatherproof, and watertight. Exposed cables must be sunlight and weather resistant.

VDA must detect the presence of vehicles under all types of adverse weather and environmental conditions, including snow, hail, fog, dirt, dust or contaminant buildup on the lens or faceplate, minor camera motion due to winds, and vibration. Under low visibility conditions, the VDA must respond by selecting a fail-safe default pattern, placing a constant call mode for all approaches.

Vehicle detection must call service to a phase only if a demand exists and extend green service to the phase until the demand is taken care of or until the flow rates have reduced to levels for phase termination. VDA must detect the presence of vehicular traffic at the detection zone positions and provide the call contact outputs to the Model 2070E controller assembly with the following performance:

Detector Performance

Requirements	Performance during AMBER and RED interval	Performance during GREEN interval
Average response time after vehicle enters 3 feet into detection zone or after exiting 3 feet past detection zone	≤ 1 s	≤ 100 ms
Maximum number of MISSED CALLS in 24-hour duration, where MISSED CALLS are greater than 5 s during AMBER and RED intervals and greater than 1 s during GREEN intervals (upon entering 3 feet of detection zone or after exiting 3 feet past detection zone).	0	10
Maximum number of FALSE CALLS in 24-hour duration (calls greater than 500ms without a vehicle present)	20	20

VDA must operate from 90 to 135 V(ac).

Field terminated circuits must include transient protection as specified in IEEE Standard 587-1980, Category C. Video connections must be isolated from ground.

87-20.02J(2)(b)(ii) Video Detection Sensor

The video detection sensor (VDS) must be housed in an environmentally sealed enclosure that complies with NEMA 4 standards. Enclosure must be watertight and protected from dust. Enclosure must include a thermostat-controlled heater to prevent condensation and to ensure proper lens operation at low temperatures. Adjustable sun shield that diverts water from the camera's field of view must be included. Connectors, cables and wiring must be enclosed and protected from weather. An environmentally sealed connector must be used at the rear plate of the housing to protect from dust and moisture ingress. Wiring to the connector must be sealed with silicone or putty compound.

The VDS must comply with the requirements shown in the following table:

Video Detection Sensor

Quality characteristic	Requirement
Input voltage V(ac)	115 – 230
Operating temperature (°C)	-35 – 74
Operating humidity range (%)	0 – 100

87-20.02J(2)(b)(iii) Video Detection Processors

Video detection processors (VDP) must be capable of being configured using a mouse and video monitor only and be NEMA TS-2 compliant. Hardware or software test switch must be included to allow the user to place either a constant or momentary call for each approach.

The VDP must comply with the requirements shown in the following table:

Video Detection Processor

Quality characteristic	Requirement
Power V(dc)	12 or 24
Detector input/outputs V(dc)	24
Operating temperature (°C)	-37 – 74
Operating humidity (%)	0 – 95

87-20.02J(2)(b)(iv) Video Detection Cable

The video detection cable (VDC) must include conductors for power and video cable. The VDC must comply with the VDA manufacturer's instructions.

87-20.02J(3) CONSTRUCTION**87-20.02J(3)(a) General**

You may splice conductors that run to a terminal compartment or a signal head on a pole to the through conductors of the same phase in a pull box adjacent to the pole. Do not splice conductors or cables except in a pull box or in a NEMA 3R enclosure.

The Department provides the timing for the temporary signal.

Maintain the temporary signal except for the Department-furnished controller assembly.

87-20.02J(3)(b) Video Detection Assembly

The VDA must meet the detection acceptance criterion specified in the table titled "Detector Performance."

Length and width of each detection zone for each lane must be authorized by the Engineer.

87-20.02J(4) PAYMENT

Not Used

Add to the end of section 87-21.03C:

Modifying a traffic monitoring station includes removing, adjusting, or adding:

1. Foundations
2. Pull boxes
3. Conduit
4. Cables
5. Conductors
7. Controller cabinet
8. Detectors
- [8. Department-furnished controller unit](#)
- [9. Cellular data modem](#)

Modifying a changeable message sign system includes removing, adjusting, or adding:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
- [5. Controller cabinet](#)
- [6. Department-furnished wiring harness](#)
- [7. Cellular data modem](#)

Add to the end of section 87-21.03D:

Removing a signal and lighting system includes removing:

1. Foundations
2. Pull boxes
3. Conduit
4. Conductors
5. Cables
6. Standards
7. Signal heads
8. Internally illuminated street name signs
9. Service equipment enclosure
10. Department-furnished controller assembly

- [11.](#) Push button assemblies
- [12.](#) Pedestrian signal heads
- [13.](#) Luminaires
- [14.](#) Photoelectric control
- [15.](#) Battery backup system

ATTACHMENT B – SAMPLE CONTRACT AGREEMENT

**Solano Transportation Authority
Standard Contractor Contract
Project:**



Project Description:

1. This Contract is entered into between the Solano Transportation Authority (STA) and the Contractor named below:
Contractor's Name: _____ Business Form: _____
2. The Term of this Contract is: From date of execution of contract to _____, or earlier terminated or extended by agreement of the Parties.
3. The maximum amount of this Contract is:
4. The CONTRACTOR agrees to comply with the terms and conditions of the following exhibits which are by this reference made a part of this Contract and incorporated as though set forth in full:
 - Exhibit A – Scope of Work and Documents related to Project Description and Contractor's Performance.
 - Exhibit B – Budget Detail and Payment Provisions
 - Exhibit C – General Terms and Conditions
 - Exhibit D – Special Terms and Conditions (Caltrans/State Funds)

IN CONSIDERATION OF THE MUTUAL PROMISES CONTAINED IN THIS CONTRACT,
THE PARTIES HAVE EXECUTED THIS CONTRACT ON THE ____ DAY OF
_____, 20__.

SOLANO TRANSPORTATION AUTHORITY

CONTRACTOR

By: _____
DARYL K. HALLS, Executive Director

By: _____

APPROVED AS TO FORM:

By: _____
MEGAN J. CALLAWAY, STA Legal Counsel

STA Contact Information

Daryl K. Halls, Executive Director
Solano Transportation Authority
423 Main Street
Suisun City, CA 94585

Attn:

Telephone: (707) 424-6075
Fax: (707) 424-6074

Contractor Contact Information

CONTRACT MUST BE EXECUTED BEFORE WORK CAN COMMENCE

EXHIBIT A

SCOPE OF WORK

1. Contractor shall perform those services specified here. Contractor's services are described in various attachments and exhibits, each of which is incorporated into this Contract by this reference which define and describe the Project to be undertaken by Contractor. STA has materially relied upon the representations of Contractor as may have been made in STA's selection of Contractor for this Project. Contractor agrees to perform or secure the performance of all specified services in their entirety within the maximum payment specified. Said Scope of Services comprises, and includes, the following documents:
 - a. STA staff report to the STA Board dated _____ and approved by the STA Board on _____;
 - b. STA'S REQUEST FOR PROPOSAL/QUALIFICATIONS (STA Project No. _____);
 - c. Contractor's written response to the Request for Proposal/Qualifications for the Project dated _____;
 - d. Contractor's Cost Proposal; and, further all statements and representations of Contractor made during their presentation to STA's selection board and to the officers and employees of STA who have participated in the determination to contract with Contractor for this Project. Those documents, presentations and discussions are material representations upon which STA has relied in selecting and contracting with Contractor and shall be utilized in any matter in which interpretation of this Contract is required.

