

The following is the Table of Contents for the **Small Business Minor B Package** documents:

Table of Contents	1 Page
Invitation for Price Quote–Cover Letter	1 Page
General Bidders Instructions/Checklist	2 Pages
Proposed Form of Agreement, STD 213	2 Pages
Specifications	53 Pages
Link to the 2023 Edition of the Standard Specifications	Page 54

The Bid Package contains **7** Project Plans for this project.

California Department of Transportation

ADMINISTRATION

DIVISION OF PROCUREMENT AND CONTRACTS

1727 30th STREET, MS 65

SACRAMENTO, CA 95816-7006

PHONE (916) 227-6000

TTY 711

<https://dot.ca.gov/programs/procurement-and-contracts/>**Invitation for Price Quote (IFPQ)****Contract No. 05A2703**
Quote Due Date: February 21, 2024**Prospective Contractors:**

California Department of Transportation (Caltrans/Department) has issued the enclosed Invitation for Price Quote (IFPQ) for services described in the enclosed proposed contract.

Please read the entire contract package and all attachments carefully. If you desire to submit a quote, complete the Price Quote sheet and email it to the Analyst listed in the IFPQ. Your signature affixed to and dated on the quote proposal shall constitute a certification under penalty of perjury, unless exempted, that you have complied with the nondiscrimination program requirements of Government Code Section 12990 and Title 2, California Code of Regulations, Section 11102, and the nondiscrimination program requirements of Title VI of the Civil Rights Act of 1964, 49 Code of Federal Regulations (CFR) Part 21, and 23 CFR Part 200.

Award of this contract will be to the lowest responsible contractor whose quote complies with all requirements as described in this IFPQ.

If your bid is more than \$461,000.00, it will be rejected per Public Contract Code Section 10105(b).

Contractor must be a Certified Small Business at the time of the quote date.

Invitation for Price Quote

California Department of Transportation

ADMINISTRATION
 DIVISION OF PROCUREMENT AND CONTRACTS
 1727 30th Street, MS 65
 SACRAMENTO, CA 95816-7006
 PHONE (916) 227-6000
 TTY 711



<https://dot.ca.gov/programs/procurement-and-contracts/>

General Contractors Instructions/Checklist

Solicitation No. 05A2703

A complete bid or bid package will consist of the items identified below.

Complete this checklist to confirm the items in your bid package. Place a check mark or "X" next to each item that you are submitting to Caltrans. All attachments identified below (unless noted otherwise) are required and must be returned as instructed, or your bid may be considered non-responsive. **Return this checklist with your bid package.**

Quotes omitting this information may be regarded as non-responsive and rejected.

Do **not** submit company advertisements, brochures, informational pamphlets, or any other document unless specifically noted in the IFPQ Requirements and/or as listed below.

- Price Quote Proposal for Unit Items (ADM-1509). Complete and sign the Price Quote Proposal for Unit Item Sheet(s).
- Subcontractor List (DES-OE-0102.2.C) can be downloaded at <https://forms.dot.ca.gov/v2Forms/servlet/FormRenderer?frmid=DESOE0102.2C>. List all subcontractors, including DVBEs, as applicable to the requirements of this solicitation.
- Contract Requirements (ADM-0378) can be downloaded at <https://forms.dot.ca.gov/v2Forms/servlet/FormRenderer?frmid=ADM0378F>.
- Small Business Status (DES-OE-0102.4) can be downloaded at <https://forms.dot.ca.gov/v2Forms/servlet/FormRenderer?frmid=DESOE0102.4>.
- California Company Preference (DES-OE-0102.9) can be downloaded at <https://forms.dot.ca.gov/v2Forms/servlet/FormRenderer?frmid=DESOE0102.9>.
- Certified DVBE Summary (ADM-4015) can be downloaded at <https://forms.dot.ca.gov/v2Forms/servlet/FormRenderer?frmid=ADM4015>.
- Contractor Certification Clauses (CCC 04/2017) can be downloaded at <https://www.dgs.ca.gov/OLS/Resources/Page-Content/Office-of-Legal-Services-Resources-List-Folder/Standard-Contract-Language>.
- California Civil Rights Laws Certification (ADM-0076) can be downloaded at <https://forms.dot.ca.gov/v2Forms/servlet/FormRenderer?frmid=ADM0076>.
- Darfur Contracting Act Certification (ADM-0077) can be downloaded at <https://forms.dot.ca.gov/v2Forms/servlet/FormRenderer?frmid=ADM0077>.
- DOT DES-OE-0102.14 In-Use Off-Road Diesel-Fueled Vehicle List can be downloaded at <https://forms.dot.ca.gov/v2Forms/servlet/showForm2?frmid=DOTDESOE010214>

The following forms and information will be required at the time of contract award and signature.

- Payment Bond (ADM-2009) can be downloaded at <https://forms.dot.ca.gov/v2Forms/servlet/FormRenderer?frmid=ADM2009>.
- Certificate(s) of Insurance

- Postconsumer-Content Certification (CalRecycle 74) can be downloaded at <https://www.calrecycle.ca.gov/buyrecycled/stateagency/certify>.
- Payee Data Record (STD 204) can be downloaded at <https://www.documents.dgs.ca.gov/dgs/fmc/pdf/std204.pdf>. This form is designed to allow vendors to self-report information needed for accurate and complete reporting of vendor payment income. Completion of this form is required by all vendors providing goods and/or services to the State of California.

Contract Will Not Be Executed Without These Documents.

STATE OF CALIFORNIA - DEPARTMENT OF GENERAL SERVICES

STANDARD AGREEMENT

STD 213 (Rev. 04/2020)

AGREEMENT NUMBER
05A2703

PURCHASING AUTHORITY NUMBER (If Applicable)

1. This Agreement is entered into between the Contracting Agency and the Contractor named below:

CONTRACTING AGENCY NAME

California Department of Transportation

CONTRACTOR NAME

2. The term of this Agreement is:

START DATE

TBD

THROUGH END DATE

3. The maximum amount of this Agreement is:

4. The parties agree to comply with the terms and conditions of the following exhibits, which are by this reference made a part of the Agreement.

Exhibits	Title	Pages
	PROPOSED FORM OF AGREEMENT	
	DO NOT COMPLETE	
	Continued on the following sheets, each bearing the Agreement/Contract number.	
+	The provisions on the following pages hereof constitute a part of the Agreement	
-		
+		
-		

Items shown with an asterisk (*), are hereby incorporated by reference and made part of this agreement as if attached hereto.

These documents can be viewed at <https://www.dgs.ca.gov/OLS/Resources>

IN WITNESS WHEREOF, THIS AGREEMENT HAS BEEN EXECUTED BY THE PARTIES HERETO.

CONTRACTOR

CONTRACTOR NAME (if other than an individual, state whether a corporation, partnership, etc.)

CONTRACTOR BUSINESS ADDRESS

CITY

STATE

ZIP

PRINTED NAME OF PERSON SIGNING

TITLE

CONTRACTOR AUTHORIZED SIGNATURE

DATE SIGNED



1. Contractor agrees to indemnify, defend, and save harmless the State, its officers, agents, and employees from any and all claims and losses accruing or resulting to any and all contractors, subcontractors, materialmen, laborers and any other person, firm or corporation furnishing or supplying work services, materials or supplies in connection with the performance of this contract, and from any and all claims and losses accruing or resulting to any person, firm or corporation who may be injured or damaged by Contractor in the performance of this contract.
2. Contractor, and the agents and employees of Contractor, in the performance of the Agreement, shall act in an independent capacity and not as officers or employees or agents of State of California.
3. The State may terminate this agreement and be relieved of the payment of any consideration to Contractor should Contractor fail to perform the covenants herein contained at the time and in the manner herein provided. In the event of such termination the State may proceed with the work in any manner deemed proper by the State. The cost to the State shall be deducted from any sum due Contractor under this agreement, and the balance, if any, shall be paid Contractor upon demand.
4. Without the written consent of the State, this Agreement is not assignable by Contractor either in whole or in part.
5. Time is of the essence in this Agreement.
6. No alteration or variation of the terms of this contract shall be valid unless made in writing and signed by the parties hereto, and no oral understanding or agreement not incorporated herein, shall be binding on any of the parties hereto.
7. The consideration to be paid Contractor, as provided herein, shall be in compensation for all of Contractor's expenses incurred in the performance hereof, including travel and per diem, unless otherwise expressly so provided.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Notice to Bidders
And
Special Provisions

**For Construction On State Highway In San Luis Obispo County, 0.4 Miles North of
Wadsworth Ave on Route 101, and at Franklin Drive On Route 1, In Pismo Beach.**

In District 05 On Route 1, 101

Under

Standard Specifications dated 2023

Project plans approved January 17, 2024

Standard Plans dated 2023

Identified by

Contract No. 05A2703

05-SLO-101-17.3, SLO, 1, 16.2

Project ID 0523000045

Small Business Minor B Solicitation

Quotes open: Wednesday, February 21, 2024

Dated: February 7, 2024

Revised 12/29/2023

SPECIAL NOTICES

California Civil Rights Laws

Any person that submits a bid or proposal to, or otherwise proposes to enter into or renew a contract with a State agency with respect to any contract in the amount of one hundred thousand dollars (\$100,000) or more shall certify, under penalty of perjury, at the time the bid or proposal is submitted or the contract is renewed, that they satisfy all of the conditions set forth in California Public Contract Code Section 2010 and they shall execute the Certification attached.

Assumption of Risk and Indemnification Regarding Exposure to Environmental Health Hazards

In addition to, and not a limitation of, Contractor’s indemnification obligations contained elsewhere in this Agreement, Contractor hereby assumes all risks of the consequences of exposure of Contractor’s employees, agents, Subcontractors, Subcontractors’ employees, and any other person, firm, or corporation furnishing or supplying work services, materials, or supplies in connection with the performance of this Agreement, to any and all environmental health hazards, local and otherwise, in connection with the performance of this Agreement. Such hazards include, but are not limited to, bodily injury and/or death resulting in whole or in part from exposure to infectious agents and/or pathogens of any type, kind, or origin. Contractor also agrees to take all appropriate safety precautions to prevent any such exposure to Contractor’s employees, agents, Subcontractors, Subcontractors’ employees, and any other person, firm, or corporation furnishing or supplying work services, materials, or supplies in connection with the performance of this Agreement. Contractor also agrees to indemnify and hold harmless Caltrans, the State of California, and each and all of their officers, agents, and employees, from any and all claims and/or losses accruing or resulting from such exposure. Except as provided by law, Contractor also agrees that the provisions of this paragraph shall apply regardless of the existence or degree of negligence or fault on the part of Caltrans, the State of California, and/or any of their officers, agents, and/or employees.

Mandatory Organic Waste Recycling

It is understood and agreed that pursuant to Public Resources Code Sections 42649.8 et seq., if Contractor generates two (2) cubic yards or more of organic waste or commercial solid waste per week, Contractor shall arrange for organic waste recycling services or commercial waste recycling services that separate/source organic waste recycling. Contractor shall provide proof of compliance, i.e. organic waste recycling services or commercial waste recycling services that separate/source organic waste recycling, upon request from Caltrans Contract Manager.

ADA Compliance

All entities that provide electronic or information technology or related services that will be posted online by Caltrans must be in compliance with Government Code Sections 7405 and 11135 and the Web Content Accessibility Guidelines (WCAG) 2.0 or subsequent version, published by the Web Accessibility Initiative of the World Wide Web Consortium at a minimum Level AA success. All entities will respond to and resolve any complaints/deficiencies regarding accessibility brought to their attention.

Satisfying a Self-Insured Retention (SIR)

All insurance required by this Agreement must allow, but not require, the State to pay any SIR and/or act as Contractor's agent in satisfying any SIR. The choice to pay any SIR and/or act as Contractor's agent in satisfying any SIR is at the State's discretion. If the State chooses to pay any SIR and/or act as Contractor's agent in satisfying any SIR, Contractor shall reimburse the State for the same.

Available Coverages/Limits

In the event the insurance coverages obtained by Contractor is broader in scope than, and/or the limits are higher than, those required under the Agreement, all such broader coverage and/or higher limits available to the Contractor shall also be available and applicable to the State.

Electronic Signatures

Each party agrees that the electronic signatures, whether digital or encrypted, of the parties included in this Agreement are intended to authenticate this writing and to have the same force and effect as manual signatures for this Agreement. Documents that are referenced by this Agreement may still require manual signatures.

Executive Order N-6-22 – Russia Sanctions

On March 4, 2022, Governor Gavin Newsom issued Executive Order [N-6-22](#) (the EO) regarding Economic Sanctions against Russia and Russian entities and individuals. "Economic Sanctions" refers to sanctions imposed by the U.S. government in response to Russia's actions in Ukraine, as well as any sanctions imposed under state law. By submitting a bid or proposal, Contractor represents that it is not a target of Economic Sanctions. Should the State determine Contractor is a target of Economic Sanctions or is conducting prohibited transactions with sanctioned individuals or entities, that shall be grounds for rejection of Contractor's bid/proposal any time prior to contract execution, or, if determined after contract execution, shall be grounds for termination by the State.

Standard Title VI/Nondiscrimination Assurances (DOT Order No. 1050.2A)

California Department of Transportation, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC Sections 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Bid Bonds

Bid bonds are only required for agreements over \$461,000.00. Contractors are no longer required to purchase and submit a Bid Bond when bidding on Minor B Projects. Section 2-1.34 of the 2023 Standard Specifications is not applicable to Minor B Projects.

The Special Provisions contained herein for Contract No. 05A2703
have been prepared by or under the direction of the following
Registered Persons.

