COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: Fancher Creek Trail

BID ITEM LIST

| Item No. | Quantity | Unit of Measure | F,S,P | Item | Item Price | Total Price |
|---|---|---|---|---|---|---|
| 1 | 5,000 | $ | - | SUPPLEMENTAL WORK (PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS) | $1 | $5,000 |
| 2 | 5,000 | $ | - | FRESNO IRRIGATION DISTRICT PERMIT | $1 | $5,000 |
| 3 | 20,000 | $ | - | SUPPLEMENTAL WORK | $1 | $20,000 |
| 4 | 2 | EA | - | CONSTRUCTION PROJECT FUNDING SIGN | $1,560.00 | $3,120.00 |
| 5 | 1 | LS | - | JOB SITE MANAGEMENT | $8,400.00 | $8,400.00 |
| 6 | 1 | LS | - | PREPARE STORM WATER POLLUTION PREVENTION PLAN | $6,000.00 | $6,000.00 |
| 7 | 1,000 | $ | - | STATE WATER RESOURCES CONTROL BOARD NOTICE OF INTENT FILING FEE | $1 | $1,000 |
| 8 | 1 | EA | - | STORM WATER ANNUAL REPORT | $1,200.00 | $1,200.00 |
| 9 | 1 | LS | - | TRAFFIC CONTROL SYSTEM | $4,800.00 | $4,800.00 |
| 10 | 7,000 | SQYD | - | ROLLED EROSION CONTROL PRODUCT (BLANKET) | $4.80 | $33,600.00 |
| 11 | 1 | LS | - | CLEARING AND GRUBBING | $42,000.00 | $42,000.00 |
| 12 | 1 | LS | - | PRUNING | $18,900.00 | $18,900.00 |
| 13 | 32 | EA | - | REMOVE TREE AND ASSOCIATED STUMP | $840.00 | $26,880.00 |
| 14 | 27 | EA | - | REMOVE STUMP | $360.00 | $9,720.00 |
| 15 | 440 | LF | - | REMOVE CHAIN LINK FENCE | $12.00 | $5,280.00 |
| 16 | 370 | LF | - | TEMPORARY FENCE (TYPE CL-6) | $13.80 | $5,106.00 |
| 17 | 1 | EA | - | REMOVE LIGHT POLE | $840.00 | $840.00 |
| 18 | 560 | CY | F | ROADWAY EXCAVATION | $112.80 | $63,168.00 |
| 19 | 59,975 | SF | - | 4" THICK STABILIZIED DECOMPOSED GRANITE (DG) | $1.74 | $104,356.00 |
| 20 | 75 | TON | - | HOT MIX ASPHALT | $360.00 | $27,000.00 |
| 21 | 58 | CY | F | CLASS 2 AGGREGATE BASE | $186.00 | $10,788.00 |
| 22 | 302 | SF | - | PARKING LOT STRIPING AND MARKINGS (2 COAT) | $9.60 | $2,899.20 |
| 23 | 1 | EA | - | ADA PARKING SIGN | $360.00 | $360.00 |
| 24 | 2 | EA | - | ROADSIDE SIGN - ONE POST | $480.00 | $960.00 |
| 25 | 112 | SF | - | THERMOPLASTIC CROSSWALK AND PAVEMENT MARKING (ENHANCED WET NIGHT VISIBILITY) | $36.00 | $4,032.00 |
| 26 | 1 | EA | - | HITCHING RAIL ASSEMBLY | $2,400.00 | $2,400.00 |
| 27 | 9 | EA | - | STEEL PIPE BOLLARD | $960.00 | $8,640.00 |
| 28 | 4 | EA | - | TRAIL SIGN | $960.00 | $3,840.00 |
| 29 | 1 | LS | - | FINISHING PROJECT SITE | $4,800.00 | $4,800.00 |
| 30 | 1 | LS | - | MOBILIZATION | $8,400.00 | $8,400.00 |

| | | |
|---|---|---|
| TOTAL (BID ITEMS 1 THROUGH 30) | | $438,489.70 |

F = Final Pay
P = Partial Pay

**BID SECURITY AND SIGNATURE**

Accompanying this proposal is security (check one only) in amount equal to at least ten percent (10%) of the total amount of the bid:

Bid Bond (X); Certified Check ( ); Cashier's Check ( ); Cash ($ )

Bidder has and acknowledges the following addenda: 1,2 Addendum1

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

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

FIRM NAME KROEKER, INC

JOYCE KROEKER PRESIDENT

JEFF KROEKER SEC / TRES

Licensed in accordance with an act providing for the registration of Contractors,

Class A C10 C12 C21 C57 C61/D06 License No. 621866 Expires 6/30/2023

DIR Registration Number 000006246

Signature of Bidder

AUGUST 25, 2021
Dated

**NOTE**: If bidder is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation; if bidder is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts on behalf of the co-partnership; and if bidder is an individual, his signature shall be placed above. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a Power of Attorney must be on file with the Owner prior to opening bids or submitted with the bid; otherwise, the bid will be disregarded as irregular and unauthorized.

BUSINESS ADDRESS: 4627 S CHESTNUT AVE. 93725
Zip Code

MAILING ADDRESS: SAME
Zip Code

BUSINESS PHONE: (559) 2373764 FAX NUMBER: (559) 268 3366

EMAIL ADDRESS JEFFK@KROEKERINC.COM

To the Board of Supervisors, County of Fresno:

**NONCOLLUSION DECLARATION**

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID*

The undersigned declares:

I am the CORPORATE OFFICE - SECRETARY/TREASURER of
(Owner, Partner, Corporate Officer (list title), Co-Venturer)

KROEKER, INC., the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, and has not paid, and will not pay, any person or entity for that purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on AUGUST 25, 2021,

at FRESNO, CALIFORNIA."
[city] [state]

(Signature)

(See Title 23 United States Code Section 112; Calif Public Contract Code Section 7106)

*NOTE: Completing, signing, and returning the Non-Collusion Declaration is a required part of the Proposal. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

## PUBLIC CONTRACT CODE

### Public Contract Code Section 10285.1 Statement

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has ___ , has not _X_ been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

**Public Contract Code Section 10162 Questionnaire**

In conformance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No X

If the answer is yes, explain the circumstances in the following space.

**Public Contract Code 10232 Statement**

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

Note: The above Statement and Questionnaire are part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

BIDDER: Kroeker, Inc.

**SUBCONTRACTORS:**

The following named subcontractor(s) will perform with labor, or otherwise render services to the general contractor in or about the construction of the work or improvement in an amount in excess of one-half of one percent of the total bid presented herewith **or $10,000, whichever is greater.** Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board. Each listed subcontractor's name, location of business and description of work, and both their contractor's license number and public works contractor registration number, issued pursuant to Section 1725.5 of the Labor Code, are REQUIRED, by Section 4104 of the California Public Contract Code, to be submitted prior to bid opening. (The "location of business" must specify the city in which the subcontractor's business is located, and the state if other than California.) All other requested information shall be submitted, either with the bid or within 24 hours after bid opening.

Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board.

**FAILURE TO LIST SUBCONTRACTORS AS DIRECTED MAY RENDER THE BID NON-RESPONSIVE, OR MAY RESULT IN ASSESSMENT OF A PENALTY AGAINST THE BIDDER IN ACCORDANCE WITH SECTION 4110 OF THE CALIFORNIA PUBLIC CONTRACT CODE.**

**SUBCONTRACTOR:** Griffin Soil
Business Address: 248 Industrial Dr. Stockton CA 95206
Class ____ License No. 791232 DIR Registration No. 1000004572
Item No. or Description of Work: 18 - Day Rate for soil mixing.
Dollar Amount $10,300.00 **OR** Percentage of Total Bid ____
Email Address: Dave@GriffinSoil.com

**SUBCONTRACTOR:** Soar Environmental
Business Address: 1401 Fulton St, Suite 918, Fresno, CA 93721
Class ____ License No. ____ DIR Registration No 1000052849
Item No. or Description of Work: 6,8
Dollar Amount $2,890.00 **OR** Percentage of Total Bid ____
Email Address: Shopstone@soarhere.com

(This guaranty shall be executed by the successful bidder in accordance with instructions in the special provisions. The bidder may execute the guaranty on this page at the time of submitting his bid.)