EXHIBIT B

BUDGET DETAIL AND PAYMENT PROVISIONS

A. Compensation. This is a “not to exceed” contract. Contractor shall be paid, as full compensation for the satisfactory completion of the work, in amount not to exceed _____ as set forth on Contractor’s “Cost/Fee Proposal” which includes all applicable surcharges such as taxes, insurance, and fringe benefits, and allowable indirect costs, overhead and profit allowance, subcontractor’s costs, travel, materials and supplies.

B. Progress Payments. Payment for Contractor’s services shall be due under the approved payment schedule upon acceptance by Project Manager of those deliverables marking completion of a portion of the Project and as invoiced under Contractor’s proposal.

C. Maximum Payment. Subject only to duly executed amendments, it is expressly understood and agreed that the total compensation will not exceed the sums set forth in this Contract unless under written amendment of this Contract approved by the STA Board.

D. Method of Payment. Contractor shall submit an invoice identifying the Project deliverable or milestone, with a brief status statement of the Study’s progress for which payment is sought, no later than thirty (30) days after STA’s acceptance of such deliverable/milestone. Payment shall be made by STA within thirty (30) days of receipt of an acceptable invoice, approved by the Project Manager or a designated representative. All invoices shall be emailed to accountspayable@sta.ca.gov and addressed as follows:

Daryl K. Halls, Executive Director
Solano Transportation Authority
423 Main Street
Suisun City, CA 94575

Attn:

E. Cost/Fee Proposal If Contractor has submitted a written Cost/Fee Proposal or Summary, that document is attached here to as Attachment 1 to Exhibit B and incorporated into this Exhibit as though set forth in full.

EXHIBIT C

GENERAL TERMS AND CONDITIONS

1. Conflict with Caltrans Or Federal Provisions

Where Caltrans or Federal funds are involved, those Caltrans or Federal provisions shall control over a General Term or Condition.

2. Closing out

STA will pay Contractor's final claim for payment providing Contractor has completed all obligations undertaken under this Contract. Contractor is responsible for STA's receipt of a final claim for payment sixty (60) days after termination or completion of this Contract.

3. Time

Time is of the essence in all terms and conditions of this Contract.

4. Time of Performance

Work will not begin, nor claims paid for services under this Contract until all Certificates of Insurance, business and professional licenses/certificates, IRS ID number, signed W-9 form, or other applicable licenses or certificates are on file with STA's Contract Manager.

5. Termination

A. This Contract may be terminated by STA or Contractor, at any time, with or without cause, upon thirty (30) days written notice from one to the other, unless otherwise provided for in Exhibit D.

B. STA may terminate this Contract immediately upon notice of Contractor's malfeasance.

C. Following termination, STA will reimburse Contractor for all expenditures made in good faith that are unpaid at the time of termination not to exceed the maximum amount payable under this Contract unless Contractor is in default of the Contract.

6. Signature Authority

The parties executing this Contract certify they have the proper authority to bind their respective entities to all terms and conditions in this Contract.

7. Warranty

A. STA relies upon Contractor's professional ability and training as a material inducement to enter into this Contract. Contractor warrants that Contractor will perform the work according to generally accepted professional practices and standards and the requirements of applicable federal, state and local laws. STA's acceptance of Contractor's work shall not constitute a waiver or release of Contractor from professional responsibility.

B. Contractor further warrants that Contractor possesses current valid appropriate licensure, including, but not limited to, drivers license, professional license, certificate of tax-exempt status, or permits, required to perform the work under this Contract.

8. Best Efforts

Contractor warrants that Contractor will faithfully, industriously and to the best of his/her/its ability, experience and talent, perform to STA's reasonable satisfaction.

Solano Transportation Authority
Standard Contractor Contract
Project:

9. Default

A. If Contractor defaults in Contractor's performance, STA shall promptly notify Contractor in writing. If Contractor fails to cure a default within thirty (30) days after notification, unless otherwise specified in Exhibit D, or if the default requires over thirty (30) days to cure and Contractor fails to commence to cure the default within thirty (30) days after notification, then Contractor's failure shall terminate this Contract.

B. If Contractor fails to cure default within the specified period of time, STA may elect to cure the default and any expense incurred shall be payable by Contractor to STA.

C. If STA serves Contractor with a notice of default and Contractor fails to cure the default, Contractor waives any further notice of termination of this Contract.

D. If this Contract is terminated because of Contractor's default, STA shall be entitled to recover from Contractor all damages allowed by law.

10. Indemnification

Contractor shall indemnify and hold harmless the STA, its officers, officials, employees and volunteers against all actions, causes of actions, damages, costs, liabilities, claims, losses, judgments, penalties and expenses of every type and description, including without limitation any fees and/or costs reasonably incurred by STA's staff attorneys or contract attorneys and any and all costs, fees and expenses incurred in enforcing this provision (collectively referred to as "liabilities"), arising out of or for any negligent act or omission, misconduct or other legal fault of Contractor, its officers, employees, sub-contractors, subcontractors or agents in connection with the performance or nonperformance of this Contract, whether or not STA accepted or approved any service or work product performed or provided by Contractor, and whether or not such liabilities are litigated, settled or reduced to judgment. If a final decision or judgment allocates liability by determining any portion of damages awarded is attributable to STA's negligence or willful misconduct, STA shall pay the portion of damages allocated to STA's negligence or willful misconduct, provided that STA shall not be liable for any passive negligence of STA, its officers, officials, employees and volunteers in reviewing, accepting or approving any service or work product performed or provided by Contractor.

Contractor shall, upon STA's request, defend with counsel approved by STA (which approval shall not be unreasonably withheld), at Contractor's sole cost and expense, any action, claim, suit, cause of action or portion which asserts or alleges liabilities resulting from any allegedly negligent act, omission, misconduct or other legal fault of Contractor, its officers, employees, sub-contractors, subcontractors or agents in connection with the performance or nonperformance of this Contract, whether or not such action, claim, suit, cause of action or portion is well founded or lacking in merit.