HIGHWAYS



REGISTERED CIVIL ENGINEER



Table of Contents

Notice to Bidders..... 1

Special Provisions.....3

Division I General Provisions3

1 General.....3

2 Bidding.....3

3 Contract Award and Execution.....5

4 Scope of Work6

5 Control of Work7

6 Control of Materials..... 10

7 Legal Relations and Responsibility to The Public..... 14

8 Prosecution and Progress..... 15

9 Payment..... 17

Division II General Construction..... 19

12 Temporary Traffic Control 19

14 Environmental Stewardship..... 38

Division VII Drainage Facilities 38

71 Existing Drainage Facilities 38

Link to the 2023 Edition of the Standard Specifications.....54

STANDARD PLANS LIST

The standard plan sheets applicable to this Contract include those listed below. When 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)

DRAINAGE INLETS, PIPE INLETS AND GRATES

D71	Drainage Inlet Markers
D72E	CIP Drainage Inlets - Types GO and GDO
D77A	Grate Details No. 1

TEMPORARY CRASH CUSHIONS, RAILING AND TRAFFIC SCREEN

RSP T1A	Temporary Crash Cushion, Sand Filled (Unidirectional)
T1A1	Temporary Crash Cushion, Sand Filled (Unidirectional)
T1B	Temporary Crash Cushion, Sand Filled (Bidirectional)
T2	Temporary Crash Cushion, Sand Filled (Shoulder Installations)
T3A	Temporary Railing (Type K)
T3B	Temporary Railing (Type K)
T3C	Temporary Barrier System (Cross Bolt)
T3D	Temporary Barrier System (Cross Bolt)
T3E	Temporary Barrier System (Cross Bolt)

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
T13	Traffic Control System with Reversible Control on Two Lane Conventional Highways
T13A	Traffic Control System - Two Lane Conventional Highways
T13B	Traffic Control System - Two Lane Conventional Highways
T14	Traffic Control System for Ramp Closure
T18	Traffic Control System Construction Work Zone Speed Limit Reduction on Freeways and Expressways
T22	Traffic Control System for Construction Work Zone Speed Limit Reduction on Two Lane Conventional Highways

TEMPORARY WATER POLLUTION CONTROL

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

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

CANCELED STANDARD PLANS LIST					
The standard plan sheets listed below are canceled and not applicable to this contract.					
Plan No.	Date Canceled	Plan No.	Date Canceled	Plan No.	Date Canceled
A77U1	01-22-24				
A77U2	01-22-24				
A77U3A	01-22-24				
A77U3B	01-22-24				
A77U4	01-22-24				
A77U5	01-22-24				
A77V1	01-22-24				
A77V2	01-22-24				
A78A	01-22-24				
A78B	01-22-24				
A78C1	01-22-24				
A78C2	01-22-24				
A78D1	01-22-24				
A78D2	01-22-24				
A78E1	01-22-24				
A78E2	01-22-24				
A78E3	01-22-24				
A78F1	01-22-24				
A78F2	01-22-24				
A78GA	01-22-24				
A78GB	01-22-24				
A78H	01-22-24				
A78J	01-22-24				
A78K	01-22-24				

Notice to Bidders

Quotes open: February 21, 2024

Dated: February 7, 2024

General work description: Culvert Liner

The Department of Transportation (Department) will receive quotes for San Luis Obispo County, 0.4 Miles North of Wadsworth Ave on Route 101, and at Franklin Drive On Route 1, In Pismo Beach.

District-County-Route-Post Mile: 05-SLO-101, 18.2, SLO, 1, 16.2

Contractor must have either a Class A license or a Class C-34 license.

Contractor must be a certified Small Business under Section 2-1.04.

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

Bids must be on a unit price basis.

Complete the work within 20 working days.

The estimated cost of the project is \$271,000.00.

The Department will receive quotes until 2:15 p.m. on the quotes open date at:

Analyst's Email: tammy.p.tran@dot.ca.gov

*Put SB Contract # in the Subject Line of the Email

Quotes received after this time will not be accepted.

No pre-bid meeting is scheduled for this project.

Quote Packages, including **Invitation for Quote**, **Notice to Bidders**, **Special Provisions**, and **Project Plans** are available in electronic format only. These documents may be viewed and obtained at:

Cal eProcure website: <https://caleprocure.ca.gov/pages/index.aspx>

Standard Specifications dated 2023

Standard Plans dated 2023

Present bidders' inquiries to the District at:

District 5 Construction Duty Engineer

District 5 Construction

50 Higuera Street

San Luis Obispo, CA 93401

E-mail: D5.Bidders.Questions@dot.ca.gov

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

Department will open bids under Section 2-1.43.

There will be no public opening of quotes. Quotes results will not be listed on the Internet.

Request quote results at:

Analyst's Name: Tammy Tran
Email: tammy.p.tran@dot.ca.gov
Phone: (279)599-7880

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

Prevailing wages may be required on this Contract under Section 7-1.02K(2). The Director of the California Department of Industrial Relations (DIR) determines the general prevailing wage rates. Obtain the wage rates at the DIR website, <http://www.dir.ca.gov>, or from the Department's Labor Compliance Office of the district in which the work is located at <https://dot.ca.gov/programs/construction/labor-compliance>.

Department has made available Notices of Suspension and Proposed Debarment from the Federal Highway Administration. For a copy of the notices, go to <http://ppmoe.dot.ca.gov/des/oe/contractor-info.html>. Additional information is provided in the Excluded Parties List System at <https://www.dol.gov/ofccp/regs/compliance/preaward/debarlst.htm>.

Standard Specifications and Standard Plans may be viewed at Department's Division of Design website at <https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications>.

Special Provisions

Division I General Provisions

1 General

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

Bid Item List: List of bid items and the associated quantities on the **Quote Proposal for Unit Quote Items**.

Replace the definition of **Director** in Section 1-1.07B with:

Director: Department’s District Director.

Add the following to Section 1-1.07B:

Quote: Bid for an agreement with bidders limited to only Small Businesses under Section 2-1.04.

Add the following to the table in Section 1-1.11:

Reference or agency or department unit	Website	Address	Telephone Number
Office of Civil Rights	https://dot.ca.gov/programs/civil-rights	1823 14th Street Sacramento, CA 95811	(916) 324-0449

AA

2 Bidding

Replace Section 2-1.04 with:

2-1.04 Bidder Eligibility

Bidder must be certified as a small business at the time and date of bid opening and on the date of contract award or have submitted a complete application to the Department of General Services (DGS), Office of Small Business and DVBE Services. The complete application and any required substantiating documentation must be received by DGS by 5:00 p.m. on the bid opening date.

Replace Section 2-1.06A with:

2-1.06A General

Standard Specifications and **Standard Plans** may be viewed at Bidders’ Exchange website.

The **Bid Package** may be viewed and obtained at the Cal eProcure website.

The **Bid Package** includes the **Invitation for Bid**, **Notice to Bidders**, Special Provisions, Project Plans, Revised Standard Plans, and a web link to the Standard Specifications and Standard Plans.

Replace the 3rd paragraph of Section 2-1.06B with:

If an **Information Handout** or cross sections are available, you may view and obtain them at the Cal eProcure website.

Add the following to Section 2-1.10

Submit the form with your bid.

Replace section 2-1.11 with:

2-1.11 IN-USE OFF-ROAD DIESEL-FUELED VEHICLE LIST

Section 2-1.11 applies to non-informal-bid contracts.

Complete and submit the In-Use Off-Road Diesel-Fueled Vehicle List form under section 2-1.33.

On the In-Use Off-Road Diesel-Fueled Vehicle List form, list each fleet used by you or your subcontractor to perform work and is subject to 13 CCR § 2449 et seq. Submit a copy of a valid Certificate of Reported Compliance (13 CCR § 2449, subdivision (n)) for each fleet listed on the form within 10 days of contract award. Failure to list a fleet used by you or your subcontractor to perform work on the In-Use Off-Road Diesel-Fueled Vehicle List form may result in a nonresponsive bid. Failure to submit the Certificate of Reported Compliance for a fleet listed on the In-Use Off-Road Diesel-Fueled Vehicle List form may result in a nonresponsive bid

Replace Section 2-1.15 with:

2-1.15 Disabled Veteran Business Enterprises (DVBE)

2-1.15A General

Take necessary and reasonable steps to ensure that DVBEs have opportunity to participate in the Agreement.

Comply with Military and Veterans Code Sections 999 et seq.

Department encourages bidders to obtain DVBE participation to ensure Department achieves its State-mandated overall DVBE goal.

If you obtain DVBE participation:

1. Complete and submit the Certified DVBE Summary form under with your bid. List all DVBE participation on this form.
2. List each first tier DVBE subcontractor in the Subcontractor List form, regardless of percentage of the total bid.

If a DVBE joint venture is used, submit the joint venture agreement with the Certified DVBE Summary form.

List each first tier DVBE, subcontractor on the Subcontractor List (DES-OE-0102C) regardless of percentage of the total bid.

DVBEs must be certified by the bid opening date and remain certified through contract award.

Delete Section 2-1.18.

Delete Section 2-1.27.

Replace Section 2-1.33 with:

2-1.33 Bid Document Completion and Submittal

Complete forms in the **Bid Package**. Submit the forms with your bid.

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

If an agent other than the authorized corporate officer or a partnership member signs the bid, file a Power of Attorney with the Department either before opening bids or with the bid.

Otherwise, the bid may be nonresponsive.

Delete Section 2-1.34

Delete the second paragraph of Section 2-1.40.

Replace Section 2-1.43 with:

2-1.43 Bid Opening

The Department opens the bids after the time shown in the **Notice to Bidders**.

Replace the first paragraph of Section 2-1.47 with:

The Department may grant bid relief under Public Contract Code Sections 5100 et seq. Submit any request for bid relief to DPAC. The **Relief of Bid Request** form is available at the Department's website.

AA

3 Contract Award and Execution

Add the following to Section 3-1.02A:

For a unit price-based bid, submit the bid with a unit price and the item total (the product of the unit price and the quantity) for each item and a total price (the sum of the item totals) in the spaces provided on the Bid Item List. Prices submitted on the Bid Item List are the basis of comparison of bids except:

1. If a discrepancy between the unit price and the item total exists, the unit price prevails except:
 - 1.1. If the unit price is illegible, omitted, or the same as the item total, item total prevails, and the unit price is the quotient of the item total and the quantity.
 - 1.2. If a decimal error is apparent in the product of the unit price and the quantity, the Department will use either the unit price or item total based on the closest by percentage to the unit price or item total in the Department's Final Estimate.
2. If the unit price and the item total are illegible or are omitted, the bid may be determined nonresponsive.
3. Bids on lump sum items are item totals. If a unit price for a lump sum item is entered and it differs from the item total, the item total prevails.

- 4. Entries are to be expressed in dollars or decimal fractions of a dollar. Symbols such as commas and dollar signs are ignored and have no significance in establishing unit price or item total.
- 5. Unit prices and item totals are interpreted by the number of digits and decimal placement. Do not round item totals or the total bid.

Replace Section 3-1.04 with:

3-1.04 Contract Award

If the Department awards the contract, the award is made to the lowest responsible bidder within 30 days after bid opening.

Replace Section 3-1.09 with:

3-1.09 Contract Bonds

Section 3-1.05 does not apply.

If the total bid exceeds \$25,000, the successful bidder must furnish a payment bond to secure the claim payments of laborers, workers, mechanics, or materialmen providing goods, labor, or services under the Contract. This bond must be equal to at least 100 percent (100%) of the total bid (Pub. Cont. Code Section 7103).

A performance bond is not required.

Replace Section 3-1.11 with:

3-1.11 Payee Data Record

Complete and sign the **Payee Data Record** form included in the contract documents.

Replace Section 3-1.18 with:

3-1.18 Contract Execution

The successful bidder must sign the **Standard Agreement** form to execute the contract.

The bidder's security may be forfeited for failure to execute the contract within the time required.

Add to Section 3:

3-1.20 Budget Disclaimer

If sufficient program funds are not allocated to complete this contract as awarded, the contract may be amended to reflect any reduction in funds or be terminated.

^^

4 Scope of Work

Delete Section 4-1.07C.

Delete Section 4-1.07D.

^^

5 Control of Work

Replace section 5-1.13E with:

Section 5-1.13E applies to all contracts.

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

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

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

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

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

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

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

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

Add to the end of section 5-1.20A:

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

Coincident or Adjacent Contracts

Contract no.	County–Route–Post Mile	Location	Type of work
05-1G480	SLO-101-20.9/21.3	In San Luis Obispo County at Route 101 Intersections at Avila Beach Drive	Operational Improvements
05-1G680	SLO-101-16/R22.5	In San Luis Obispo County on Route 101 in Pismo Beach from Pismo Overhead to 0.2 miles North of Avila Beach UC.	Operational Improvements.
05-1G980	SLO-1-10/16.8	In San Luis Obispo County on Route 1 in Pismo Beach, from Garcia Way to North Pismo	Upgrade Americans with Disabilities Act (ADA) curb ramps, cold plane pavement, place Rubberized Hot Mix Asphalt (RHMA) pavement and widen shoulders and construct bike lanes as complete streets elements.
05-1J860	SLO-101-7.8/16.5	In San Luis Obispo County, on Route 101 from Los Barros Road to South of Hinds Avenue Overcrossing	Rehabilitate pavement, drainage systems, enhance highway worker safety, designate bikeways with pavement delineation, and install Transportation Management System (TMS) elements.
05-1N380	SLO-1-17.34/47.78	In San Luis Obispo County on Route 1 in San Luis Obispo near Morro Bay	Replace or line culverts at PM 17.34 (Nodes 5-4, Nodes 25-5, Nodes 4- 3, Nodes 3-2, Nodes 27-25, Nodes 29-27) and PM 43.09 (Node 2-1)

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.

Add to the end of section 5-1.32:

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

Add to Section 5-1.38:

The Engineer will only consider a request for relief of maintenance and protection responsibility if the Engineer has suspended the work under Section 8-1.06.

Replace Section 5-1.42 with:

5-1.42 Requests For Information (RFI)

Submit an RFI upon recognition of any event or question of fact arising under the Contract.

The Engineer responds to the RFI within three (3) days. Proceed with the work unless otherwise ordered. You may protest the Engineer's response by:

1. Submitting a potential claim record, using the **Supplemental Potential Claim Record** form, within three (3) days after receiving the Engineer's response
2. Complying with Section 5-1.43

Replace Section 5-1.43 with:

5-1.43 Potential Claims and Dispute Resolution

5-1.43A General

Minimize and mitigate impacts of potentially claimed work or event.