## GUARANTY

To the Owner: County of Fresno

**CONTRACT NUMBER 21-04-C**

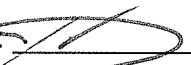
The undersigned guarantees the construction and installation of the following work included in this project:

**ALL WORK**

Should any of the materials or equipment prove defective or should the work as a whole prove defective, due to faulty workmanship, material furnished or methods of installation, or should the work or any part thereof fail to operate properly as originally intended and in accordance with the plans and specifications, due to any of the above causes, all within twelve (12) months after date on which this contract is accepted by the Owner, the undersigned agrees to reimburse the Owner, upon demand, for its expenses incurred in restoring said work to the condition contemplated in said project, including the cost of any such equipment or materials replaced and the cost of removing and replacing any other work necessary to make such replacement or repairs, or, upon demand by the Owner, to replace any such material and to repair said work completely without cost to the Owner so that said work will function successfully as originally contemplated.

The Owner shall have the unqualified option to make any needed replacement or repairs itself or to have such replacements or repairs done by the undersigned. In the event the Owner elects to have said work performed by the undersigned, the undersigned agrees that the repairs shall be made and such materials as are necessary shall be furnished and installed within a reasonable time after the receipt of demand from the Owner.

Name (Printed): JEFF KROEKER

Signature: 

Title: SECRETARY/TREASURER

Date: AUGUST 25, 2021

Contractor: JEFF KROEKER

# AGREEMENT

THIS AGREEMENT made at Fresno, in Fresno County, California, by and between Kroeker, Inc. hereinafter called the Contractor, and the County of Fresno hereinafter called the Owner.

WITNESSETH: That the Contractor and the Owner, for the consideration hereinafter named, agree as follows:

**ARTICLE I**. The Contractor agrees to furnish all labor and materials, including tools, implements, and appliances required, but excluding such materials as are mentioned in the specifications to be furnished by the Owner, and to perform all the work in a good and workmanlike manner, free from any and all liens and claims of mechanics, materialmen, teamsters, subcontractors, artisans, machinists, and laborers required for:

**FANCHER CREEK TRAIL**

**CONTRACT NUMBER: 21-04-C**

All in strict compliance with the plans, drawings and specifications therefor prepared by the Owner, and other contract documents relating thereto.

**ARTICLE II.** The Contractor and the Owner agree that the Notice to Bidders and Special Provisions, the Wage Scale (Prevailing Wages), the Plans and Drawings, Addenda and Bulletins thereto, and the Proposal (Bid Book) hereto attached, together with this Agreement, form the contract, and they are as fully a part of the contract as if hereto attached or herein repeated.

All portions of the Standard Specifications of the State of California, Department of Transportation, dated 2015, which are not in conflict with this contract shall be deemed a part of the specifications as though fully therein set forth; provided, however, that revisions to the said Standard Specifications shall apply only to the extent, if any, included in the Project Details of these specifications or as otherwise incorporated directly herein. No part of said specifications which is in conflict with any portion of this agreement, or which is not actually descriptive of the work to be done thereunder, or of the manner in which said work is to be executed, shall be considered as any part of this agreement, but shall be utterly null and void.

**ARTICLE III.** The Owner agrees to pay the Contractor in current funds for the performance of the contract the sum of Four-Hundred Thirty Eight Thousand Four hundred Eighty Nine and seventy cents **DOLLARS AND xx/100** ( $438,489. 70 ) it being understood that said price is based upon the estimated quantities of materials to be used as set forth in the Proposal, except where provisions are made in the contract documents whereby the estimated quantities shall constitute the final quantity; that upon completion of the project the final contract prices shall be revised by change order, if necessary, to reflect the true quantities used at the stated unit price thereof as contained in the Contractor's Proposal hereto attached. Payments on account thereof will be made as set forth in the special provisions.