Acceptance of insurance certificates or endorsements required under Exhibit E of this Contract does not relieve Contractor from liability under this Section 10 and shall apply to all damages and claims of every kind suffered, or alleged to have been suffered, by Contractor's negligence, misconduct, or other legal fault whether such insurance policies shall have been determined to apply to such damages or claims for damages. This Section shall survive any termination of this Contract.

11. Insurance Requirements

Contractor shall procure and maintain for the duration of this Contract the following insurance:

Minimum Scope of Insurance:

Coverage shall be at least as broad as:

**Solano Transportation Authority
Standard Contractor Contract
Project:**

1. Insurance Services Office Commercial General Liability coverage ("occurrence" form CG 0001).
2. Insurance Services Office form number CA 0001 (Ed. 1/87) covering Automobile Liability, code 1 (any auto). If Contractor owns no vehicles, this requirement may be satisfied by a non-owned auto endorsement to the general liability policy described above. If Contractor or Contractor's employees will use personal autos on this project, Contractor shall obtain evidence of personal auto liability coverage for each person.
3. Workers' Compensation insurance as required by the State of California and Employer's Liability insurance.
4. Errors and Omissions liability insurance appropriate to the Contractor's profession. Architect's and engineers' coverage is endorsed to include contractual liability.

Minimum Limits of Insurance:

CONTRACTOR shall maintain limits no less than:

1. General Liability: \$2,000,000 per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to this location or the general aggregate limit shall be twice the required occurrence limit.
2. Automobile Liability: \$2,000,000 per accident for bodily injury and property damage, combined single limit.
3. Employer's Liability: \$2,000,000 per accident for bodily injury or disease, and in the aggregate.
4. Errors and Omissions Liability: \$1,000,000 on a claims made basis.

Deductibles and Self-Insurance Retentions:

Any deductibles or self-insured retentions exceeding \$50,000 must be declared to and approved by the STA. At the option of STA, either: the Contractor shall reduce or eliminate such deductibles or self-insured retentions regarding the STA, its officers, officials, employees and volunteers; or Contractor shall provide a financial guarantee satisfactory to the STA guaranteeing payment of losses and related investigations, claim administration and defense expenses.

Other Insurance Provisions:

The general liability and automobile liability policies must contain, or be endorsed to contain, the following provisions:

1. The STA, its officers, officials, employees and volunteers be covered as insureds regarding the liability arising out of automobiles owned, leased, hired or borrowed by or for the Contractor, and regarding liability arising out of work or operations by or for the Contractor including materials, parts or equipment furnished with such work or

**Solano Transportation Authority
Standard Contractor Contract
Project:**

operations. General liability coverage can be in an endorsement to the Contractor's insurance or as a separate owner's policy.

2. For any claims related to this project, the Contractor's insurance coverage shall be primary insurance as respects the STA, its officers, officials, employees, and volunteers. Any insurance or self-insurance maintained by the STA, its officers, officials, employees and volunteers shall be excess of the Contractor's insurance and shall not contribute with it.
3. Should the above described policies be cancelled prior to the policies' expiration date, Contractor agrees that notice of cancellation will be delivered under the policy provisions.

Acceptability of Insurers:

Insurance is placed with insurers with a current A.M. Best's rating of no less than A:VII, unless otherwise acceptable to STA.

Verification of Coverage:

Contractor shall furnish STA with original certificate and amendatory endorsements effecting coverage required by this clause. The endorsements should be on forms provided by the STA or on other than the STA's forms, provided those endorsements or policies conform to the requirements stated in this clause. All certificates and endorsements must be received and approved by the STA before work commences. STA reserves the right to require complete, certified copies of all required insurance policies, including endorsements effecting coverage required by these specifications.

All insurance documents are to be sent to:

Solano Transportation Authority
Attn: STA Legal Counsel
423 Main Street
Suisun City, CA 94585

Sub-Contractors:

Contractor shall include all sub-contractors as insureds under its policies or shall furnish separate certificates and endorsements for each sub-contractor. All coverages for sub-contractors shall be subject to all of the requirements stated above unless specifically waived by STA in writing.

Forms of Endorsement:

Endorsements shall include the following provisions. STA understands and agrees that variations in language may occur:

THIS ENDORSEMENT, EFFECTIVE _____ A.M. _____,
201__, FOR POLICY NUMBER _____, IS ISSUED TO THE
SOLANO TRANSPORTATION AUTHORITY BY

**Solano Transportation Authority
Standard Contractor Contract
Project:**

_____ FOR (PROJECT DESCRIPTION OR
TITLE)_____.

ADDITIONAL INSURED

IT IS UNDERSTOOD AND AGREED THAT THE STA, ITS OFFICERS, OFFICIALS, EMPLOYEES AND VOLUNTEERS ARE NAMED AS ADDITIONAL INSURED ON THE GENERAL AND AUTOMOTIVE LIABILITY INSURANCES.

PRIMARY INSURANCE

IT IS FURTHER UNDERSTOOD AND AGREED THAT THE INSURANCE AFFORDED BY THIS POLICY SHALL BE CONSIDERED PRIMARY INSURANCE AS RESPECTS ANY OTHER VALID AND COLLECTIBLE INSURANCE THE STA MAY POSSESS, INCLUDING ANY SELF INSURED RETENTION THE STA MAY HAVE, AND ANY OTHER INSURANCE THE STA DOES POSSESS SHALL BE CONSIDERED EXCESS INSURANCE ONLY.

CANCELLATION CLAUSE

THIRTY (30) DAYS WRITTEN NOTICE OF CANCELLATION SHALL BE GIVEN TO THE STA IN THE EVENT OF CANCELLATION AND/OR REDUCTION IN COVERAGE OF ANY NATURE. SUCH NOTICE SHALL BE SENT TO:

Solano Transportation Authority
Attn: STA Legal Counsel
423 Main Street
Suisun City, CA 94585

THIS PARAGRAPH SUPERSEDES THE CANCELLATION CLAUSE IN THE CERTIFICATE OF INSURANCE.

ALL OTHER TERMS AND CONDITIONS OF THIS POLICY REMAIN UNCHANGED.

Authorized Representative

12. Independent Contractor

A. Contractor is an independent contractor and not an agent, officer or employee of STA. The parties mutually understand that this Contract is by and between two independent contractors and is not intended to and shall not be construed to create the relationship of agent, servant, employee, partnership, joint venture or association.

B. Contractor shall have no claim against STA for employee rights or benefits including, but not limited to, seniority, vacation time, vacation pay, sick leave, personal time off, overtime, medical, dental or hospital benefits, retirement benefits, Social Security, disability, Workers' Compensation, unemployment insurance benefits, civil service protection, disability retirement benefits, paid holidays or other paid leaves of absence.