For each potential claim, assign an identification number determined by chronological sequencing and the first date of the potential claim.

Use the identification number for each potential claim on the **Supplemental Potential Claim Record** form.

Failure to comply with this procedure is a waiver of the potential claim and a waiver of the right to a corresponding claim for the disputed work in the administrative claim procedure.

5-1.43B Potential Claim Record

Submit a potential claim record, using the **Supplemental Potential Claim Record** form, within three (3) days of the Engineer's response to the RFI or within three (3) days from the date when a dispute arises due to an act or failure to act by the Engineer. The potential claim record must include the following:

1. Nature and circumstances causing the potential claim or event
2. Contract specifications supporting the basis of a claim
3. Estimated claim cost and an itemized breakdown of individual costs stating how the estimate was determined. If accurate cost figures are not available, provide an estimate, or describe the types of expenses involved.

Proceed with the potentially claimed work unless otherwise ordered. Maintain records that provide a clear distinction between costs for the disputed work and the costs of the undisputed work.

Within five (5) days of a request, provide access to the project records determined necessary by the Engineer to evaluate the potential claim.

Delete Section 5-1.47.

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6 Control of Materials

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 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, it has a pH above 5.0, does not contain soluble lead in concentrations equal to or greater than 5mg/l as determined by the Waste Extraction Test (WET) Procedures, 22 CA Code of Regs § 66261.24(a)(2) App II, does not contain lead in concentrations above 80 mg/kg total lead, is free from all other contaminants identified in the local material plan, and will comply with the job site's basin plan and water quality objectives of the RWQCB.

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 to hazardous waste concentration thresholds and the RWQCB's basin plan requirements and water quality objectives for the job site location

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 the (1) 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.

Analyze the samples using the US EPA's ProUCL software with a 95 percent upper confidence limit. 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 free of possible contaminants identified in the local material plan
5. Complies with the RWQCB's basin plan for the job site location
6. Complies with the RWQCB's water quality objectives for the job site location

6-1.03C Local Material Management

Do not place local material until authorized.

If the Engineer determines the appearance, odor, or texture of any delivered local material suggests possible contamination, sample and analyze the material. The sampling and analysis

is change order work unless (1) hazardous waste is discovered or (2) the analytical test results indicate the material does not comply with section 6-1.03B(3).

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

Replace section 6-1.04 with:

6-1.04 BUY AMERICA

6-1.04A General

Buy America requirements do not apply to the following:

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

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

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

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

6-1.04C Steel and Iron Materials

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

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

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

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

6-1.04D Manufactured Products

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

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

6-1.04E Construction Materials

The following construction materials must be produced in the United States under standards in 2 CFR 184.6:

1. Non-ferrous metals
2. Plastic and polymer-based products such as:
 - 2.1. Polyvinylchloride

- 2.2. Composite building materials
- 3. Glass
- 4. Fiber optic cable including drop cable
- 5. Optical fiber
- 6. Lumber
- 7. Engineered wood
- 8. Drywall

All manufacturing processes for these materials as defined in 2 CFR 184.6 must occur in the United States.

Furnish construction materials to be incorporated into the work with certificates of compliance with each project delivery. Manufacturer’s certificate of compliance must identify where the construction material was manufactured and attest specifically to compliance with its 2 CFR 184.6 standard.

Minor additions of articles, materials, supplies, or binding agents to these construction materials do not change the categorization of the construction material.

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7 Legal Relations and Responsibility to The Public

Add to Section 7-1.02K(2):

Payment of prevailing wages is not required if the contract amount is:

- 1. \$25,000 or less for a public works construction project.
- 2. \$15,000 or less for the alteration, demolition, repair, or maintenance of a public works project.

If satisfactory certified payroll records are not submitted by the time the final invoice is submitted, the Department will withhold all payments due and owing the Contractor pending receipt of the records.

Add after the first paragraph of Section 7-1.02K(3):

Payroll records are not to be submitted if prevailing wages are not required.

Add to the last paragraph of Section 7-1.02K(3):

If progress payments are not made, and you have not submitted adequate records by the time you submit the final invoice, the Department will withhold all payments due and owing the Contractor pending receipt of such records.

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.

Lead is typically found within the top 2 feet of material within the highway. Reuse all of the excavated material on the right-of-way. Handle the material under all applicable laws, rules, and regulations, including those of the following agencies:

1. Cal/OSHA
2. CA RWQCB, Region
- 3- Central Coast

Delete the 24th paragraph of section 7-1.04.

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8 Prosecution and Progress

Replace Section 8-1.02A with:

8-1.02A General

Before or at the preconstruction conference, submit a progress schedule on a form of your choice.

On the schedule, show the order in which you propose to carry out the work, the start dates of the several salient features of the work (including procurement of materials, plant, and equipment), and the contemplated dates for completing those salient features.

If the contract is more than 60 working days, submit an update of the schedule on or before the last day of each month, showing the status of work actually completed during the period preceding the 20th of the month.

Subsequent to the time that submittal of a progress schedule is required, no progress payments will be made for any work until a satisfactory schedule has been submitted to the Engineer.

Delete Sections 8-1.02B and 8-1.02C.

Replace the first paragraph of Section 8-1.04B with:

Start job site activities by the date specified in the Engineer's letter providing notice that the Contract has been approved.

Replace *Reserved* in section 8-1.04F with:

8-1.04F Flexible Start

The 1st paragraph of section 8-1.04B does not apply.

Within 10 days after receiving notice that the Contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department, submit a request for authorization to start job site activities. The request must include:

1. Progress schedule
2. Date you plan to start job site activities

The Department does not allow changes to the request after it is authorized.

Except for measuring controlling field dimensions and locating utilities, do not start job site activities until your WPCP or SWPPP, whichever applies, is received and authorized and the following submittals are received:

1. Notice of Materials To Be Used form.
2. Contingency plan for reopening closures to traffic.

If you obtain authorization to start job site activities for the date you requested, start job site activities on the requested date. If you fail to submit a request for authorization to start job site activities as specified or if the request is not authorized, start job site activities within 15 days after receiving notice of Contract approval. Start work before September 15, 2024.

Replace Section 8-1.13 with:

8-1.13 Contractor's Control Termination

The Department may terminate your control of the work for failure to do any of the following:

1. Supply an adequate workforce
2. Supply material as described
3. Pay subcontractors
4. Prosecute the work as described in the Contract

The Department may also terminate your control for failure to maintain insurance coverage.

For a Federal-aid project, the Department may terminate your control of the work for failure to include "Required Contract Provisions, Federal-Aid Construction Contracts" in subcontracts.

The Department gives you notice at least five (5) business days before terminating control. The notice describes the failures and the time allowed to remedy the failures. If failures are not remedied within the time provided, the Department takes control of the work.

The Department may complete the work if the Department terminates the Contractor's control or you abandon the project. The Department determines the unpaid balance under the Contract.

At any time before final payment of all claims, the Department may convert a Contractor's control termination to a Contract termination.

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9 Payment

Replace Section 9-1.16A with:

9-1.16A General

For a contract with more than 20 working days, you may request that progress payments be made. If approved by the Engineer, submit a fully itemized invoice, in triplicate, covering the actual work performed. The invoice must reference the Department of Transportation and the contract number.

For a contract with 20 working days or less, payment will be made after contract acceptance.

No progress payment will be made when, in the opinion of the Engineer, the work is not proceeding in accordance with the specifications, or when the total value of the work done since the last estimate is less than \$5,000.

Delete Sections 9-1.16C and 9-1.16D.

Replace Section 9-1.17 with:

9-1.17 Payment After Contract Acceptance

9-1.17A General

Reserved

9-1.17B Reserved

9-1.17C Final Invoice

Submit a fully itemized invoice, in triplicate, within 30 days after Contract acceptance, covering the actual work performed. The invoice must reference the Department of Transportation and the contract number.

Submit claims statements with the final invoice. Claims not submitted with the final invoice will not be considered.

Submit required final utilization reports to Engineer. Failure to provide the required forms with the final invoice will result in 25 percent (25%) of the dollar value of the bill being withheld from payment until the form is submitted. The amount will be returned to Contractor when satisfactory final utilization forms are submitted.

9-1.17D Final Payment and Claims

9-1.17D(1) General

If you do not submit a claim statement, Engineer immediately processes the final invoice and the Department pays the amount due. This final payment is conclusive except as specified in Sections 5-1.27 and 9-1.21.

If you submit a claim statement, Engineer immediately processes the final invoice and the Department pays the amount due for the undisputed work. This payment is conclusive as to the amount of work completed and the amount payable except as affected by the claims or as specified in Sections 5-1.27 and 9-1.21.

9-1.17D(2) Claim Statement

9-1.17D(2)(a) General

Submit additional information as to the basis and amount of the claim within 15 days of a request by Engineer. Failure to submit requested information or to provide access to records of the information is cause for denial of the claim.

9-1.17D(2)(b) Overhead Claims

Claims for overhead expenses must be supported by an audit report by an independent Certified Public Accountant. Claims are subject to audit by the State at its discretion.

9-1.17D(2)(c) Declaration

Submit a declaration that includes the following language with the claim statement:

I declare under penalty of perjury, according to the laws of the State of California, that the foregoing claims, with specific reference to the California False Claims Act (Govt Code § 12650 et seq.) and to the extent the project contains federal funding, the U.S. False Claims Act (31 USC § 3729 et seq.), are true and correct, and that this declaration was signed on _____(date)_____, 20__ at _____, California.

9-1.17D(2)(d) Waiver

A claim is waived if:

1. Claim does not have a corresponding **Supplemental Potential Claim Record** identification number
2. Claim does not have the same nature, circumstances, and basis of claim as the corresponding **Supplemental Potential Claim Record**
3. Claim is not included in the claim statement
4. You do not comply with the claim procedures
5. You do not submit the declaration specified in Section 9-1.17D(2)(c)

9-1.17D(3) Final Determination of Claims

Failure to allow timely access to claim supporting data when requested waives the claim.

Department's costs in reviewing or auditing a claim not supported by the Contractor's accounting or other records are damages incurred by the State within the meaning of the California False Claims Act.

After claim review, Engineer makes a preliminary determination of claims and furnishes it to Contractor. Within 30 days of notification of the preliminary determination, make a presentation in support of remaining claims to a person designated by Director. Director makes the final decision on payable compensation due the Contractor and furnishes it to Contractor.

Department pays the amount due within 30 days. The final estimate is conclusive as to the amount of work completed and the amount payable except as specified in Sections 5-1.27 and 9-1.21.

Replace section 9-1.22 with:

9-1.22 Resolution of Claims

Resolution of claims will be through the State of California Victims Compensation and Government Claims Board under (Gov. Code Div. 3.6, Part 3).

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

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

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

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

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

Temporary concrete barrier segments must:

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

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

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

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

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

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

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

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

12-3.20B Materials

12-3.20B(1) General

Temporary barrier segment must:

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

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

12-3.20B(2) Temporary Concrete Barriers

12-3.20B(2)(a) General

Temporary concrete barrier segment must:

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

Segment connection hardware must be one of the following:

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

Steel bar loops must comply with ASTM A36/A36M.

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

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

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

Cross bolt hardware includes:

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

Cross bolts must:

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

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

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

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

Anchor hardware must include:

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

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

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

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

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

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

Precast Barrier Tolerance

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

Stakes must:

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

Anchor bolts must:

1. Be a threaded rod, 1-1/8-inch-diameter-by-10-1/2-inch-long
2. Comply with ASTM 307

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

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

Anchor bolts must:

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

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

12-3.20B(3) Temporary Steel Barriers

Temporary steel barriers segment must:

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

12-3.20B(4)–12-3.20B(9) Reserved

12-3.20B(10) Temporary Terminal Sections

Reserved

12-3.20C Construction

12-3.20C(1) General

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

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

Minimum Clear Area Width

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

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

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

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

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

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

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

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

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

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

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

Temporary Barrier System Offset Rate

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

^aRate is longitudinally to transversely with respect to the edge of the traveled way

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

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

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

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

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

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

After removing the temporary barrier systems:

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

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

12-3.20C(2) Temporary Concrete Barriers

12-3.20C(2)(a) General

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Install a minimum 160 feet of Type K temporary railing.

Excavate and backfill under section 19-3.

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

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

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

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

12-3.20C(3) Temporary Steel Barriers

12-3.20C(3)(a) General

Install temporary barrier system under manufacturer's instructions.

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

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

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

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

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

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

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

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

12-3.20C(4)–12-3.20C(9) Reserved

12-3.20C(10) Temporary Terminal Sections

Reserved

12-3.20D Payment

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

Add to the beginning of section 12-3.32C:

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

1. Stationary lane closure
2. Shoulder closure
3. Speed reduction zone

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

Start displaying the message on the sign 15 minutes before closing the lane or shoulder or when directed by the Engineer.

Replace section 12-3.36 with:

12-3.36 PORTABLE TRANSVERSE RUMBLE STRIPS

12-3.36A General

12-3.36A(1) Summary

Section 12-3.36 includes specifications for placing portable transverse rumble strips.

12-3.36A(2) Definitions

Not Used

12-3.36A(3) Submittals

Submit a copy of the manufacturer's instructions.

12-3.36A(4) Quality Assurance

Not Used

12-3.36B Materials

The strip must be either the RoadQuake 2 or the RoadQuake 2F Folding Temporary Portable Rumble Strip manufactured by Plastic Safety Systems, Inc. For information on obtaining the rumble strips, contact:

CUSTOMER SERVICE
PLASTIC SAFETY SYSTEMS, INC.
2444 BALDWIN RD
CLEVELAND, OH 44104

Telephone no.: (800) 662-6338 or (216) 231-8590

12-3.36C Construction

Place portable transverse rumble strips before closing the lane to traffic.

The color of the portable transverse rumble strips must be black or orange. Use 2 arrays and, each array must consist of 3 rumble strips.

Portable transverse rumble strips must not be placed:

1. On sharp horizontal or vertical curves
2. Through pedestrian crossings

If the portable transverse rumble strips become out of alignment or skewed by more than 6 inches, measured from one end to the other, readjust to bring the placement back to the original location.