**ARTICLE IV.** If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he or any of his subcontractors should persistently violate any of the provisions of the contract, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Engineer, then the Owner may, upon certificate of the

Swiss Re
Corporate Solutions

North American Specialty Insurance Company
Washington International Insurance Company
Westport Insurance Corporation
1200 Main Street, Suite 800
Kansas City, MO 64105

# Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we Kroeker, Inc.
4627 S. Chestnut Ave., Fresno, CA 93725 (full name and address or legal title of Principal)

as Principal, hereinafter called the Principal, and North American Specialty Insurance Company
(select Surety)

a corporation duly organized under the laws of the state of NH as Surety, hereafter called the Surety, are
(select state)

held and firmly bound unto County of Fresno 2220 Tulare Street, Suite 720
Fresno, CA 93721 (full name and address or legal title of Obligee)

as Obligee, hereinafter called the Obligee, in the sum of Ten Percent of Amount Bid Dollars ($ 10% )

for the payment of which the Principal and the Surety bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted to the Obligee a bid for Fancher Creek Trail; Contract Number 21-04-C
(full name, address and description of project)

NOW, THEREFORE, the condition of this obligation is such that if the Obligee shall accept the bid of the Principal, and the Principal either 1) shall enter into a contract with the Obligee in accordance with the terms of such bid and gives such bond or bonds as may be specified in the bidding or contract documents with good and sufficient surety, or 2) shall pay to the Obligee the difference, not to exceed the amount of this bond, between the amount specified in said bid and such larger amount for which Obligee may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void; otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Obligee and Principal to extend the time in which the Obligee may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Obligee and Principal shall obtain the Surety's consent for an extension beyond sixty (60) days.

When this bond has been furnished to comply with a statutory or other legal requirement in the location of the project, any provision in this bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirements shall be deemed incorporated herein. When so furnished, the intent is that this bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 24th day of August, 2021

BY _____
(Witness)

Kroeker, Inc.
(Principal)
By: _____
Name/Title:

BY _____
(Witness)

North American Specialty Insurance Company
(Surety)
By: _____
Name: Cody Lyman
(Attorney-in-Fact)

SEAL 1973

## CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT — Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )
) ss
County of Fresno )

On 8/24/2021, before me, Bonnie Gonzalez, Notary Public, personally appeared Cody Lyman, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity~~(ies)~~, and that by his/~~her/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

BONNIE GONZALEZ
NOTARY PUBLIC - CALIFORNIA
COMMISSION # 2368139
FRESNO COUNTY
My Comm. Exp. July 27, 2025

(Seal)

Signature: Bonnie Gonzalez

Bonnie Gonzalez, Notary Public

## SWISS RE CORPORATE SOLUTIONS

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
WASHINGTON INTERNATIONAL INSURANCE COMPANY

# GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT North American Specialty Insurance Company, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Kansas City, Missouri, and Washington International Insurance Company, a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Kansas City, Missouri, each does hereby make, constitute and appoint: Cody Lyman

Principal: Kroeker, Inc. Bond Number: Bid Bond
Obligee: County of Fresno Bond Amount: See Bond Form
Bond Description: Fancher Creek Trail; Contract Number 21-04-C

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of:
FIFTY MILLION ($50,000,000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of both North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on the 9th of May, 2012:

"RESOLVED, that any two of the Presidents, any Managing Director, any Senior Vice President, any Vice President, any Assistant Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."

NORTH AMERICAN SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1973 NEW HAMPSHIRE

By _____
Steven P. Anderson, Senior Vice President of Washington International Insurance Company & Senior Vice President of North American Specialty Insurance Company

By _____
Michael A. Ito, Senior Vice President of Washington International Insurance Company & Senior Vice President of North American Specialty Insurance Company

WASHINGTON INTERNATIONAL INSURANCE COMPANY CORPORATE SEAL NEW HAMPSHIRE

IN WITNESS WHEREOF, North American Specialty Insurance Company and Washington International Insurance Company have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this 1st day of February, 2019.

**North American Specialty Insurance Company**
**Washington International Insurance Company**

State of Illinois
County of Cook ss:

On this 1st day of February, 2019, before me, a Notary Public personally appeared Steven P. Anderson, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Michael A. Ito, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.

OFFICIAL SEAL
M. KENNY
Notary Public - State of Illinois
My Commission Expires
12/04/2021

M. Kenny, Notary Public

I, Jeffrey Goldberg, the duly elected Assistant Secretary of North American Specialty Insurance Company and Washington International Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company and Washington International Insurance Company, which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 24th day of August, 2021.

Jeffrey Goldberg, Vice President & Assistant Secretary of
Washington International Insurance Company & North American Specialty Insurance Company

# CONTRACT INFORMATION

PROJECT NAME: Fancher Creek Trail
Contract 21-04-C
VENDOR NAME: Kroeker, Inc.