C. Contractor is solely obligated to pay all applicable taxes, deductions and other obligations including, but not limited to, federal and state income taxes, withholding, Social Security, unemployment, disability insurance, Workers' Compensation and Medicare payments. Contractor shall indemnify and

Solano Transportation Authority
Standard Contractor Contract
Project:

hold STA harmless from any liability which STA may incur because of Contractor's failure to pay such obligations.

D. As an independent contractor, Contractor is not subject to the direction and control of STA except as to the final result contracted for under this Contract. STA may not require Contractor to change Contractor's manner of doing business, but may require redirection of efforts to fulfill this Contract.

E. Contractor may provide services to others during the same period Contractor provides service to STA under this Contract.

F. Any third persons employed by Contractor shall be under Contractor's exclusive direction, supervision and control. Contractor shall determine all conditions of employment including hours, wages, working conditions, discipline, hiring and discharging or any other condition of employment.

G. As an independent contractor, Contractor shall indemnify and hold STA harmless from any claims that may be made against STA based on any contention by a third party that an employer-employee relationship exists under this Contract.

H. Contractor, with full knowledge and understanding of the foregoing, freely, knowingly, willingly and voluntarily waives the right to assert any claim to any right or benefit or term or condition of employment insofar as they may be related to or arise from compensation paid hereunder.

13. Commitment of Key Contractor Personnel

In recognition of the special skill of Contractor's proposed "Project Team", if such a team has been proposed, STA has relied upon the commitment by Contractor of certain key personnel assigned to this work by Contractor and an estimate of the commitment of their time to this Project, all as set forth in Contractor's Proposal found in Exhibit B. Substitution of any key personnel or a decrease in the commitment of time to be provided to the Project by such personnel of more than 10% requires the prior written approval of STA. Contractor shall maintain records documenting compliance with this Article, which shall be subject to the audit requirements.

14. Responsibilities of Contractor

A. The parties understand and agree that Contractor possesses the requisite skills necessary to perform the work under this Contract and STA relies upon such skills. Contractor pledges to perform the work skillfully and professionally. STA's acceptance of Contractor's work does not constitute a release of Contractor from professional responsibility.

B. Contractor verifies that Contractor has reviewed the scope of work to be performed under this Contract and agrees that in Contractor's professional judgment, the work can and shall be completed for costs within the maximum amount set forth in this Contract.

C. To fully comply with the terms and conditions of this Contract, Contractor shall:

- (1) Establish and maintain a system of accounts for budgeted funds that complies with generally accepted accounting principles for government agencies;
- (2) Document all costs by maintaining complete and accurate records of all financial transactions associated with this Contract, including, but not limited to, invoices and other official documentation that sufficiently support all charges under this Contract;
- (3) Submit monthly reimbursement claims for expenditures that directly benefit Solano County;
- (4) Be liable for repayment of any disallowed costs identified through quarterly reports, audits, monitoring or other sources; and
- (5) Retain financial, programmatic, client data and other service records for 4 years from the end of the contract award or for 4 years from termination, whichever is later.

Solano Transportation Authority
Standard Contractor Contract
Project:

15. Compliance with Law

A. Contractor shall comply with all federal, state and local laws and regulations applicable to Contractor's performance, including, but not limited to, licensing, employment and purchasing practices, wages, hours and conditions of employment.

B. Contractor warrants that all Contractor claims for payment or reimbursement by STA will comply with the applicable Office of Management and Budget Circulars, particularly with respect to 2 CFR Part 225 and 2 CFR Part 230, as currently enacted or as may be amended throughout the term of this Contract.

16. Confidentiality

A. Contractor shall prevent unauthorized disclosure of names and other STA-identifying information, except for statistical information not identifying a particular project.

B. Contractor shall not use STA-specific information for any purpose other than carrying out Contractor's obligations under this Contract.

C. Contractor shall promptly transmit to STA all requests for disclosure of confidential information.

D. Except as otherwise permitted by this Contract or authorized by the STA, Contractor shall not disclose any confidential information to anyone other than the State without prior written authorization from STA.

E. For purposes of this section, identity shall include, but not be limited to, name, identifying number, symbol or other client identifying particulars, such as fingerprints, voice print or photograph.

17. Conflict of Interest

A. Contractor warrants that Contractor and/or Contractor's employees and/or their immediate families and/or Board of Directors and/or officers have no interest, including, but not limited to, other projects or independent contracts, and shall not acquire any interest, direct or indirect, including separate contracts for the work to be performed hereunder, which conflicts with the rendering of services under this Contract. Contractor shall employ or retain no such person while rendering services under this Contract. Services rendered by Contractor's associates or employees shall not relieve Contractor from personal responsibility under this clause.

B. Contractor has an affirmative duty to disclose to STA in writing the name(s) of any person(s) who have an actual, potential or apparent conflict of interest.

18. Drug Free Workplace

Contractor warrants Contractor is knowledgeable of Government Code section 8350 et seq., regarding a drug free workplace and shall abide by and implement its statutory requirements.

19. Health and Safety Standards

Contractor shall abide by all health and safety standards set forth by the State of California and/or the STA under the Injury and Illness Prevention Program. If applicable, Contractor must receive all health and safety information and training.

20. Audits and Inspection of Record

- a. Contractor shall permit STA and its/their authorized representatives to have access to Contractor's books, records, accounts, and any and all work products, materials, and other data relevant to this Contract, including Contractor's place of business, to make an audit, examination, excerpt and transcription during the term of this Contract and for a period of

**Solano Transportation Authority
Standard Contractor Contract
Project:**

- four (4) years. Contractor shall in no event dispose of, destroy, alter, or mutilate said books, records, accounts, work products, materials and data for that period of time.
- b. Contractor further agrees to include in all its subcontracts a provision to the effect that the subcontractor agrees that STA or its/their duly authorized representatives shall have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor for the term of this Contract.
 - c. The State, the State Auditor, the STA, Federal Highway Administration (FHWA), or any duly authorized representative of the federal government shall have access to any books, records and documents of the Contractor pertinent to the contract for audit, examination, excerpts, and transactions, and copies shall be furnished if requested. This provision shall apply to subcontractors.

21. Nondiscrimination

- A. In rendering services under this Contract, Contractor shall comply with all applicable federal, state and local laws, rules and regulations and shall not discriminate based on age, ancestry, color, gender, marital status, medical condition, national origin, physical or mental disability, race, religion, sexual orientation, or other protected status.
- B. Further, Contractor shall not discriminate against its employees, which includes, but is not limited to, employment upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship.

22. Subcontractor and Assignment

- A. Services under this Contract are deemed to be personal services.
- B. Contractor shall not subcontract any work under this Contract nor assign this Contract or monies due without the prior written consent of the STA's Contract Manager, subject to any required state or federal approval.
- C. If STA consents to the use of Subcontractors, Contractor shall require and verify that its subcontractors maintain insurance meeting all the requirements stated in Section 11 above.
- D. Assignment by Contractor of any monies due shall not constitute an assignment of the Contract.