Portable transverse rumble strips are not required if any of the following conditions is met:

1. Work duration occupies a location for 4 hours or less.
2. Posted speed limit is below 45 mph.
3. Work is of emergency nature.
4. Work zone is in snow or icy weather conditions.

For a RoadQuake 2 rumble strip, securely connect the 3 sections under the manufacturer's instructions before placing them in the traffic lane.

Remove all portable transverse rumble strips and warning signs before opening the lane to traffic.

If the Engineer determines that the portable transverse rumble strips no longer provide audible and vibratory alerts, replace them.

12-3.36D Payment

Not Used

Add to section 12-4.02A(2):

special days: Martin Luther King Jr. Day, Cesar Chavez Day, "Fun in the Sun" Classic Car Show, Clam Festival, AIDS Lifecycle Ride, Arthritis Ride, and Ride to Recovery. .

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

Submit a contingency plan for each of the following activities:

1. Rapid-set concrete activities.

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

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

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

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

Type of facility	Route	Direction or segment	Period	Liquidated damages/interval
Mainline	1	NB	1st half hour 2nd half hour 2nd hour and beyond	\$1,000/10 minutes \$1,052/10 minutes \$1,403/10 minutes

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

If work vehicles or equipment is parked on the shoulder within 6 feet of a traffic lane close the shoulder area with fluorescent-orange traffic cones or portable delineators. Place the cones or delineators on a taper in advance of the parked vehicles or equipment and along the edge of the traveled way at 25-foot intervals to a point not less than 25 feet past the last vehicle or piece of equipment. Use at least 9 cones or delineators for the taper. Place advance warning signs as specified in section 12-4.02C(8).

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

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

Lane Closure Restrictions For Designated Holidays And Special Days											
Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun	Mon
x	H xx	xx	xx	xxx							
	SD xx										
x	xx	H xx	xx	xxx							
		SD xx									
	xx	xx	H xx	xx	xxx						
			SD xx								
x	xx	xx	xx	H xx	xxx						
				SD xx	xxx						
				xx	H xx	xxx					
					SD xx						
					xx	H xx	xxx				
						SD xx					
						x	H xx	xxx			
					x	xx	H* xx	xx	xx	xx	xxx
							SD xx				

Legend:

	Refer to lane requirement charts.
x	The full width of the traveled way must be open for use by traffic after 1200.
xx	The full width of the traveled way must be open for use by traffic.
xxx	The full width of the traveled way must be open for use by traffic until 0800.
H	Designated holiday
H*	Thanksgiving Holiday-The full width of the traveled way must be open for use by traffic between Tuesday at 1200 until the following Monday at 0800.
SD	Special day

**Replace section 12-4.02C(3)(g) with:
12-4.02C(3)(g) Freeway or Expressway Lane Requirement Charts**

Expressway lane closures must comply with the requirements shown in the following chart:

Chart No. G1 Freeway Lane Requirements																									
County: San Luis Obispo							Route/Direction: Hwy 101 /							Post Mile: 17.29											
Closure limits: 520 feet south of Wadsworth Ave Undercrossing to 190 feet north of Mattie Road Undercrossing																									
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon– Thu	1	1	1	1	1	1																1	1	1	1
Fri	1	1	1	1	1	1																			
Sat																									
Sun																							1	1	1
Legend:																									
<input type="checkbox"/> 1 Provide at least 1 through 11' lane open in the direction of travel.																									
<input type="checkbox"/> Work is allowed within the freeway where a shoulder or lane closure is not required.																									
REMARKS:																									

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

Comply with the requirements for the complete ramp closure hour charts and ramp lane closures shown in the following chart:

Chart No. J1 Ramp Lane Closures Hour Charts																									
County: San Luis Obispo							Route/Direction: Hwy 101 / NB										Post Mile: 17.28								
Closure limits: Northbound Bello Street On Ramp																									
Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon-Thu	C	C	C	C	C	C															C	C	C	C	C
Fri	C	C	C	C	C	C																			
Sat																									
Sun																						C	C	C	C
Legend:																									
<input type="checkbox"/> C Ramp may be closed completely.																									
<input type="checkbox"/> Work is allowed within the highway where a shoulder or lane closure is not required.																									
REMARKS:																									

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

Comply with the requirements for the city street lane requirement chart shown in the following chart:

Chart No. M1 City Street Lane Requirements																														
County: San Luis Obispo										Direction: NB+SB																				
Closure limits: Franklin Drive																														
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	S	S	S	S	S	S																*S	S	S	S					
Fri	S	S	S	S	S	S																								
Sat																														
Sun																								S	S					
Legend:																														
<table border="0"> <tr> <td style="border: 1px solid black; padding: 2px;">S</td> <td>Shoulder closure is allowed. (Right)</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">*S</td> <td>Shoulder closure is allowed for Pipeliner Install. (Right)</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;"></td> <td>Work is allowed within the highway where a shoulder or lane closure is not required.</td> </tr> </table>																									S	Shoulder closure is allowed. (Right)	*S	Shoulder closure is allowed for Pipeliner Install. (Right)		Work is allowed within the highway where a shoulder or lane closure is not required.
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*S	Shoulder closure is allowed for Pipeliner Install. (Right)																													
	Work is allowed within the highway where a shoulder or lane closure is not required.																													
REMARKS																														

Replace *Reserved* in section 12-4.02C(3)(k) with:

Comply with the requirements for the conventional highway lane closures shown in the following chart:

Chart No. K1 Conventional Highway Lane Requirements																														
County: San Luis Obispo							Route/Direction: Hwy 1/ NB+SB							Post Mile: 16.23																
Closure limits: Between Wilmar Way & 0.10 mile beyond Franklin Drive																														
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	R	R	R	R	R	R																*R	R	R	R					
Fri	R	R	R	R	R	R																								
Sat																														
Sun																							R	R	R					
Legend:																														
<table border="0"> <tr> <td style="border: 1px solid black; width: 20px; text-align: center;">R</td> <td>Provide at least 1 through traffic lane not less than 10 feet in width for use by both directions of travel. (Reversing Control)</td> </tr> <tr> <td style="border: 1px solid black; width: 20px; text-align: center;">*R</td> <td>Provide at least 1 through traffic lane not less than 10 feet in width for use by both directions of travel. (To be used for 1 Day for Pipeliner Install) (Reversing Control)</td> </tr> <tr> <td style="border: 1px solid black; width: 20px; text-align: center;"></td> <td>Work is allowed within the highway where a shoulder or lane closure is not required.</td> </tr> </table>																									R	Provide at least 1 through traffic lane not less than 10 feet in width for use by both directions of travel. (Reversing Control)	*R	Provide at least 1 through traffic lane not less than 10 feet in width for use by both directions of travel. (To be used for 1 Day for Pipeliner Install) (Reversing Control)		Work is allowed within the highway where a shoulder or lane closure is not required.
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	Work is allowed within the highway where a shoulder or lane closure is not required.																													
REMARKS:																														

Add to the end of section 12-4.02C(7)(b):

For a stationary one-way-reversing traffic-control lane closure, you may stop traffic in 1 direction for periods not to exceed 10 minutes. After each stoppage, all accumulated traffic for that direction must pass through the work zone before another stoppage is made.

The maximum length of a single stationary one-way-reversing traffic-control lane closure is 0.5 mile between flaggers.

Instruct bicyclists to join the traffic queue through the one-way-reversing traffic-control work zone.

Add to section 12-4.02C(7)(b):

Provide a stationary impact attenuator vehicle during any lane closure where workers or equipment will exist within the closed lane.

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

If shoulders are closed at Route 1, use the following advance warning signs:

1. W21-5 (Shoulder Work)
2. W21-5b (Right/Left Shoulder Closed Ahead)
3. C30A(CA) (Shoulder Closed)
4. W11-1 (Bicycle Crossing)
5. W16-1P (Share the Road)

Replace section 12-4.02C(10) with:

12-4.02C(10) End of Queue Monitoring and Warning with Truck Mounted Changeable Message Sign

12-4.02C(10)(a) General

12-4.02C(10)(a)(i) Summary

Section 12-4.02C(10) includes specifications for placing, operating, maintaining, and removing portable changeable message sign truck (PCMST), monitoring the traffic end of queue, and warning approaching traffic.

12-4.02C(10)(a)(ii) Definitions

Not Used

12-4.02C(10)(a)(iii) Submittals

Submit a weekly report of PCMST operation by Tuesday of the following week. The report must indicate the date, time, message, county, route, direction, and post mile or station for each PCMST.

12-4.02C(10)(a)(iv) Quality Assurance

Not Used

12-4.02C(10)(b) Materials

Portable changeable message sign truck consists of a PCMS mounted on a supporting structure affixed to a pick-up truck under the PCMS manufacturer's instructions.

PCMS must comply with section 12-3.32 and display characters at least 12 inches in height.

Each truck must be in good working order and have:

1. Gross vehicle weight rating of at least 5,000 pounds
2. Operable 2-way communication system to communicate with other PCMST operators and the Engineer
3. Rotating or flashing amber light
4. Public address system with external speaker
5. 54-by-24-inch SC15 (CA) sign attached to the tailgate

12-4.02C(10)(c) Construction

Provide one operator per PCMST.

Provide 1 PCMST in the direction of travel for freeway, expressway, or multilane conventional highway lane closures. Provide 2 PCMSTs, one for each direction of travel, for two-lane conventional highway lane closures.

Provide end of queue monitoring and warning for the first 2 days of lane closures, for each direction, with a PCMST. During this time determine, along with the Engineer, the most appropriate locations or upstream distances to place the PCMSs identified in Section 12-3.32C of these Specifications.

Provide end of queue monitoring and warning with a PCMST for an additional 3 days of lane closures for each location at the direction of the Engineer.

Initially, place the PCMST from 1,000 to 1,500 feet upstream of the W20-1 sign.

Monitor the traffic end of queue before the lane closure taper cones are placed and full time when the lane closure is in use.

Turn on the PCMS and display the alternating message:

- 1. *SLOW TRAFFIC AHEAD* and *PREPARE TO STOP* when traffic on the closure side is moving at 10 mph or more, below the posted speed limit
- 2. *STOPPED TRAFFIC AHEAD* and *PREPARE TO STOP* when traffic on the closure side stops within 200 feet downstream of the W20-1 sign. Reposition PCMST as necessary to maintain a distance from 1,000 to 1,500 feet upstream from the end of queue until the traffic condition abates and traffic speed is within 10 mph of the posted speed limit. If the location of the PCMST falls outside the project limits, notify the Engineer and continue to monitor the end of queue and warn traffic.

If the traffic speed falls 10 mph or more below the posted speed limit after removing the lane closure, notify the Engineer and continue to warn traffic and monitor the end of queue for up to 2 hours. Monitoring the queue and warning traffic after the 2 hours is change order work.

If quick changing traffic conditions or road shoulder limitations do not allow for repositioning of PCMSTs, place additional PCMSTs to warn traffic. Additional PCMSTs are change order work.

12-4.02C(10)(d) Payment

Not Used

^^

14 ENVIRONMENTAL STEWARDSHIP

Add to the end of section 14-1.02:

More than one ESA exists on the job site. Use the management measures for the corresponding ESA shown in the following table:

ESA Management		
Identification	Location	Management measures
Existing Vegetation	Within project limits	Store equipment and materials in areas that have been previously disturbed and are clear of vegetation.

Access to an ESA other than that described is prohibited.

^^

**DIVISION VII DRAINAGE FACILITIES
71 EXISTING DRAINAGE FACILITIES**

Replace section 71-3.01A(3) with:

**71-3.01A(3) Submittals
71-3.01A(3)(a) General**

For each culvert, submit a work plan in a 3-ring binder that has labeled dividers for each type of plan. The work plan must include:

1. Cleaning plan
2. Inspection plan
3. Contact grouting plan when this work is described
4. Annular-space grouting plan when this work is described
5. Inspection and evaluation report
6. Postrehabilitation inspection report

For each portion of the work plan, obtain the Department's authorization before you perform work based on that portion.

At the prerrehabilitation meeting, submit the work plan. Include work plans for contact grouting and annular grouting when this work is described. Allow 7 days for the Department's review. If multiple binders are submitted simultaneously or a binder is submitted before the review of a previously submitted binder is complete, designate the sequence that the binders are to be reviewed. Allow review time specified plus 3 days for each additional binder.

Within 7 days of the inspection of a culvert, submit an inspection and evaluation report. Allow 7 days for the Department's review. If multiple reports are submitted simultaneously or a report is submitted before the review of a previously submitted report is complete, designate the sequence that the reports are to be reviewed. Allow the review time specified plus 3 days for each additional report.

Within 7 days of the completion of all culvert or work, submit a postrehabilitation inspection report as an action submittal. Allow 5 days for the Department's review. If multiple reports are submitted simultaneously or an additional report is submitted before the review of a previously submitted report is complete, designate the sequence that the reports are to be reviewed. Allow the specified review time plus 3 days for each additional reinspection report. Obtain written approval of the reinspection report.

To make a change to an authorized plan or report, submit it as specified for a new submittal. Note the changes.

Retain a copy of the culvert inspection videos and records until the postrehabilitation inspection report is authorized.

Within 5 days of completing annular space grouting at a culvert, submit the grouting records.

71-3.01A(3)(b) Cleaning Plan

The cleaning plan must include methods for:

1. Cleaning.
2. Controlling sediments dislodged during the cleaning.
3. Controlling and diverting the existing stream or groundwater flow. The bypass system must have adequate capacity and size. Include:
 - 3.1. Your calculations for the existing flows and the capacity of the bypass system.
 - 3.2. Your schedule for the required use of the bypass system.

71-3.01A(3)(c) Inspection Plan

The inspection plan must include:

1. Sample of the printed CCTV video log. The printed log must include digital photographs of material not dislodged during cleaning operations, locations where invert repairs were necessary, culvert joints, lateral connection joints, protrusions, and other portions of the culvert drain.
2. Sample CCTV video recording from previous culvert drain inspection work. The video must have audio commentary stating operational and structural defects in pipes that are the same size as those for this Contract. Sample video recording must be taken with the same camera and lighting equipment proposed for this work. Describe the camera type, model and transporter.