BUDGET #: 4510 ACCOUNT #: 7370 PROG/MEMO # N/A

PROJECT # P00046 ACTIVITY CODE#: 4750 AMT: $438,489.70

**MULTI-DISTRIBUTIONS**

BUDGET #:_____ ACCOUNT #:_____ PROG/MEMO #_____

PROJECT # _____ ACTIVITY CODE#:_____ AMT: $_____

BUDGET #:_____ ACCOUNT #:_____ PROG/MEMO #_____

PROJECT # _____ ACTIVITY CODE#:_____ AMT: $_____

EXPIRATION DATE: _____

CONTACT PERSON: Iliana Martinez PHONE #: 04329

SPECIAL INSTRUCTIONS: _____

Contract No. 21-04-C

# SPECIFICATIONS

## FANCHER CREEK TRAIL

**BUDGET / ACCOUNT: 4510 / 7370**

*Department of Public Works and Planning*

**CONTRACT NUMBER 21-04-C**

# County of Fresno

D□□ARTM□□T O□ □□□LI□ WOR□S A□D □LA□□I□□
**STEVEN E. WHITE, DIRECTOR**


August 10, 2021 □ontract □o. 21□0□□□

**ADDENDUM NO. 1** to □A□□□□R □R□□□ TRAIL, revising the □lans as follows:

**TABLE OF CONTENTS**

□o changes

**NOTICE TO BIDDERS**

**Delete**:

**2:00 P.M., (1400 hours and 00 seconds)**
**Thursday, August 19, 2021**

**Replace with:**

**2:00 P.M., (1400 hours and 00 seconds)**
**Thursday, August 26, 2021**

**BID ITEMS AND APPLICABLE SECTIONS**

□o changes

**SPECIAL PROVISIONS**

□o changes

**PROPOSAL**

□o changes

**AGREEMENT**

□o changes

**PROJECT DETAILS**

□o changes

**PLANS**

□o changes

**END OF ADDENDUM NO. 1**

Please attach this Addendum to the inside cover of the Specifications booklet. If you have given the Bidding and Contract Documents to someone else, please forward this Addendum.

8/10/21
Date Signed

**Supervising Engineer:** _____
Sebastian Artal, PE C76724

FRESNO COUNTY
**Department of Public Works and Planning**
m/a 2220 Tulare Street, Suite 720
Fresno, CA 93721-2106

County of Fresno

D□□ARTM□□T O□ □□□LI□ WOR□S A□D □LA□□I□□
**STEVEN E. WHITE, DIRECTOR**

August 2□, 2021 □ontract □o. 21□0□□□

**ADDENDUM NO. 2** to □A□□□□R □R□□□ TRAIL, revising the □lans as follows:

**TABLE OF CONTENTS**

□o changes

**NOTICE TO BIDDERS**

□o changes

**BID ITEMS AND APPLICABLE SECTIONS**

□o changes

**SPECIAL PROVISIONS**

**Add to Section 21-2.02O(4)**

□rosion control blan□et Type A

**Add to Section 21-2.03O:**

Install □rosion □ontrol □lan□et where cut or fill slope ad□acent to the trail is 2□:1□ or at locations directed by the □ngineer. Install □rosion □ontrol □lan□et per □altrans Standard □lans □□2.

**Add to Section 21-2.04 PAYMENT:**

□ayment will be based on the total square yards of installed Rolled □rosion □ontrol □roduct □□lan□et□actually installed. The provisions in Section □□1.0□, "□hanged □uantity □ay Ad□ustments" of the Standard Specifications shall not apply to the item "Rolled Erosion Control Product (Blanket)."

**PROPOSAL**

□o changes

**AGREEMENT**

□o changes

**PROJECT DETAILS**

No changes

**PLANS**

No changes

**END OF ADDENDUM NO. 2**

---

Please attach this Addendum to the inside cover of the Specifications booklet. If you have given the Bidding and Contract Documents to someone else, please forward this Addendum.