23. Unforeseen Circumstances

Contractor is not responsible for any delay caused by natural disaster, war, civil disturbance, labor dispute or other cause beyond Contractor's reasonable control, provided Contractor gives written notice to STA of the cause of the delay within ten (10) days of the start of the delay.

24. Ownership of Documents

- A. STA shall be the owner of and shall be entitled to possession of any computations, plans, correspondence or other pertinent data and information gathered by or computed by Contractor prior to termination of this Contract by STA or upon completion of the work pursuant to this Contract.
- B. No material prepared in connection with the project shall be subject to copyright in the United States or in any other country.

25. Notice

- A. Any notice necessary to the performance of this Contract shall be given in writing by personal delivery or by prepaid first-class mail addressed as stated on the first page of this Contract.
- B. If notice is given by personal delivery, notice is effective as of the date of personal delivery. If notice is given by mail, notice is effective as of the day following the date of mailing or the

**Solano Transportation Authority
Standard Contractor Contract
Project:**

date of delivery reflected upon a return receipt, whichever occurs first.

26. STA's Obligation Subject to Availability of Funds

A. The STA's obligation under this Contract is subject to the availability of authorized funds. The STA may terminate the Contract, or any part of the Contract work, without prejudice to any right or remedy of the STA, for lack of appropriation of funds. If expected or actual funding is withdrawn, reduced or limited prior to the expiration date in this Contract, or any subsequent Amendment, the STA may, upon written Notice to the Contractor, terminate this Contract in whole or in part.

B. Payment shall not exceed the amount allowable for appropriation by the STA Board. If the Contract is terminated for non-appropriation:

i. The STA will be liable only for payment under the terms for services rendered prior to the effective date of termination; and

ii. The Contractor shall be released from any obligation to provide further services under this Contract affected by the termination.

C. Funding for this Contract beyond the current appropriation year is conditional upon appropriation by the STA Board of sufficient funds to support the activities described in this Contract. Should such an appropriation not be approved, this Contract will terminate at the close of the current Appropriation Year.

D. This Contract is void and unenforceable if all or part of federal or State funds applicable to this Contract are not available to STA. If applicable funding is reduced, STA may either:

(1) Cancel this Contract; or,

(2) Offer a contract amendment reflecting the reduced funding.

27. Changes and Amendments

A. STA may request changes in Contractor's scope of services. Any mutually agreed upon changes, including any increase or decrease for Contractor's compensation, shall be effective when incorporated in written amendments to this Contract.

B. The party desiring the revision shall request amendments to the terms and conditions of this Contract in writing. Any adjustment to this Contract shall be effective only upon the parties' mutual execution of an amendment in writing.

C. No verbal Contracts or conversations prior to execution of this Contract or requested Amendment shall affect or modify any of the terms or conditions of this Contract unless reduced to writing according to the applicable provisions of this Contract.

28. Choice of Law

The parties have executed and delivered this Contract in the County of Solano, State of California. The laws of the State of California shall govern the validity, enforceability or interpretation of this Contract. Solano County shall be the venue for any action or proceeding, in law or equity that may be brought in connection with this Contract.

29. Waiver

Any failure of a party to assert any right under this Contract shall not constitute a waiver or a termination of that right, under this Contract or any provision.

30. Conflicts in the Contract Documents

The Contract documents are complementary and interpreted in harmony so as to avoid conflict. If a conflict occurs in the Contract documents, the parties agree that the document providing the highest quality and level of service to the STA shall supersede any inconsistent term in these documents.

**Solano Transportation Authority
Standard Contractor Contract
Project:**

31. Disbarment or Suspension of Contractor

A. Contractor warrants that its officers, directors and employees (i) are not currently excluded, debarred, or otherwise ineligible to participate in state or federal transportation related projects and programs; (ii) have not been convicted of a criminal offense related to the provision of consultant services but have not yet been excluded, debarred, or otherwise declared ineligible to participate in state or federal transportation related programs or projects, and (iii) are not, to the best of its knowledge, under investigation or otherwise aware of any circumstances which may result in Contractor being excluded from participation in state or federal transportation related projects or programs.

B. This representation and warranty shall be an ongoing representation and warranty during the term of this Contract and Contractor must immediately notify the STA of any change in the status of the representations and warranty set forth in this section.

32. Execution in Counterparts; Signatures by Facsimile or PDF

This Contract may be executed in duplicate originals, each of which is deemed an original, but when taken together shall constitute one instrument. Facsimile copies or copies delivered via e-mail as a portable document format (pdf) file shall be deemed original copies.

33. Entire Contract

This Contract, including any exhibits referenced, constitutes the entire agreement between the parties and there are no inducements, promises, terms, conditions or obligations made or entered into by STA or Contractor other than those contained.

EXHIBIT D

CALTRANS/STATE FUNDING CONTRACT PROVISIONS

1. DATA FURNISHED BY STA; CONFIDENTIALITY OF DATA

All data, reports, surveys, studies, drawings, software (object or source code), electronic databases, and any other information, documents or materials ("STA Data") provided to Contractor by STA for use by Contractor to perform its services under this Contract shall remain the property of STA and shall be returned to STA at the completion or termination of this Contract. No license to such STA Data, outside of the Scope of Work of the Project, is conferred or implied by Contractor's use or possession of such STA Data. Any updates, revisions, additions or enhancements to such STA Data made by Contractor in the Project shall be the property of STA and subject to this Contract.

All financial, statistical, personnel, technical, or other data and information relative to the STA's operations, and designated confidential by the STA and provided to the Contractor to carry out this contract, shall be protected by the Contractor from unauthorized use and disclosure. Permission to disclose information on one occasion, or at a public hearing held by the STA and relating to the contract, shall not authorize Contractor to further disclose such information, or disseminate the same on any other occasion.

The Contractor shall not comment publicly to the press or any other media regarding the contract or the STA's actions on the same, except to the STA's staff, Contractor's own personnel involved to perform the contract, at public hearings or in response to questions from a Legislative Committee. The Contractor shall issue no news release or public relations item of any nature regarding the work performed or to be performed under this Contract without prior review of the contents by the STA and receipt of STA's written permission.

Any subcontract entered into because of this Contract shall be subject to all this Section.

2. OWNERSHIP OF WORK PRODUCTS

All drawings, designs, specifications, manuals, reports, studies, surveys, models, software, source code and source code documentation, documentation or system architecture and any other documents, materials, data and products ("Work Products") prepared or assembled and furnished to STA by CONTRACTOR or its subcontractors under this Contract shall be the property of STA, and copies shall be delivered to STA promptly upon completion of the work or upon an earlier termination of this Contract. CONTRACTOR assigns to STA ownership of all right, title and interest in such Work Products, including ownership of the entire copyright in the Work Products. CONTRACTOR also agrees to execute all papers necessary for STA to perfect its ownership of the entire copyright in the Work Products. CONTRACTOR shall be responsible for the preservation of any and all such Work Products prior to transmittal to STA, and CONTRACTOR shall replace any such Work Products lost, destroyed, or damaged while in its possession without additional cost to STA.