If human entry is possible, the plan must also include samples obtained from handheld video and still photographs. Include the following:

1. Sample of the printed video log. The printed log must include digital photographs of material not dislodged during cleaning operations, locations where invert repairs were necessary, culvert joints, lateral connection joints, protrusions, etc.
2. Sample video recording from previous culvert inspection work. The video must have audio commentary showing operational and structural defects in pipes that are the same size as those for this Contract. Sample video recording must be taken with the same camera and

lighting equipment proposed for this work. Describe the camera type, model, and transporter.

71-3.01A(3)(d) Contact Grouting Plan

If contact grouting is described, ordered, or proposed as a repair method, submit a contact grouting plan.

The grouting plan must include:

1. Order of work.
2. Maximum injection pressures.
3. Details and data for drilling and grouting equipment.
4. Plans for controlling groundwater and existing culvert stream flows.
5. Pressure gauge, recorder, and field equipment certifications, including calibrations by an independent testing agency.
6. Sample printout of the form for recording grouting operations. Form must show the following tabulated information for each grout port:
 - 6.1. Port location.
 - 6.2. Pressure.
 - 6.3. Volume.
 - 6.4. Start and end time.
7. Schedule of grout port installations and method for obtaining probe-depth dimensions at grout ports; tabulation of locations and dimensions.
8. Culvert strut details as necessary.
9. Method for monitoring deformation of culvert or concrete lining.
10. Grout mix design, including:
 - 10.1. Densities and viscosity.
 - 10.2. Initial set time.
 - 10.3. Materials and the independent testing agency's test data as specified in section 41-2.
 - 10.4. Grout working time before 15 percent change in density or viscosity occurs.

71-3.01A(3)(e) Annular Space Grouting Plan

If a pipeliner with annular space grouting is described, submit an annular space grouting plan. Submit a separate plan for each kind of grout or variation in grouting procedure or pipeliner installation. For each plan, state the corresponding culvert location and applicable installation conditions. With authorization, you may change the grout mix or grouting procedure before starting grouting at the given culvert location. The grout plan must show grouting methods and procedures and include:

1. Grout mix design. Include details of and test results from an independent testing agency for the following:
 - 1.1. Components and proportions.
 - 1.2. Densities and viscosity.
 - 1.3. Initial set time of the grout.
 - 1.4. 28-day minimum grout compressive strength.
 - 1.5. Grout working time before a 15 percent change in density or viscosity occurs.
2. Maximum injection pressures, including those for the stage at the crown of the culvert.
3. Proposed grout lift heights and volumes (e.g., stage 1 to spring line; stage 2 is fully grouted).
4. Bulkhead designs and locations.

5. Calculations of the buoyant forces during grouting and details for holding the pipeliner on the invert of the culvert for a period of time long enough to allow the first lift of grout to set before proceeding to the second lift.
6. Details for re-establishing lateral connections and openings.
7. Pressure gauge, recorder, and field equipment calibration records from an independent testing agency.
8. Proposed number and location of vents relative to the pipeliner diameter, pipeliner stiffness, and depth of flow of grout in the pipe.
9. Culvert strut details as necessary.
10. Written confirmation that you have coordinated grouting procedures with the grout installer and pipeliner manufacturer.
11. Calculations or other documentation verifying that pipeliner joints will not leak, separate, or deform under the proposed grouting pressure.

71-3.01A(3)(f) Inspection and Evaluation Report

Report the inspection findings and recommended repairs. CCTV or video recording and photography must comply with section 71-3.01A(4).

The inspection and evaluation report must include:

1. 2 copies of the CCTV or video recording. On the outside of each copy include:
 - 1.1. Recording number.
 - 1.2. Inspection date.
 - 1.3. Current distance along the culvert measured by a count meter.
 - 1.4. Encoded text description of location, culvert size, type and length.
 - 1.5. Printed labels with location and date on a hard copy of the video recording.
 - 1.6. Audio portion stating:
 - 1.6.1. Inspection date.
 - 1.6.2. Confirmation of the orientation and origin of the tape counter meter.
 - 1.6.3. Description of culvert size, type and length.
 - 1.6.4. Description and location of each defect.
 - 1.6.5. Description and location of each lateral pipe opening.
 - 1.6.6. Description of flow direction.
2. 1 set of the digital photographs.
3. Documentation of the condition of the culvert, including:
 - 3.1. Any condition that might prevent proper installation of pipeliner or invert paving.
 - 3.2. Protrusions.
 - 3.3. Collapsed or crushed areas.
 - 3.4. Reduced cross-sectional areas.
 - 3.5. Each lateral pipe opening, including:
 - 3.5.1. Drainage system identification.
 - 3.5.2. Distance into culvert.
 - 3.5.3. Exact position and orientation within culvert wall.
 - 3.5.4. Size or dimensions of opening.
 - 3.5.5. Connecting joint.
 - 3.5.6. Flow direction.
 - 3.6. Each culvert joint.
4. Recommendation for repairs or statement that no repairs are needed.
5. If repairs are recommended, describe the location and conditions, including any sharp or protruding appurtenances that might snag or tear the pipeliner. If possible, include a detailed

evaluation by human entry of the areas where repairs are needed. Describe any corrective action proposed to re-establish lateral pipe and service openings.

If the Engineer determines that the inspection documentation is not adequate, your inspection and evaluation report will be rejected and you must reinspect and resubmit your report. Inadequate documentation may include poor camera head position, poor camera focus, poor illumination, rapid rate of progression, and incomplete records and logs. No payment is made for recleaning and reinspecting.

71-3.01A(3)(g) Postrehabilitation Inspection Report

After the completion of the postrehabilitation inspection, submit a postrehabilitation inspection report. The written logs, videos, and photographs must comply with section 71-3.01A(4).

The report must document the repairs, rehabilitation, and any subsequent deficiencies including:

1. Defects
2. Discoloration
3. Irregularities
4. Surface discontinuities
5. Anomalies
6. Constrictions
7. Deformities

If there are deficiencies and human entry is possible, the report must include more detailed documentation of human-entry inspection, concentrating on the areas with deficiencies.

If there are deficiencies, the inspection report must include recommendations to correct the deficiencies.

If the Engineer determines that the inspection report is not adequate, your report will be rejected and you must reinspect and resubmit your report. Inadequate documentation may include poor camera head position, lack of focus, poor illumination, rapid rate of progression, and incomplete records and logs. No payment is made for recleaning and reinspecting.

If there are deficiencies, do not start corrections until you have obtained authorization of the report.

Replace section 71-3.02 with:

71-3.02 FILL CULVERT VOIDS

71-3.02A General

Section 71-3.02 includes specifications for filling voids below and around a culvert that have been found during cleaning and inspection.

Wherever pipeliners are shown, fill voids before installing pipeliners.

Wherever there are voids in the materials below the invert of the culvert , fill the voids with slurry cement backfill.

Filling the voids below the invert of the culvert with slurry cement backfill is paid for as change order work.

71-3.02B Materials

Not Used

71-3.02C Construction

After receipt of the inspection and evaluation report, the Engineer may order additional void-detection work including probing and hammer sounding. Additional void-detection work is change order work.

Prevent the flow of cementitious material and water from construction activities into waterways and drainage facilities.

71-3.02D Payment

Record the quantity of slurry cement backfill that is installed and submit this quantity. The Department does not pay for slurry cement backfill that leaks through to the inside of the culvert. The Department does not pay for slurry cement backfill that is wasted, disposed of, or remaining on hand after completion of the work.

Replace section 71-3.08 with:

71-3.08 CURED-IN-PLACE PIPELINERS

71-3.08A General

71-3.08A(1) Summary

Section 71-3.08 includes specifications for lining an existing culvert by either pulling or inverting a resin-impregnated fabric tube and curing the tube in place.

For all types of resin and installation methods, capture and dispose of any process water, condensate, and wastewater resulting from the installation of the cured-in-place pipeliner (CIPP). Comply with section 13-4.03D(5).

Do not install CIPP:

1. During a rain event
2. In the 48 hours following a rain event
3. When a runoff producing event is predicted within the 4 days after curing the CIPP unless a water diversion system is in place

The CIPP must be kept dry for a minimum of 4 days after curing.

No CIPP work is allowed from November 1 to April 30.

71-3.08A(2) Definitions

segment: Continuous run of CIPP installed from one end of a culvert to the other end.

71-3.08A(3) Submittals

Submit a work plan for installing the CIPP. The work plan must include:

1. Description of how and when you will submit resin samples and any fillers used for the CIPP resin system.
2. Summary sheet for each culvert. Identify the summary sheet by the drainage system number shown for the corresponding culvert. Summary sheets must include:
 - 2.1. Calculated minimum thickness of liner.
 - 2.2. Manufacturer's instructions for:

- 2.2.1. Minimum pressure to hold the tube tight against the culvert.
- 2.2.2. Maximum allowable pressures to ensure no damage to the tube nor to the culvert.
- 2.2.3. Cure pressures including the minimum cold, maximum heated, and maximum cold pressures.
- 2.2.4. Method of liner insertion such as air inversion, water inversion, or pulled-in-place.
- 2.2.5. Resin trade name.
- 2.2.6. Proposed cure method such as hot water, UV light or steam.
- 2.2.7. Heat Cure:
 - 2.2.7.1. Post-cure temperature.
 - 2.2.7.2. Cure time including accommodations for the effects of the anticipated heat sink conditions and variation over the length of the culvert.
 - 2.2.7.3. Expected maximum exothermic temperature.
- 2.2.8. UV light curing include a full protocol for cure time, rate of travel of the UV assembly, pressures, light wattage, equipment used and quantity of lamps in operation for the correct curing of the fabric tube recommended by the manufacturer for the resins used for the project.
- 2.3. Proposed length, access and termination points for each segment.
- 3. Manufacturer's information for:
 - 3.1. Resin, resin enhancer, and bond enhancer identification and typical properties including:
 - 3.1.1. Identification of supplier.
 - 3.1.2. Resin test results including infrared scans of both the reacted and unreacted resin.
 - 3.1.3. Pipeliner and resin manufacturer's certification that the resin and catalyst system meets requirements of each location where CIPP will be placed and is compatible with the intended installation method, service conditions and existing culvert material including bituminous coatings.
 - 3.1.4. Certificates of compliance for CIPP in compliance with ASTM F2019, ASTM D5813, ASTM F1216, or ASTM F1743.
 - 3.2. Resin enhancer data including:
 - 3.2.1. Size range in microns.
 - 3.2.2. Quantity used in the formulated resin.
 - 3.2.3. Bond-enhancing coating material.
 - 3.2.4. Certification from the resin manufacturer or formulator that bond enhancer is compatible with the resin system.
 - 3.2.5. Certification from the bond enhancer manufacturer that the material is suitable for use in aqueous environments.
 - 3.3. Fabric tube description including:
 - 3.3.1. Identification of supplier.
 - 3.3.2. Types of impermeable membranes and relative juxtaposition such as inner layer, outer layer, or both.
 - 3.3.3. Maximum pulling force that will not damage fabric tube for pulled-in-place installations.
 - 3.4. Installation procedure for both insertion and resin curing.
 - 3.5. Sealing materials such as quick-set epoxy mortar, high viscosity epoxy, or hydrophilic vulcanized expansive rubber strip.
 - 3.6. Preliner description, preliner splicing recommendations, and identification of the supplier.

- 3.7. Description of nontoxic lubricant for inversion installation. Lubricant must not:
 - 3.7.1. Have any detrimental effects on the fabric tube, resin, or boiler and pump system.
 - 3.7.2. Support the growth of bacteria.
 - 3.7.3. Adversely affect the fluid to be transported.
4. Record of annual calibration for pressure and temperature equipment performed by an independent testing agency including:
 - 4.1. Standards traceable to the National Institute of Standards and Technology.
 - 4.2. Formal reporting procedure, including published test forms.
 - 4.3. Sample of a temperature and pressure log to be used for monitoring the resin curing process. Logs must have temperatures for resin, water, or steam and pressure noted at 5-minute intervals. Logs must identify the date, fabric tube thickness, and drainage system number shown for the corresponding culvert.
5. Test results from an independent testing agency for 10,000-hour, 50-year flexural creep modulus test under ASTM D2990. If authorized 10,000-hour tests are not available, use a minimum 75 percent reduction of the flexural modulus of elasticity for all formula calculations. Determine the flexural modulus of elasticity under ASTM D790, Procedure A, and comply with the requirements of ASTM D5813, and Table 1 within ASTM F2019, ASTM F1216, or ASTM F1743.
6. Certification on manufacturer's letterhead indicating you are approved by the fabric tube and resin manufacturer to perform CIPP installation work.
7. Material safety data sheets for all hazardous chemicals that will be used on the job site including resin, catalyst, cleaners, and repair agents. Identify the proposed use for each hazardous chemical and where it will be used in the work.
8. CIPP design calculations for each culvert location. Include the drainage system number shown for the corresponding culvert and the liner thickness. Design parameters include:
 - 8.1. CIPP classification. Unless otherwise shown, classification must be Type II (partially deteriorated) under ASTM D5813 and ASTM F1216, Appendix X1.1.1.
 - 8.2. CIPP must be designed under ASTM F1216, Appendix X1.2.1.
 - 8.3. Ovality must be assumed at 5 percent.
 - 8.4. If not described otherwise, assume the groundwater level is at 1/2 the culvert depth.
 - 8.5. Assume no bonding to the culvert wall.

Submit a minimum of 4 ounces of unreacted liquid resin test sample to METS, Attention: Chemical Laboratory. You must include any necessary co-reactants, proposed cure method, and infrared scans of both the reacted and unreacted resin with the sample.

Within 21 days of completing the resin curing at a culvert location, submit the test results from an independent testing agency. Allow 3 business days for the Department's review. The report must be signed by an engineer who represents the independent testing agency and is registered as a civil engineer in the State. The report must include:

1. Infrared spectrographic chemical fingerprint. Run and compare the infrared spectrographic chemical fingerprint of the field sample with the accepted fingerprint from the pre-installation informational submittal. Verify that the field-sample resin system is the same as the authorized resin system.
2. Flexural strength and flexural modulus test results for field samples.
3. Thickness measurements for the liner using prepared core samples.
4. Description of the defects in the tested samples in terms of the effect on CIPP performance.