8/23/2021
Date Signed

**Supervising Engineer:** _____
Sebastian Artal, PE C76724

FRESNO COUNTY
**Department of Public Works and Planning**
m/a 2220 Tulare Street, Suite 720
Fresno, CA 93721-2106

# T A B L E  O F  C O N T E N T S

**COVER SHEET**

**BOARD ADOPTION AND ACKNOWLEDGMENT**

- □ngineer□s Signature

**NOTICE TO BIDDERS**

**SPECIAL PROVISIONS**

**PROJECT DETAILS / DRAWINGS**

- □ro□ect Drawings□Details
- □onstruction □ro□ect □unding Sign
- Arborist's Report 2019
- Self□Dealing Transactions Disclosure □orm
- Revised Standard Specifications Dated 0□□02□1□

**BID BOOK**

- Bidder's Declaration
- □id □orm
- Abbreviations □sed
- Signature □age
- □oncollusion Declaration
- □ublic □ontract □ode
- Subcontractor List
- □ertifications
- □uaranty

**AGREEMENT**

**PLANS**

**PROJECT: FANCHER CREEK TRAIL**
**CONTRACT NUMBER: 21-04-C**

| | |
|---|---|
| Steve Brandau, Chairman | 2nd District |
| Brian Pacheco, Vice Chairman | 1st District |
| Sal Quintero | 3rd District |
| Ernest Buddy Mendes | 4th District |
| Nathan Magsig | 5th District |

Jean Rousseau, County Administrative Officer

Steven E. White, Director
Department of Public Works and Planning

8/5/21

REGISTERED PROFESSIONAL ENGINEER
MOHAMMAD HASSAN ALIMI
No. 67156
Exp.09/30/22
CIVIL
STATE OF CALIFORNIA

Date Signed: 7/29/2021

**Design Engineer:** _____
Mohammad Alimi PE C67156

FRESNO COUNTY
**Department of Public Works and Planning**
m/a 2220 Tulare Street, Suite 720
Fresno, CA 93721-2106

**BOARD OF SUPERVISORS COUNTY OF FRESNO STATE OF CALIFORNIA**

# NOTICE TO BIDDERS

Sealed proposals will be received at:

https://www.bidexpress.com/businesses/36473/home

and at the Fresno County Department of Public Works and Planning (Department), Office of the Design Engineer, Seventh Floor, Fresno County Plaza Building, 2220 Tulare Street, Fresno, CA 93721 until

**2:00 P.M., (1400 hours and 00 seconds)**
**Thursday, August 19, 2021**

**If you have any questions about bid submission, please contact us at DesignServices@fresnocountyca.gov or calling (559) 600-9908 or (559) 600-4509.**

Promptly following the closing of the bidding all timely submitted bids will be publicly opened and viewable via a livestream (the link for which will be posted at http://www.co.fresno.ca.us/planholders) for construction in accordance with the project specifications therefor, to which special reference is made as follows:

## FANCHER CREEK TRAIL

### CONTRACT NUMBER 21-04-C

The work to be done consists, in general, of constructing a 10-foot wide equestrian/pedestrian trail of stabilized decomposed granite over compacted native soil for a distance of approximately 1.12 miles. The trail commences on the south side of Kings Canyon Road west of Clovis Avenue and proceeds south to cross Butler Avenue, ultimately ending west of Clovis Avenue approximately halfway between Butler Avenue to the north and Church Avenue to the south. The project also includes the construction or installation of a 5-stall (including one ADA-compliant stall) asphalt concrete parking/trailhead area, a hitching post, removable bollards, and a crosswalk at Butler Avenue. The project also includes removal of various trees and stumps, safety pruning of the entire project right of way, and clearing the right of way for construction.

**The County of Fresno is committed to increasing the availability of employment and training opportunities, and requires that the Contractor and each subcontractor employed on this Project shall use their best efforts to ensure that thirty-three percent (33%) of apprentice hours are performed by qualified participants in state approved apprenticeship programs who also are current or former "Welfare-to-Work" participants in the CalWORKs program. Attention is directed to "Apprentices" in Section 7 of these special provisions.**

**Incentives whereby the Contractor or subcontractor receives partial reimbursement for the wages paid to apprentices who qualify may be available. The incentive program is administered by the County of Fresno, Department of Social Services, Employment Resource Center. For questions regarding the incentive program, contact the Employment Resource Center at (559) 600-5370.**

Bidders may fill out a Request to be Added to Planholders list:
https://www.co.fresno.ca.us/departments/public-works-planning/divisions-of-public-works-and-planning/design-division/planholders-list-request-to-be-added

Requesters will then be listed as a planholder for the project on the website and receive notifications and addenda issued for the project.