3. EQUIPMENT PURCHASES

To the extent this Contract provides for the purchase of equipment, Contractor agrees to abide by the following:

- a. Prior authorization in writing, by the STA's Director of Projects shall be required before the CONTRACTOR enters into any unbudgeted or additional contract, purchase order or subcontract exceeding \$5,000, for supplies, equipment or additional Contractor services beyond those contained in the scope of work and cost proposal, if any, and, further, CONTRACTOR

Solano Transportation Authority
Standard Contractor Contract
Project:

shall provide an evaluation to the STA of the necessity or desirability of incurring such costs prior to any approval by the STA for the additional expenditure(s).

b. For purchase of any item, service or consulting work not covered by CONTRACTOR'S Cost Proposal for which CONTRACTOR seeks reimbursement beyond the Cost Proposal, and which exceed \$5,000.00, the CONTRACTOR shall both receive prior authorization from the STA's Director of Projects including submission of three competitive quotations or adequate justification presented for any absence of such quotations. Any equipment purchased because of this contract is subject to the following provision:

The CONTRACTOR shall maintain an inventory of all nonexpendable property. Nonexpendable property is defined as having a useful life of at least two years and an acquisition cost of \$5,000 or more. If the purchased equipment needs replacement and is sold or traded in, the STA shall receive proper refund or credit at the conclusion of the contract, or if the contract is terminated, the CONTRACTOR may either keep the equipment and credit the STA in an amount to the fair market value, or sell such equipment at the best price obtainable at a public or private sale, under established STA procedures; and credit the STA in an amount equal to the sales price. If the CONTRACTOR elects to keep the equipment, fair market value shall be determined at the CONTRACTOR'S expense, on the basis of a competent independent appraisal of such equipment. Appraisals shall be obtained from an appraiser mutually agreeable to by the STA and the CONTRACTOR. If it is determined to sell the equipment, the terms and conditions of such sale must be approved in advance by the STA.

4. SOLICITATION OF CONTRACT

Contractor warrants it has not employed or retained any company or persons, other than a bona fide employee working solely for Contractor, to solicit or secure this Contract, and that it has not paid or agreed to pay any company or person other than bona fide employees working solely for Contractor, any fee, commission, percentage, brokerage fee, gift, or any other consideration contingent upon or resulting from the award or making of the Contract. For breach or violation of this warranty, STA shall have the right to terminate the Contract without liability or, at its discretion, the right to deduct from Contractor's maximum payment the full such fee, commission, percentage, brokerage fee, gift or contingent consideration.

EXHIBIT 10-H – SAMPLE COST PROPOSAL STRUCTURE

EXHIBIT 10-H1 COST PROPOSAL Page 1 of 3

COST-PLUS-FIXED FEE OR LUMP SUM OR FIRM FIXED PRICE CONTRACTS

(DESIGN, ENGINEERING AND ENVIRONMENTAL STUDIES)

Note: Mark-ups are Not Allowed

☐ Prime Consultant ☐ Subconsultant ☐ 2nd Tier Subconsultant

Consultant _____

Project No. _____ Contract No. _____ Date _____

DIRECT LABOR

Classification/Title	Name	Hours	Actual Hourly Rate	Total
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

LABOR COSTS

a) Subtotal Direct Labor Costs _____

b) Anticipated Salary Increases (see page 2 for calculation) _____

c) **TOTAL DIRECT LABOR COSTS** [(a) + (b)] _____**INDIRECT COSTS**

d) Fringe Benefits (Rate: _____) e) Total Fringe Benefits [(c) x (d)] _____

f) Overhead (Rate: _____) g) Overhead [(c) x (f)] _____

h) General and Administrative (Rate: _____) i) Gen & Admin [(c) x (h)] _____

j) **TOTAL INDIRECT COSTS** [(e) + (g) + (i)] _____**FIXED FEE**k) **TOTAL FIXED FEE** [(c) + (j)] x fixed fee _____] _____**l) CONSULTANT'S OTHER DIRECT COSTS (ODC) – ITEMIZE (Add additional pages if necessary)**

Description of Item	Quantity	Unit	Unit Cost	Total
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

l) **TOTAL OTHER DIRECT COSTS** _____**m) SUBCONSULTANTS' COSTS (Add additional pages if necessary)**

Subconsultant 1: _____

Subconsultant 2: _____

Subconsultant 3: _____

Subconsultant 4: _____

m) **TOTAL SUBCONSULTANTS' COSTS** _____n) **TOTAL OTHER DIRECT COSTS INCLUDING SUBCONSULTANTS** [(l)+(m)] _____**TOTAL COST** [(c) + (j) + (k) + (n)] _____**NOTES:**

- Key personnel **must** be marked with an asterisk (*) and employees that are subject to prevailing wage requirements must be marked with two asterisks (**). All costs must comply with the Federal cost principles. Subconsultants will provide their own cost proposals.
- The cost proposal format shall not be amended. Indirect cost rates shall be updated on an annual basis in accordance with the consultant's annual accounting period and established by a cognizant agency or accepted by Caltrans.
- Anticipated salary increases calculation (page 2) must accompany.

EXHIBIT 10-H1 COST PROPOSAL Page 2 of 3**COST-PLUS-FIXED FEE OR LUMP SUM OR FIRM FIXED PRICE CONTRACTS**

(CALCULATIONS FOR ANTICIPATED SALARY INCREASES)

1. Calculate Average Hourly Rate for 1st year of the contract (Direct Labor Subtotal divided by total hours)

Direct Labor Subtotal per Cost Proposal	Total Hours per Cost Proposal		Avg Hourly Rate	5 Year Contract Duration
\$250,000.00	500	=	\$50.00	Year 1 Avg Hourly Rate

2. Calculate hourly rate for all years (Increase the Average Hourly Rate for a year by proposed escalation %)

	Avg Hourly Rate		Proposed Escalation			
Year 1	\$50.00	+	2%	=	\$51.00	Year 2 Avg Hourly Rate
Year 2	\$51.00	+	2%	=	\$52.02	Year 3 Avg Hourly Rate
Year 3	\$52.02	+	2%	=	\$53.06	Year 4 Avg Hourly Rate
Year 4	\$53.06	+	2%	=	\$54.12	Year 5 Avg Hourly Rate