Submit the tape and log of recorded temperatures within 48 hours after completing the resin-curing process.

Submit the recorded pressure within 48 hours after completing the resin-curing process.

71-3.08A(4) Quality Assurance

71-3.08A(4)(a) General

Use an authorized laboratory. The laboratory must have facilities and staff capable of performing tests including (1) tests under ASTM D790 and (2) the infrared spectrographic chemical fingerprint. Obtain the specified samples and transport them to the authorized laboratory or have the laboratory staff sample and transport the samples.

71-3.08A(4)(b) Quality Control

Mark each sample with the date, contract number, drainage system number of the corresponding culvert, and location where the sample was taken.

For each CIPP segment, test one 4-ounce sample of catalyzed resin.

Submit additional 4-ounce catalyzed resin test samples to METS, Attention: Chemical Laboratory. You must take:

1. Sample from the first segment.
2. One sample randomly selected by the Engineer from the next 5 segments. If less than 5 segments remain, sample from one of the remaining segments.

Make cured samples from the identical materials such as the tube, resin and catalyst to be used for the CIPP. Identify each sample by date, contract number, drainage system number of the corresponding culvert, thickness, name of resin, and name of catalyst.

The samples must be 6 by 16 inches in size. For heat cured CIPP, create the samples by:

1. Placing 3 aluminum-plate clamped molds, each containing a flat plate sample, inside the downtube when heated circulated water is used, and in the silencer when steam is used during the resin curing period
2. Sealing each flat plate sample in heavy-duty plastic envelope inside the mold
3. Removing the 3 cured flat plate samples after draining all of the moisture from the cured CIPP

If UV cured, comply with field sampling procedures under ASTM F2019, Section 7: Recommended Inspection Practices.

Test the samples for flexural properties under ASTM D790, ASTM D5813, ASTM F1216, ASTM F1743, or ASTM F2019. Verify that physical properties of the field samples comply with the minimum initial test values under:

1. ASTM F1216, Table 1, and as supplemented in Table 1 for heat cured polyester, vinyl ester, and epoxy resins. The flexural strength must be at least 4,500 psi. The flexural modulus must be at least 250,000 psi.
2. ASTM F2019, Table 1, and as supplemented in Table 1 for UV cured CIPP. The flexural strength must be at least 6,500 psi. The flexural modulus must be at least 725,000 psi. Comply with sampling and testing procedures under ASTM F2019, Section 7: Recommended Inspection Practices.

Take core samples in the presence of the Engineer. Comply with the following requirements:

1. Take 2 samples. Take the samples at least 10 feet from each end of the culvert or termination point and at a location near the top of the culvert. Samples must be at least 2 inches in diameter. Take the samples from the top of the culvert unless a minimum wall thickness is specified in section 71-3.08B(1). If a minimum wall thickness is specified in section 71-3.08B(1), take the samples as near as possible to the bottom of the culvert.
2. If human entry is used, samples may be cored internally. Repair cored holes under section 71-3.08C(5). Patch cored holes in the culvert with cement mortar under section 65-2.02F.
3. As an alternative, you may core samples from the top section of a CIPP that has been inverted using the same type of preliner through a pipe temporarily connected to the culvert. Take the cores 12 inches from the temporary joint. The pipe temporarily jointed to the culvert must be:
 - 3.1. Same diameter as the culvert.
 - 3.2. Made of the same material as the culvert.
 - 3.3. At least 10 feet long.
 - 3.4. Placed at the end of the culvert and held in place by a suitable heat sink, such as sandbags or earth, that is at least 6 inches thick.
4. If culvert material is corrugated metal, obtain samples at the corrugation crests.

Prepare the core samples by separating the CIPP material from the culvert material. If heat cured, remove the film from the inner lining or preliner.

If UV cured, remove the film from the inner and outer surfaces of the sample.

Measure the thickness of the liner at 3 spots on each sample. If the culvert material is corrugated metal, measure the thickness at 3 spots that are along a line corresponding to the corrugation crests. Calculate the thickness as an average of at least 6 measurements.

If UV cured, comply with the above core sample requirements and with the testing procedures under ASTM F2019, Section 7. If the culvert material is corrugated metal, measure the thickness at 3 spots that are along a line corresponding to the corrugation crests. Calculate the thickness as an average of at least 6 measurements.

CIPP will be rejected if:

1. Actual temperature, curing time, and schedule do not comply with the authorized work plan
2. Pressure deviates more than 1 psi from the required pressure
3. At any time during installation you violate the manufacturer's required minimum cool-down time or cool-down rate
4. There are defects including:
 - 4.1. Concentrated ridges, including folds and wrinkles exceeding 8 percent of the CIPP diameter
 - 4.2. Dry spots
 - 4.3. Lifts
 - 4.4. Holes
 - 4.5. Tears
 - 4.6. Soft spots
 - 4.7. Blisters or bubbles
 - 4.8. Delaminations
 - 4.9. Gaps in the length of the CIPP
 - 4.10. Gaps or a loose fit between the exterior of the CIPP and the culvert
5. Test results indicate one of the following:

- 5.1. If heat cured, 2 of the 3 flat plate samples do not have any of the following:
 - 5.1.1. the specified modulus of elasticity
 - 5.1.2. the specified flexural strength
 - 5.1.3. either the specified modulus of elasticity or the specified flexural strength
- 5.2. If UV cured, 2 of the 3 cured samples do not have any of the following
 - 5.2.1. the specified modulus of elasticity
 - 5.2.2. the specified flexural strength
 - 5.2.3. either the specified modulus of elasticity or the specified flexural strength
6. The liner thickness is less than the greater of either one of the following:
 - 6.1. Specified thickness
 - 6.2. Calculated minimum thickness shown in your authorized work plan
7. Materials and installation methods are not those shown in your authorized installation plan
8. Defects are excessive or unrepairable
9. CIPP is not continuous or does not fit tightly for the full length of the culvert

71-3.08B Materials

71-3.08B(1) General

CIPP must comply with ASTM D5813 or ASTM F2019.

The fabric tube must consist of 1 or more layers of flexible, needled, polyester-fiber felt, an equivalent nonwoven material, or a combination of nonwoven and woven materials including reinforcing fibers and fabrics capable of carrying the resin, or at least 2 separate tubes made of corrosion resistant E-CR or equivalent glass fibers that comply with ASTM D578. The fabric tube must:

1. Withstand installation pressures and curing temperatures.
2. Be compatible with the resin system used and be capable of stretching to fit irregular pipe sections and negotiate bends.
3. Have staggered longitudinal and circumferential joints between multiple layers of fabric so as not to overlap.
4. Be fabricated to a size so that when installed it fits tightly in the internal circumference and length of the culvert.
5. Have an impermeable plastic inner liner or outer liner film, or both for resin control. The liner must remain a permanent part of the system and an integral part of the fabric tube by bonding or fusing to the fabric tube.
6. Have a plastic coating with opacity that does not interfere with visual inspection.
7. Have outer plastic coating that is impermeable to all wave lengths of light relevant to curing if CIPP is to be UV cured.

71-3.08B(2) Inversion Fabric Tube and Preliner Tube

Upon delivery, the outside layer of the fabric tube must be plastic coated with a material that is compatible with the resin system. Make allowance for circumferential stretching during inversion. Use a preliner tube sized to fit the culvert. The preliner tube must be composed of 3-ply laminate sheet combining two layers of polyethylene film and high-strength-nylon cord grid formed into a tube. The tube must be (1) sized to fit the culvert and (2) continuous for the entire length of the culvert.

71-3.08B(3) Pulled-In-Place Fabric Tube

The outside layer of fabric tube must have an impermeable plastic coating to contain the resin during and after fabric tube impregnation. Make allowance for circumferential and longitudinal

stretching during installation. The minimum tensile strength of the fabric tube or reinforced fiber material in the longitudinal and transverse directions must be 750 psi when tested under ASTM D5034 and ASTM D5035.

71-3.08B(4) Resin System

Resin must be compatible with the installation process and comply with ASTM D5813 and one of the following:

1. ASTM F1216
2. ASTM F1743
3. ASTM F2019

Resin must be one of the following:

1. Chemically resistant isophthalic-based polyester resin
2. Vinyl ester resin and catalyst system
3. Epoxy resin and hardener

Thixotropic agents that do not interfere with visual inspection may be added for viscosity control. Resins may contain pigments, dyes, or colors that do not interfere with visual inspection of the resin-impregnated liner or its required properties. For UV-light cured systems a photo-initiator system must be added to the resin before the impregnation. The photo-initiator system must be tuned to the UV-curing equipment used or vice-versa.

Resin enhancer may be used. The maximum quantity of enhancer allowed is 15 percent by volume. Submit data to certify that the resin enhancer does not exceed the maximum quantity

If using aluminum trihydride or fiberglass-reinforced felt, use a suitable bond-enhancing compound, such as silane or an equivalent, to increase the bond between the resin and other material.

71-3.08C Construction

71-3.08C(1) General

For each culvert location and for each drainage system, notify the Engineer 2 business days before starting resin impregnation.

Obtain authorization before starting the installation of any pipeliner segment. The Engineer may require the submittal of all test results for 1 segment before allowing installation of another segment.

Before starting resin impregnation, inspect the entire fabric tube for defects. The fabric tube must be wet-out by either (1) vacuum-impregnated with resin under controlled conditions or (2) impregnated with resin and run through a set of rollers separated by a space and calibrated under controlled conditions to ensure proper distribution of resin.

The volume of resin must be enough to fully saturate the voids in the fabric tube material, including all resin-absorbing material of the calibration hose if applicable. Attach the following certification to the impregnated fabric tube:

1. Date
2. Type of resin
3. Resin manufacturer, trade name, and lot number
4. Resin calculation
5. Volume of resin used

The impregnated fabric tube must be stored in an area where the temperature is controlled to 70 degrees F or less for heat cured resins, or from 45 to 95 degrees F for UV cured resins.

Before installing the liner, place an impermeable plastic sheet 20 linear feet in length immediately upstream and downstream of the culvert. The impermeable plastic sheet must be either (1) at least 10 mil thick or (2) the same material as required for the preliner tube.

Capture any spillage of raw resin during installation.

If using pulled-in-place installation, install a semi-rigid, plastic slip sheet over the interior portions of the culvert that (1) could tear the outer film or (2) have a significant void.

Promptly repair all pinholes and tears in the plastic film or preliner. If these defective areas cannot be repaired, promptly replace the impermeable plastic film or preliner before proceeding with liner installation.

Remove and properly dispose of all waste materials.

71-3.08C(2) Inversion Installation

CIPP installation by inversion must comply with ASTM F1216.

Install each preliner tube in the presence of the Engineer. The preliner tube must control resin loss and liner thickness and prevent blocked laterals. For long segments, several sections of preliner tube may be spliced together in compliance with the preliner manufacturer's instructions for forming a tube of adequate length.

If you fail to install the required preliner tube over the entire segment, you must remove the CIPP from the culvert.

Turn the fabric tube's end inside out and attach it to a platform ring or standpipe. Adjust the pressure of water or steam to cause the impregnated fabric tube to invert end to end and to hold tight against the culvert wall.

During inversion, maintain a pressure between the required minimum and maximum pressures. If at any time during the installation you violate the manufacturer's required minimum and maximum pressures, you must remove the tube from the culvert.

Use a lubricant during inversion to reduce friction. Lubricant must be poured into the inversion water in the down tube or applied directly to the tube. Lubricant must:

1. Be nontoxic
2. Not have any detrimental effect on tube, resin, and boiler and pump system
3. Not support the growth of bacteria
4. Not adversely affect the fluid to be transported

71-3.08C(3) Pulled-in-Place Installation

CIPP installation by pulling-in-place must comply with ASTM F1743 or ASTM F2019.

Winch the fabric tube into position using the manufacturer's instructions. Adjust the pressure of water, air, or steam to cause the calibration hose to invert the tube end to end and hold tight against the culvert wall.

71-3.08C(4) Resin Curing

71-3.08C(4)(a) General

Cure the resin using either heat or UV light.

Curing the resin using heat consists of a heat cure and a cool-down period.

71-3.08C(4)(b) Pressure

Start the resin-curing process after you complete dimpling of the culvert openings. Maintain the required pressure until the resin-curing process is complete. Monitor the pressure throughout the curing process and record the pressure every 5 minutes.

71-3.08C(4)(c) Heat Cure

After installing the CIPP, use a suitable heat source that is either hot water, steam, or steam with air. The delivery system must be capable of providing the required heat uniformly throughout the section to completely cure the resin. Monitor the temperature throughout the curing process by:

1. Installing gauges to measure the temperature of the incoming and outgoing heat source.
2. Placing remote sensing devices at both ends between the impregnated tube and the culvert invert to monitor the outside temperature of the CIPP.
3. Recording the temperature from each remote sensing device on a continuous tape from a strip-chart recorder. The tape readings must represent the temperature from start to completion of the resin-curing process and draining the CIPP.
4. Recording temperature every 5 minutes.

Initial curing is complete when the remote sensing devices achieve the manufacturer's required curing temperatures for either resin, catalyst, or both. The curing temperature and schedule must comply with the submitted data and cool-down period.

71-3.08C(4)(d) Cool Down for Heat Cured Resins

Before relieving pressure, cool the hardened CIPP to below 100 degrees F. Cool per the manufacturer's instructions. The cool-down rate must not exceed 15 to 20 degrees F/hour.

You may add cool water to the water column while maintaining circulation as the water is drained from a small hole at the opposite end of the CIPP. Maintain constant water-column height until cool-down is completed. Do not let a vacuum develop during the release of the water column.

71-3.08C(4)(e) UV Cure

UV curing must comply with ASTM F2019, Section 6.7 Curing Methods-Ultraviolet Light Curing.

Prevent loss of resin by taping the cut ends of the liner before starting the curing process.

Optimize the UV lights before starting the curing process.

71-3.08C(5) Repairs

As an alternative to replacing a rejected CIPP, you may request authorization to repair the CIPP. Submit a work plan for repairs and include adequate information to describe the repair work such as specified for an installation plan. If the repair plan is not authorized, replace the CIPP.