Prospective bidders may also select the project on www.BidExpress.com. Those that demonstrate interest in the project will be added to the planholders list, and receive notifications and addenda issued for the project.

Planholder and exchange/publication names may be obtained from the Fresno County website at **http://www.co.fresno.ca.us/planholders**.

Electronic copies, in ".pdf" file format, of the official project plans and specifications, bid books and proposal sheets, as well as cross sections and such additional supplemental project information as may be provided, are available to view, download, and print at **http://www.co.fresno.ca.us/planholders**.

If a bidder is unable to submit a bid via Bid Express, Bid Books, which contain bid proposal sheets necessary to submit a bid, may be obtained within the Specifications documents posted on the Fresno County website.

Electronic bids shall be submitted via the BidExpress website. Hardcopy bids shall be submitted in a sealed envelope addressed to the Department and labeled with the name of the bidder, the name of the project and the statement "Do Not Open Until The Time Of Bid Opening."

Bid security in the amount of ten (10) percent of the amount of the bid, and in the form of a bid bond issued by an admitted surety insurer licensed by the California Department of Insurance, cash, cashier's check or certified check shall accompany the bid. You must either attach an electronic bid bond or provide an original bid bond (or other form of bid security authorized by Public Contract Code Section 20129(a)), prior to the bid opening. Bid security shall be made in favor of the County of Fresno.

Hardcopy bid bonds shall be submitted in a sealed envelope addressed to the Department and labeled with the name of the bidder, the name of the project and the statement "Do Not Open Until The Time Of Bid Opening – BID BOND"

A Summary of Bids and a list of subcontractors for the apparent low bidder will be posted at the above listed website, generally within 24 hours of the Bid Opening.

All questions regarding this project shall be in writing and shall be received by the Department of Public Works and Planning, Design Division, no later than 2:00 P.M. on the seventh (7th) calendar day before bid opening. Any questions received after this deadline will not receive a response unless the Department of Public Works and Planning elects to issue an addendum to revise the bid opening date. In the event that the bid opening date is revised, the deadline for questions will be extended to no later than 2:00 P.M. on the seventh (7th) calendar day before the revised bid opening date. Questions shall be submitted on the "Request for Clarification Form" provided on our website:

http://www.co.fresno.ca.us/departments/public-works-and-planning/construction-bidding-opportunities/21-04-c-fancher-creek-trail/request-for-clarification-form

Any changes to, or clarification of, the project plans and specifications shall be in the form of a written addendum issued to planholders of record. Questions that prompt a change or clarification shall be included in the addendum with the subsequent answer.

Any oral explanation or interpretations given to this project are not binding.

No contract will be awarded to a contractor who has not been licensed in accordance with the provisions of the Contractors State License Law, California Business and Professions Code, Division 3, Chapter 9, as amended, or whose bid is not on the proposal form included in the contract document. A valid California Contractor's License, **Class A (General), C-12 (Earthwork and Paving), or C-27 (Landscaping)**, is required for this project.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at County of Fresno, Department of Public Works and Planning, 2220 Tulare Street, Sixth Floor, Fresno CA 93721-2104 and available from the California Department of Industrial Relations' Internet web site at http://www.dir.ca.gov/DLSR/PWD. Future effective general prevailing wage rates, which have been predetermined and are on file with the California Department of Industrial Relations are referenced but not printed in the general prevailing wage rates.

This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

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

The U.S. Department of Transportation (DOT) provides a toll-free "hotline" service to report bid rigging activities. Bid rigging activities can be reported Mondays through Fridays, between 8:00 a.m. and 5:00 p.m., Eastern Time, Telephone No. 1-800-424-9071. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report these activities. The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

Bids are required for the entire work described herein. Bids will be compared on the basis of the cumulative sum of the bid amounts listed for the individual line items.

The successful bidder shall furnish a faithful performance bond in the amount of 100 percent of the contract amount and a payment bond in the amount of 100 percent of the contract amount. Each bond specified in this Notice (bid bond, faithful performance bond and payment bond) shall meet the requirements of all applicable statutes, including but not limited to those specified in Public Contract Code section 20129 and Civil Code section 3248.