3. Calculate estimated hours per year (Multiply estimate % each year by total hours)

	Estimated % Completed Each Year		Total Hours per Cost Proposal		Total Hours per Year	
Year 1	20.0%	*	5000	=	1000	Estimated Hours Year 1
Year 2	40.0%	*	5000	=	2000	Estimated Hours Year 2
Year 3	15.0%	*	5000	=	750	Estimated Hours Year 3
Year 4	15.0%	*	5000	=	750	Estimated Hours Year 4
Year 5	10.0%	*	5000	=	500	Estimated Hours Year 5
Total	100%		Total	=	5000	

4. Calculate Total Costs including Escalation (Multiply Average Hourly Rate by the number of hours)

	Avg Hourly Rate (calculated above)		Estimated hours (calculated above)		Cost per Year	
Year 1	\$50.00	*	1000	=	\$50,000.00	Estimated Hours Year 1
Year 2	\$51.00	*	2000	=	\$102,000.00	Estimated Hours Year 2
Year 3	\$52.02	*	750	=	\$39,015.00	Estimated Hours Year 3
Year 4	\$53.06	*	750	=	\$39,795.30	Estimated Hours Year 4
Year 5	\$54.12	*	500	=	\$27,060.80	Estimated Hours Year 5
Total Direct Labor Cost with Escalation				=	\$257,871.10	
Direct Labor Subtotal before Escalation				=	\$250,000.00	
Estimated total of Direct Labor Salary Increase				=	\$7,871.10	Transfer to Page 1

NOTES:

1. This is not the only way to estimate salary increases. Other methods will be accepted if they clearly indicate the % increase, the # of years of the contract, and a breakdown of the labor to be performed each year.
2. An estimation that is based on direct labor multiplied by salary increase % multiplied by the # of years is not acceptable.
(i.e. \$250,000 x 2% x 5 yrs = \$25,000 is not an acceptable methodology)
3. This assumes that one year will be worked at the rate on the cost proposal before salary increases are granted.
4. Calculations for anticipated salary escalation must be provided.

EXHIBIT 10-H1 COST PROPOSAL Page 3 of 3

Certification of Direct Costs:

I, the undersigned, certify to the best of my knowledge and belief that all direct costs identified on the cost proposal(s) in this contract are actual, reasonable, allowable, and allocable to the contract in accordance with the contract terms and the following requirements:

1. Generally Accepted Accounting Principles (GAAP)
2. Terms and conditions of the contract
3. [Title 23 United States Code Section 112](#) - Letting of Contracts
4. [48 Code of Federal Regulations Part 31](#) - Contract Cost Principles and Procedures
5. [23 Code of Federal Regulations Part 172](#) - Procurement, Management, and Administration of Engineering and Design Related Service
6. [48 Code of Federal Regulations Part 9904 - Cost Accounting Standards Board](#) (when applicable)

All costs must be applied consistently and fairly to all contracts. All documentation of compliance must be retained in the project files and be in compliance with applicable federal and state requirements. Costs that are noncompliant with the federal and state requirements are not eligible for reimbursement. Local governments are responsible for applying only cognizant agency approved or Caltrans accepted Indirect Cost Rate(s).

Prime Consultant or Subconsultant Certifying:

Name: _____ Title *: _____

Signature : _____ Date of Certification (mm/dd/yyyy): _____

Email: _____ Phone Number: _____

Address: _____

***An individual executive or financial officer of the consultant's or subconsultant's organization at a level no lower than a Vice President or a Chief Financial Officer, or equivalent, who has authority to represent the financial information utilized to establish the cost proposal for the contract.**

List services the consultant is providing under the proposed contract:

EXHIBIT 10-H2 COST PROPOSAL Page 1 of 3

SPECIFIC RATE OF COMPENSATION (USE FOR ON-CALL OR AS-NEEDED CONTRACTS)

(CONSTRUCTION ENGINEERING AND INSPECTION CONTRACTS)

Note: Mark-ups are Not Allowed

Consultant _____ ☐ Prime Consultant ☐ Subconsultant ☐ 2nd Tier Subconsultant

Project No. _____ Contract No. _____ Participation Amount \$ _____ Date _____

For Combined Rate	Fringe Benefit % + General & Administrative %	=	Combined ICR%
	OR		
For Home Office Rate	Fringe Benefit % + General & Administrative %	=	Home Office ICR%
For Field Office Rate	Fringe Benefit % + General & Administrative %	=	Field Office ICR%
Fee = %			

BILLING INFORMATION

CALCULATION INFORMATION

Name/Job Title/Classification ¹	Hourly Billing Rates ²			Effective Date of Hourly Rate		Actual or Avg. Hourly Rate ⁴	% or \$ Increase	Hourly Range - for Classifications Only
	Straight ³	OT (1.5x)	OT (2x)	From	To			
John Doe – Project Manager * Civil Engineer II	\$0.00	\$0.00	\$0.00	01/01/2016	12/31/2016	\$0.00		Not Applicable
	\$0.00	\$0.00	\$0.00	01/01/2017	12/31/2017	\$0.00	0.0%	
	\$0.00	\$0.00	\$0.00	01/01/2018	12/31/2018	\$0.00	0.0%	
Sue Jones – Construction Engineer/Inspector Engineer I	\$0.00	\$0.00	\$0.00	01/01/2016	12/31/2016	\$0.00		Not Applicable
	\$0.00	\$0.00	\$0.00	01/01/2017	12/31/2017	\$0.00	0.0%	
	\$0.00	\$0.00	\$0.00	01/01/2018	12/31/2018	\$0.00	0.0%	
Buddy Black – Claims Engineer Engineer III	\$0.00	\$0.00	\$0.00	01/01/2016	12/31/2016	\$0.00		Not Applicable
	\$0.00	\$0.00	\$0.00	01/01/2017	12/31/2017	\$0.00	0.0%	
	\$0.00	\$0.00	\$0.00	01/01/2018	12/31/2018	\$0.00	0.0%	
Land Surveyor **	\$0.00	\$0.00	\$0.00	01/01/2016	12/31/2016	\$0.00		\$00 - \$00
	\$0.00	\$0.00	\$0.00	01/01/2017	12/31/2017	\$0.00	0.0%	\$00 - \$00
	\$0.00	\$0.00	\$0.00	01/01/2018	12/31/2018	\$0.00	0.0%	\$00 - \$00
Technician	\$0.00	\$0.00	\$0.00	01/01/2016	12/31/2016	\$0.00		\$00 - \$00
	\$0.00	\$0.00	\$0.00	01/01/2017	12/31/2017	\$0.00	0.0%	\$00 - \$00
	\$0.00	\$0.00	\$0.00	01/01/2018	12/31/2018	\$0.00	0.0%	\$00 - \$00

(Add pages as necessary)

1. Key personnel **must** be marked with an asterisk (*) and employees that are subject to prevailing wage requirements must be marked with two asterisks (**). All costs must comply with the Federal cost principles. Subconsultants will provide their own cost proposals.
2. The cost proposal format shall not be amended.
3. Billing rate = actual hourly rate * (1+ ICR) * (1+ Fee). Indirect cost rates shall be updated on an annual basis in accordance with the consultant's annual accounting period and established by a cognizant agency or accepted by Caltrans. All costs must comply with the Federal cost principles for reimbursement.
4. For named employees and key personnel enter the actual hourly rate. For classifications only, enter the Average Hourly Rate for that classification.