Authorization may be given for the defects and corresponding repair methods shown in the following table:

CIPP Repairs

Defect	Repair method
CIPP thickness is less than the specified thickness or the calculated minimum thickness	Remove and replace the CIPP. If groundwater conditions allow, you may install a second CIPP within the first CIPP that produces a similar dimension ratio to the first CIPP or use procedures in the authorized repair plan.
Concentrated ridges in the CIPP	If concentrated ridges fall outside the 120-degree invert arc and you demonstrate that grinding does not compromise the CIPP's structural integrity or reduce its thickness below the submitted calculated minimum thickness, you may grind the concentrated ridges to the required tolerance. After grinding to the required tolerance, coat the ground area with the manufacturer's approved resin. At the end of each work day, dispose of any residue generated from grinding.
CIPP does not fit tightly against the culvert at the termination point	Fill the space between the CIPP and culvert with either of the following: Quick-set epoxy mortar High viscosity epoxy Hydrophilic vulcanized expansive rubber strip
Wrinkles or ridges exceeding 5% and up to 8% of pipe diameter outside of the 120-degree invert arc	Grind to the required tolerance
Wrinkles or ridges exceeding 2% and up to 8% of pipe diameter inside of the 120-degree invert arc except corrugations in CMP	Grind to the required tolerance within the lower 120 degrees of pipe to remove wrinkles or ridges and point repair where needed to maintain the minimum thickness or use procedures in the authorized repair plan
Wrinkles or ridges exceed 8% of the pipe diameter	Remove and replace the CIPP
Holes, tears, soft spots, and lifts up to 6 inches in major dimension	Make point repairs under the manufacturer's instructions
Delaminated areas up to 12 inches in major dimension; blistering or bubbling of the coating exceeding 5% of the CIPP's surface area	Make point repairs under the manufacturer's instructions
Annular space at the lateral connection or at the end of the CIPP or infiltration at the lateral opening	Seal with quick-set epoxy mortar, high-viscosity epoxy or a hydrophilic vulcanized expansive rubber strip
Liner not fully cured	Cure the liner again following all procedures.

Link to the Standard Specifications applicable to the 2023 Edition of the Standard Specifications by reference made a part of the Agreement are available at:

<https://dot.ca.gov/programs/design/july-2023-ccs-standard-plans-and-standard-specifications>

INDEX OF PLANS

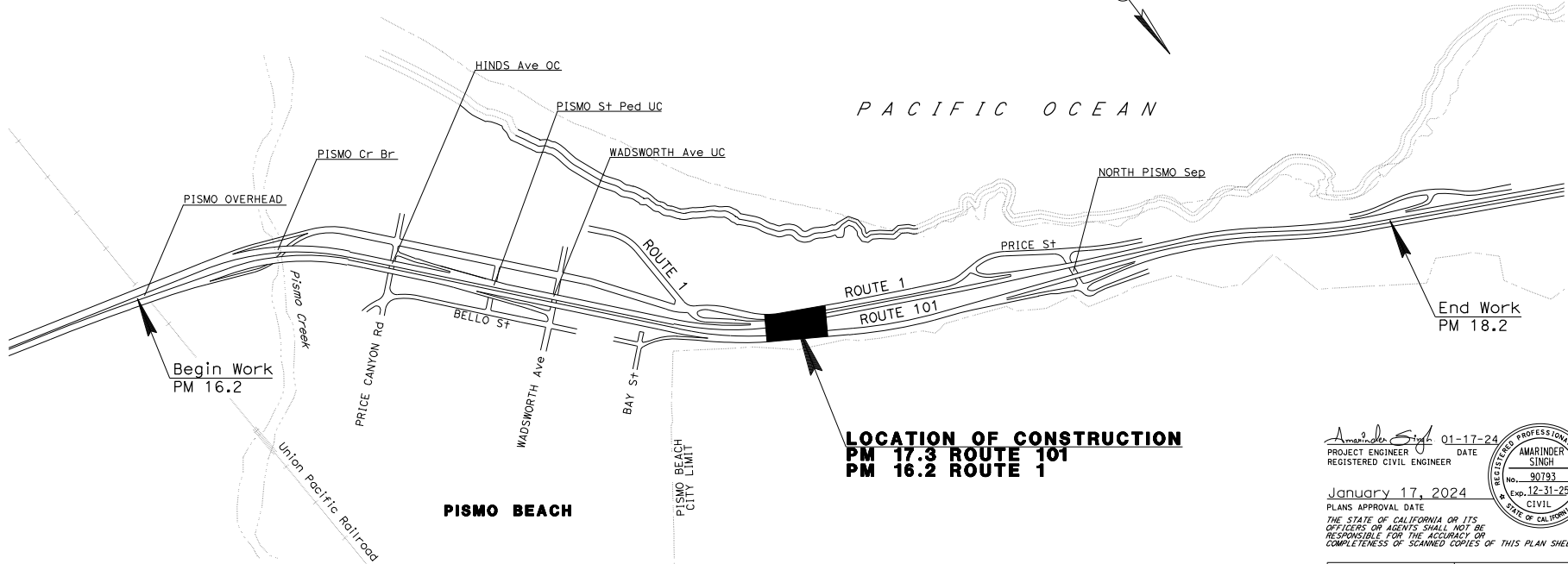
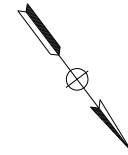
SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2	DRAINAGE PLAN
3	DRAINAGE PROFILE
4	DRAINAGE DETAILS
5	SUMMARY OF QUANTITIES
6	CONSTRUCTION AREA SIGNS
7	REVISED STANDARD PLANS

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN SAN LUIS OBISPO COUNTY
IN PISMO BEACH
ON ROUTE 101
AT 0.4 MILE NORTH OF WADSWORTH AVE UNDERCROSSING
AND ON ROUTE 1
AT FRANKLIN DRIVE
TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2023

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	1, 101	16.2, 17.3	1	7

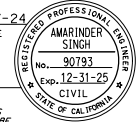


PROJECT MANAGER
ANDREW ROSE

DESIGN MANAGER
ANDREW ROSE

LOCATION OF CONSTRUCTION
PM 17.3 ROUTE 101
PM 16.2 ROUTE 1

PROJECT ENGINEER *Amarinder Singh* 01-17-24 DATE
REGISTERED CIVIL ENGINEER
PLANS APPROVAL DATE
January 17, 2024

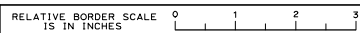


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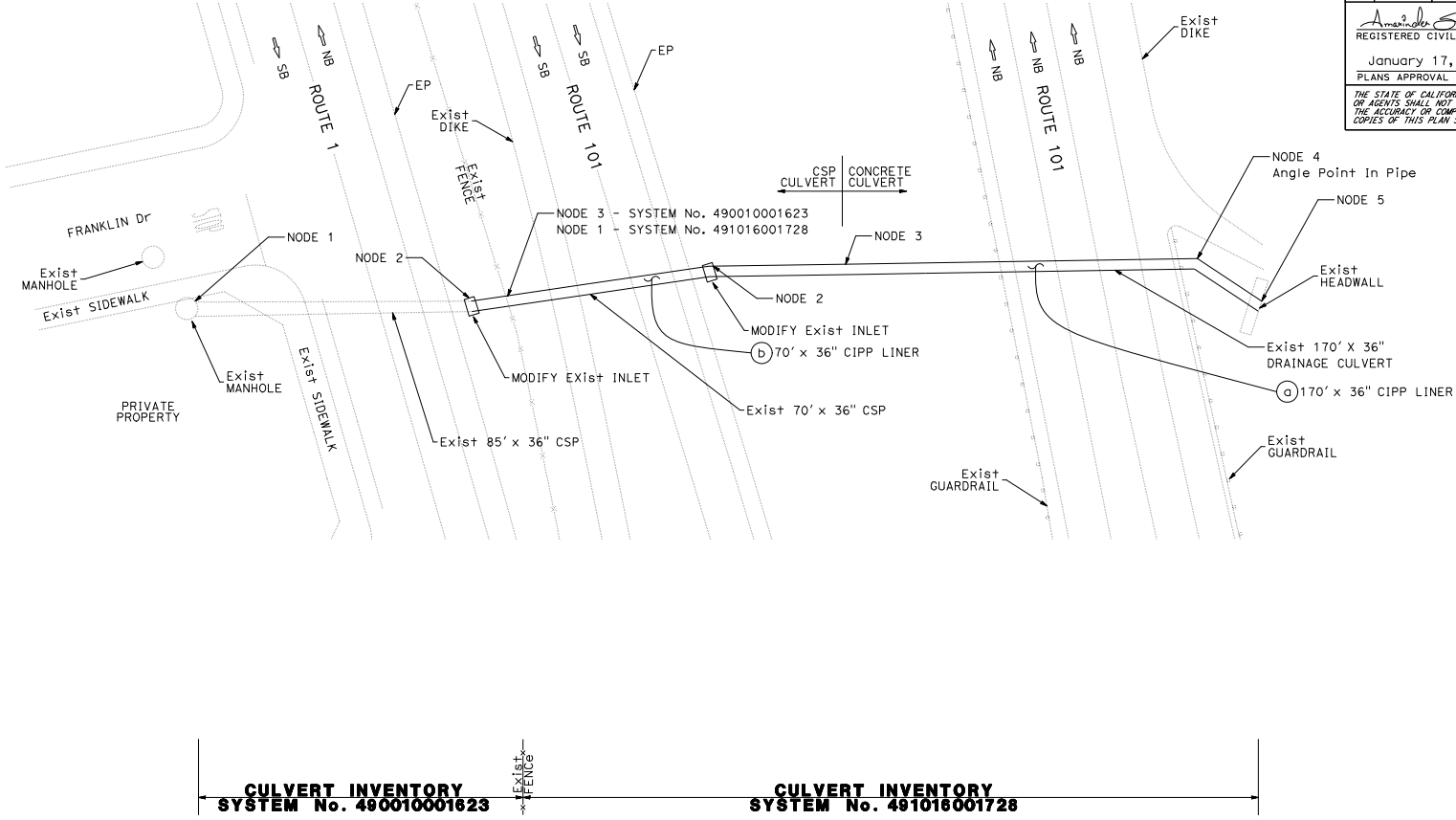
CONTRACT No.	05A2703
PROJECT ID	0523000045

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

NO SCALE



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISED BY
Caltrans MAINTENANCE DESIGN	ANDREW ROSE	CHECKED BY	DATE REVISED
		SIRAJ SARIEDDINE	
		ANDREW ROSE	

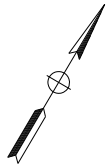


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	1	17.3	2	7

01-17-2024
 REGISTERED CIVIL ENGINEER DATE
 January 17, 2024
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
AMARINDER SINGH
 No. 90793
 Exp. 12-31-25
 CIVIL
 STATE OF CALIFORNIA

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NOTE:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. WORK ON THIS PROJECT REQUIRES LIMITED OR NOT EXCAVATION, UTILITIES ARE NOT SHOWN.

DRAINAGE SYSTEM No. 1 & 2 PROFILE
CULVERT INVENTORY SYSTEM No. 491016001728 & 490010001623
PM 17.28 (HWY-101)/PM 16.23 (HWY-1)

APPROVED FOR DRAINAGE WORK ONLY

DRAINAGE PLAN

NO SCALE

D-1



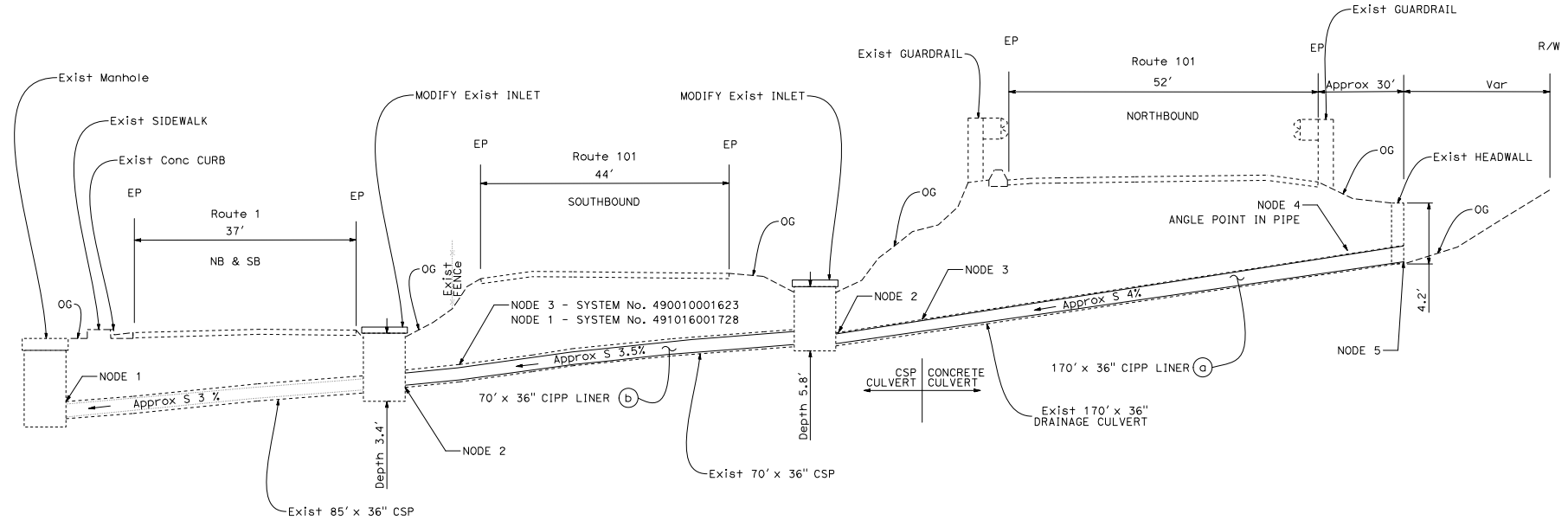
NOTE:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. EXACT LOCATION AND DEPTH OF UTILITIES UNKNOWN.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	1,101	16.2, 17.3	3	7

<i>Amrinder Singh</i>	1-17-24
REGISTERED CIVIL ENGINEER	DATE
January 17, 2024	No. 90793
PLANS APPROVAL DATE	Exj 2-31-24

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**CULVERT INVENTORY
SYSTEM No. 490010001623**

**CULVERT INVENTORY
SYSTEM No. 491016001728**

**DRAINAGE SYSTEM No. 1 & 2 PROFILE
CULVERT INVENTORY SYSTEM No. 491016001728 & 490010001623
PM 17.28 (HWY-101)/PM 16.23 (HWY-1)**

APPROVED FOR DRAINAGE WORK ONLY

DRAINAGE PROFILE

NO SCALE

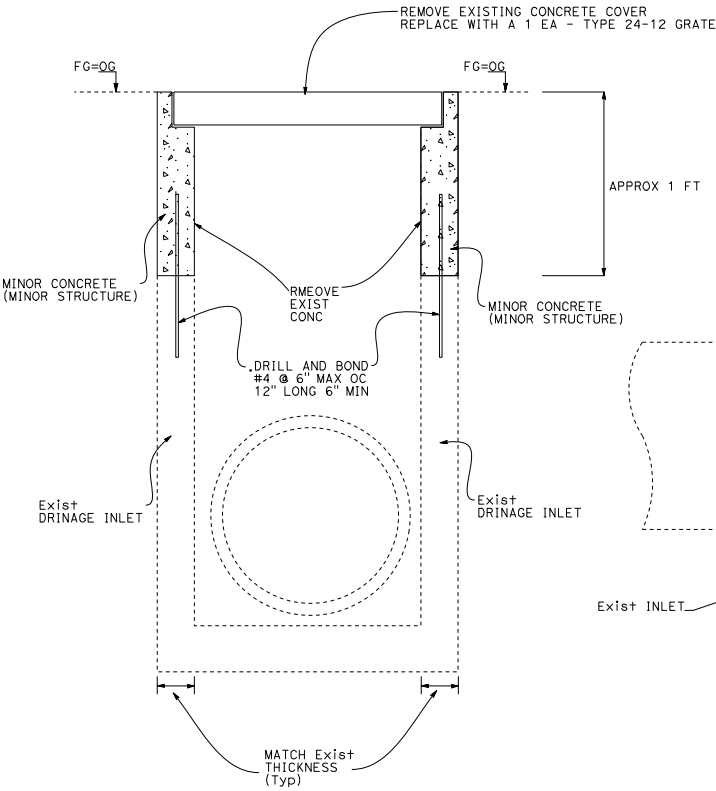
DP-1



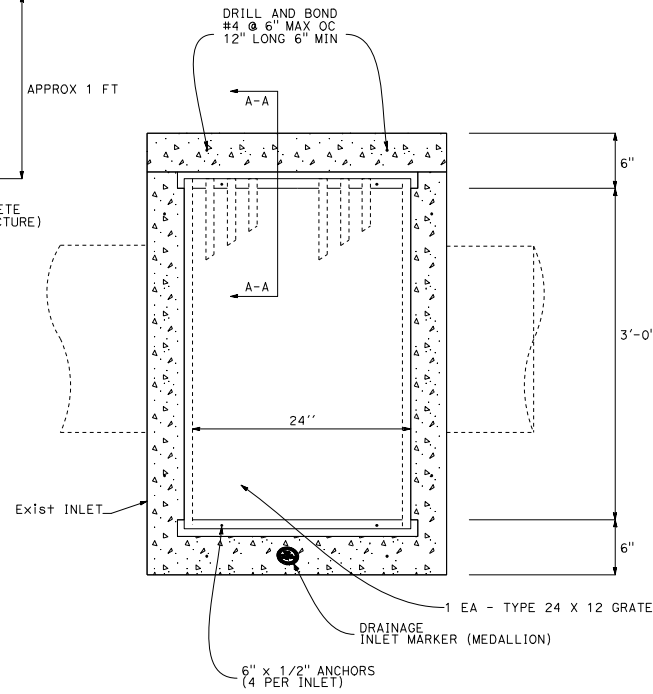
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE DESIGN
 FUNCTIONAL SUPERVISOR ANDREW ROSE
 CALCULATED/DESIGNED BY
 CHECKED BY
 SIRAJ SARIEDDINE
 ARMEN GREWAL
 REVISED BY
 DATE REVISED

NOTE:

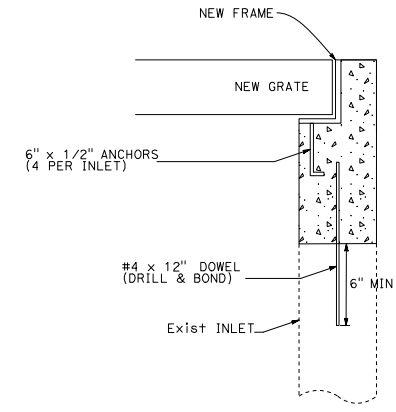
1. ALL REINFORCING STEEL #4 BARS.
2. DO NOT REDUCE THE SIZE OF THE SIDE OPENINGS ON THE INLETS.



ADJUST FRAME TO GRADE



PLAN VIEW



SECTION A-A

MODIFY EXISTING INLET

DRAINAGE DETAILS

D-1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	1,101	16.2, 17.3	4	7

<i>Amarinder Singh</i>	1-17-24
REGISTERED CIVIL ENGINEER	DATE
January 17, 2024	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER	No. 90793
AMARINDER SINGH	Exp. 2-31-25
CIVIL	

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE DESIGN
 FUNCTIONAL SUPERVISOR: ANDREW ROSE
 CALCULATED/DESIGNED BY: SIRAJ SARIEDDINE
 CHECKED BY: ARMEN CREWAL
 REVISED BY: _____
 DATE REVISED: _____

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	1,101	16.2, 17.3	5	7

Amarinder Singh 1-17-24
 REGISTERED CIVIL ENGINEER DATE
 January 17, 2024
 PLANS APPROVAL DATE
 No. 90793
 Exp. 2-31-25
 CIVIL
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF CALIFORNIA

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DRAINAGE QUANTITIES

DRAINAGE UNIT	CLEANING, INSPECTING, AND PREPARING CULVERT (LF)		DESCRIPTION
	LF	LF	
36" CURED-IN-PLACE PIPELINER	170	170	36" RCP & CSP
	70	70	36" CSP
TOTAL	240	240	

DRAINAGE QUANTITIES

SHEET NO.	MODIFY INLET	MINOR CONCRETE (MINOR STRUCTURE)	MISCELLANEOUS IRON AND STEEL	DRAINAGE INLET MARKER (MEDALLION)	DESCRIPTION
	EA	CY	LB	EA	
C1	1	1	319	1	TYPE 24 - 12 GRATE
C1	1	1	319	1	TYPE 24 - 12 GRATE
TOTAL	2	2	642	2	

(F) FINAL PAY.

DRAINAGE QUANTITIES

DQ-1



NOTE:
 1. LOCATIONS OF CONSTRUCTION AREA SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No.	SIGN DESIGNATION	PANEL SIZE	SIGN MESSAGE	NUMBER OF POSTS AND SIZE	NUMBER OF SIGNS
A	W20-1	48" x 48"	ROAD WORK AHEAD	1 - 4" x 6"	2
B	W20-1	36" x 36"	ROAD WORK AHEAD	1 - 4" x 6"	2
C	G20-2	36" x 18"	END ROAD WORK	1 - 4" x 4"	3

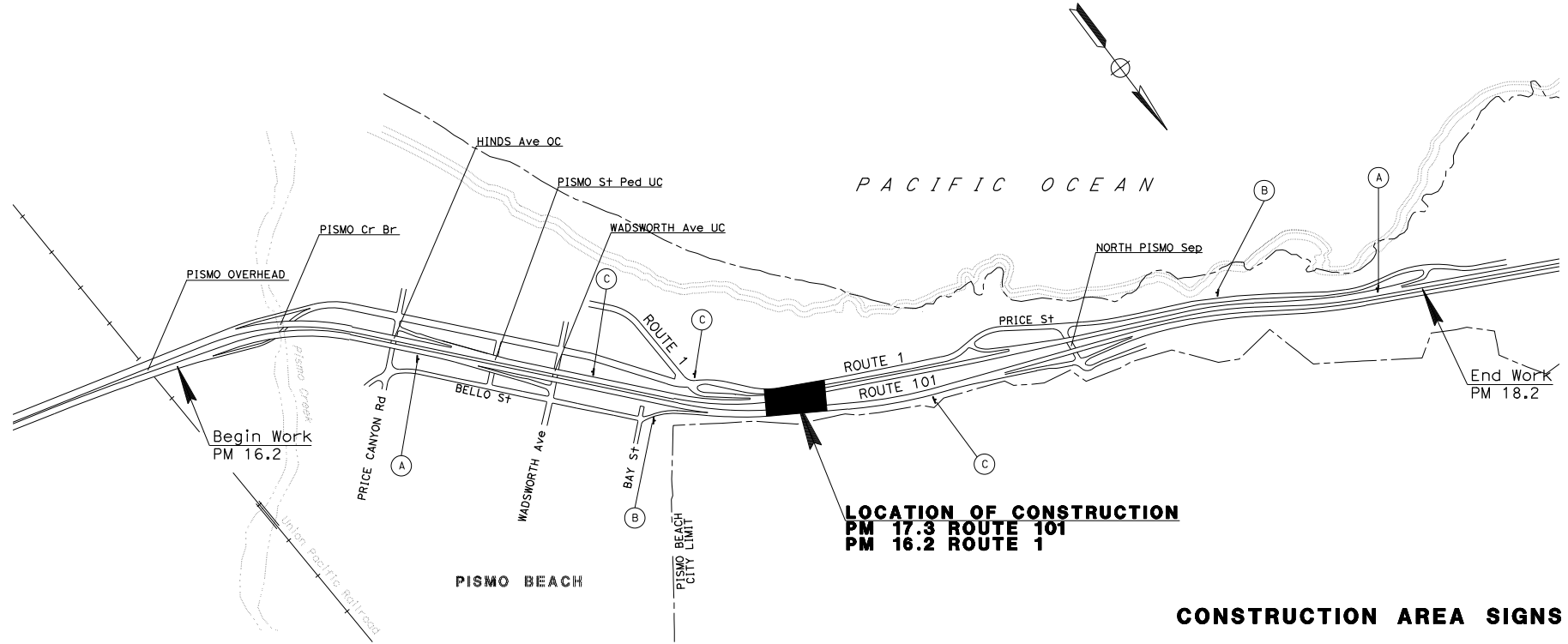
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	1,101	16.2, 17.3	6	7

REGISTERED CIVIL ENGINEER DATE 1-17-24
 AMARINDER SINGH
 No. 90793
 Exp. 2-31-25
 CIVIL
 STATE OF CALIFORNIA

January 17, 2024
 PLANS APPROVAL DATE

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans MAINTENANCE DESIGN
 FUNCTIONAL SUPERVISOR ANDREW ROSE
 CALCULATED/DESIGNED BY SIRAJ SARIEDDINE
 CHECKED BY ARMEN GREWAL
 REVISED BY DATE REVISED



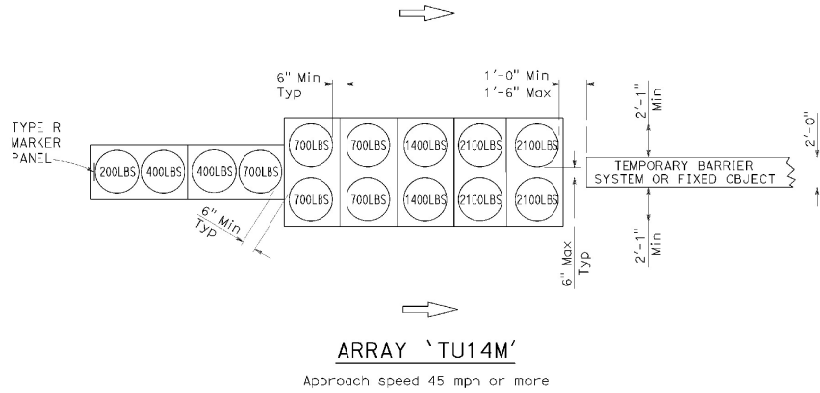
CONSTRUCTION AREA SIGNS

NO SCALE **CS-1**

DIST	COUNTY	ROUTE	POST MILES (TOTAL - PRO.P.C.)	SHEET NO.	TOTAL SHEETS
05	SLO	1, 101	16.2/17.3	7	7

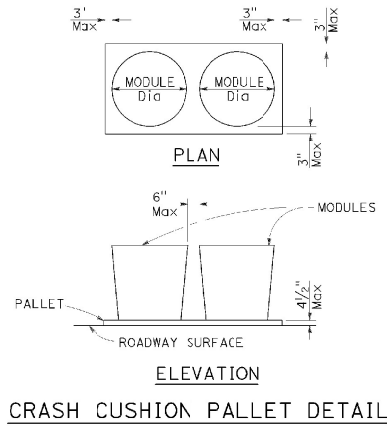
Charles D. Suzock
 REGISTERED CIVIL ENGINEER
 January 22, 2024
 PLANS APPROVAL DATE
 Charles D. Suzock
 No. C43029
 Exp. 3-31-24
 STATE OF CALIFORNIA
 REGISTERED PROFESSIONAL ENGINEER
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SEAIKED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED January 23, 2024



NOTES:

- (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
- All sand weights are nominal. Sand must contain no more than 7 percent water.
- Refer to Standard Plan A73B for marker details.
- Approach speeds indicated conform to MASH criteria.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TEMPORARY CRASH CUSHION,
SAND FILLED
(UNIDIRECTIONAL)**

NO SCALE

RSP T1A DATED JANUARY 22, 2024 SUPERSEDES STANDARD PLAN T1A
DATED MAY 1, 2023 - PAGE 311 OF THE STANDARD PLANS BOOK DATED 2023.

REVISED STANDARD PLAN RSP T1A

2023 REVISED STANDARD PLAN RSP T1A