SPECIFIC RATE OF COMPENSATION (USE FOR ON-CALL OR AS-NEEDED CONTRACTS)
(CONSTRUCTION ENGINEERING AND INSPECTION CONTRACTS)

Project No. _____ Contract No. _____ Date _____

Note: Add additional pages if necessary.

1. List other direct cost items with estimated costs. These costs should be competitive in their respective industries and supported with appropriate documentation.
2. Proposed ODC items should be consistently billed regardless of client and contract type.
3. Items when incurred for the same purpose, in like circumstance, should not be included in any indirect cost pool or in the overhead rate.
4. Items such as special tooling, will be reimbursed at actual cost with supporting documentation (invoice).
5. Items listed above that would be considered "tools of the trade" are not reimbursable as other direct cost.
6. Travel related costs should be pre-approved by the contracting agency and shall not exceed current State Department of Personnel Administration rules.

7. If mileage is claimed, the rate should be properly supported by the consultant's calculation of their actual costs for company vehicles. In addition, the miles claimed should be supported by mileage logs.
8. If a consultant proposes rental costs for a vehicle, the company must demonstrate that this is its standard procedure for all of their contracts and that they do not own any vehicles that could be used for the same purpose.
9. The cost proposal format shall not be amended. All costs must comply with the Federal cost principles.
10. Add additional pages if necessary.
11. Subconsultants must provide their own cost proposals.

EXHIBIT 10-H2 COST PROPOSAL Page 3 of 3

Certification of Direct Costs:

I, the undersigned, certify to the best of my knowledge and belief that all direct costs identified on the cost proposal(s) in this contract are actual, reasonable, allowable, and allocable to the contract in accordance with the contract terms and the following requirements:

7. Generally Accepted Accounting Principles (GAAP)
8. Terms and conditions of the contract
9. [Title 23 United States Code Section 112](#) - Letting of Contracts
10. [48 Code of Federal Regulations Part 31](#) - Contract Cost Principles and Procedures
11. [23 Code of Federal Regulations Part 172](#) - Procurement, Management, and Administration of Engineering and Design Related Service
12. [48 Code of Federal Regulations Part 9904 - Cost Accounting Standards Board](#) (when applicable)

All costs must be applied consistently and fairly to all contracts. All documentation of compliance must be retained in the project files and be in compliance with applicable federal and state requirements. Costs that are noncompliant with the federal and state requirements are not eligible for reimbursement.

Prime Consultant or Subconsultant Certifying:

Name: _____ Title*: _____

Signature : _____ Date of Certification (mm/dd/yyyy): _____

Email: _____ Phone Number: _____

Address: _____

* An individual executive or financial officer of the consultant's or subconsultant's organization at a level no lower than a Vice President or a Chief Financial Officer, or equivalent, who has authority to represent the financial information utilized to establish the cost proposal for the contract.

List services the consultant is providing under the proposed contract:

EXHIBIT 10-H3 COST PROPOSAL Page 1 of 2COST PER UNIT OF WORK CONTRACTS
(GEOTECHNICAL AND MATERIAL TESTING)

Note: Mark-ups are Not Allowed

☐ Prime Consultant☐ Subconsultant☐ 2nd Tier Subconsultant

Consultant _____

Project No. _____ Contract No. _____ Date _____

Unit/Item of Work:**(Example: Log of Test Boring for Soils Report, or ADL Testing for Hazardous Waste Material Study) Include as many Items as necessary.**

DIRECT LABOR	Hours	Billing Hourly Rate (\$)	Total (\$)
Professional (Classification)*	_____	_____	_____
Sub-professional/Technical**	_____	_____	_____
EQUIPMENT 1 (with Operator)	_____	_____	_____
EQUIPMENT 2 (with Operator)	_____	_____	_____

Consultant's Other Direct Costs (ODC) – Itemize:

Description of Item	Quantity	Unit	Unit Cost	Total
Subconsultant 1:				
Subconsultant 2:				
Subconsultant 3:				
Subconsultant 4:				
Subconsultant 5:				

Note: Attach additional pages if necessary.

TOTAL COST PER UNIT OF WORK _____**NOTES:**

1. Key personnel **must** be marked with an asterisk (*) and employees that are subject to prevailing wage requirements must be marked with two asterisks (**). All costs must comply with the Federal cost principles. Subconsultants will provide their own cost proposals. The cost proposal format shall not be amended.
2. Hourly billing rates should include prevailing wage rates and be consistent with publicly advertised rates charged to all clients (Commercial, Private or Public).
3. Mobilization/De-mobilization is based on site location and number and frequency of tests/items.
4. ODC items shall be based on actual costs and supported by historical data and other documentation.
5. ODC items that would be considered "tools of the trade" are not reimbursable.
6. Billing Hourly Rates must be actual, allowable, and reasonable.

EXHIBIT 10-H3 COST PROPOSAL Page 2 of 2

Certification of Direct Costs:

I, the undersigned, certify to the best of my knowledge and belief that all direct costs identified on the cost proposal(s) in this contract are actual, reasonable, allowable, and allocable to the contract in accordance with the contract terms and the following requirements:

13. Generally Accepted Accounting Principles (GAAP)
14. Terms and conditions of the contract
15. [Title 23 United States Code Section 112](#) - Letting of Contracts
16. [48 Code of Federal Regulations Part 31](#) - Contract Cost Principles and Procedures
17. [23 Code of Federal Regulations Part 172](#) - Procurement, Management, and Administration of Engineering and Design Related Service
18. [48 Code of Federal Regulation Part 9904 - Cost Accounting Standards Board](#) (when applicable)

All costs must be applied consistently and fairly to all contracts. All documentation of compliance must be retained in the project files and be in compliance with applicable federal and state requirements. Costs that are noncompliant with the federal and state requirements are not eligible for reimbursement.

Prime Consultant or Subconsultant Certifying:

Name: _____ Title*: _____

Signature : _____ Date of Certification (mm/dd/yyyy): _____

Email: _____ Phone Number: _____

Address: _____

* An individual executive or financial officer of the consultant's or subconsultant's organization at a level no lower than a Vice President or a Chief Financial Officer, or equivalent, who has authority to represent the financial information utilized to establish the cost proposal for the contract.

List services the consultant is providing under the proposed contract:

--