Each bond specified in this Notice shall be issued by a surety company designated as an admitted surety insurer in good standing with and authorized to transact business in this state by the California Department of Insurance, and acceptable to the County of Fresno. Bidders are cautioned that representations made by surety companies will be verified with the California Department of Insurance. Additionally, the County of Fresno, in its discretion, when determining the sufficiency of a proposed surety company, may require the surety company to provide additional information supported by documentation. The County generally requires such information and documentation whenever the proposed surety company has either a Best's Key Rating Guide of less than **A** and a financial size designation of less than **VIII**. Provided, however, that the County expressly reserves

its right to require all information and documentation to which the County is legally entitled from any proposed surety company.

Pursuant to Public Contract Code Section 22300, substitution of securities for any moneys withheld by the County of Fresno to ensure performance under the contract shall be permitted.

The Board of Supervisors reserves the right to reject any or all bids.

Board of Supervisors, County of Fresno

Jean Rousseau, County Administrative Officer

Bernice E. Seidel, Clerk to the Board

Issue Date: July 20, 2021

# Special Provisions

**Contract Number 21-04-C**

# DIVISION I GENERAL PROVISIONS

## 1 GENERAL

### 1-1.01 GENERAL

**Add to the beginning of Section 1:**

The wor□ is done in accordance with the 201□ *Standard Specifications*, 201□ *Standard Plans* and the following special provisions.

Where these special provisions indicate to replace, add to, delete, delete from, or otherwise modify a "section," or a portion thereof, the section or portion thereof to which such modification is to be applied is the section or portion thereof with the corresponding numbering in the 201□ *Standard Specifications*.

□□cept to the e□tent that they may conflict with these special provisions, revised standard specifications apply if included in the project details section of the book entitled "Specifications."

Revised standard plans apply if listed on the "List of Revised Standard Plans," if any, in these special provisions; or if shown or referenced on the pro□ect plans or in the pro□ect details section of the boo□ entitled "Specifications."

In case of conflict between the *Standard Specifications* and these special provisions, the special provisions shall ta□e precedence over and be used in lieu of such conflicting portions.

In case of conflict between applicable revised standard specifications and these special provisions, the special provisions shall ta□e precedence over and be used in lieu of such conflicting portions.

**Add to the end of section 1-1.01:**

**Bid Items and Applicable Sections**

| Item code | Item description | Applicable section |
|---|---|---|
| | S□□□L□M□□TAL WOR□ □□A□M□□T AD□□STM□□TS □OR □RI□□ I□D□□ □L□□T□ATIO□S□ | □ |
| | □R□S□O IRRI□ATIO□ DISTRI□T □□RMIT | □ |
| | S□□□L□M□□TAL WOR□ | □ |
| | □O□STR□□TIO□ □RO□□□T □□□DI□□ SI□□ | 12 |
| | □O□ SIT□ MA□A□□M□□T | 1□ |
| | □R□□AR□ STORM WAT□R □OLL□TIO□ □R□□□□TIO□ □LA□ | 1□ |
| | STAT□ WAT□R R□SO□R□□S □O□TROL □OARD □OTI□□ O□ I□T□□T □ILI□□ □□□ | 1□ |
| | STORM WAT□R A□□□AL R□□ORT | 1□ |
| | TRA□□I□ □O□TROL S□ST□M | 12 |
| | ROLL□D □ROSIO□ □O□TROL □ROD□□T □□LA□□□T□ | 21 |
| | □L□ARI□□ A□D □R□□□I□□ | 1□ |
| | □R□□I□□ | 20 |
| | R□MO□□ TR□□ A□D ASSO□IAT□D ST□M□ | 1□ |
| | R□MO□□ ST□M□ | 1□ |
| | R□MO□□ □□AI□ LI□□ □□□□□ | 1□ |
| | T□M□ORAR□ □□□□□ □T□□□ □L□□□ | 1□ |
| | R□MO□□ LI□□T □OL□ | 1□ |
| | ROADWA□ □□□A□ATIO□ | 1□ |
| | □" T□I□□ STA□ILI□I□D D□□OM□OS□D □RA□IT□ □D□□ | 20 |
| | □OT MI□ AS□□ALT | □□ |
| | □LASS 2 A□□R□□AT□ □AS□ | 2□ |
| | □AR□I□□ LOT STRI□I□□ A□D MAR□I□□S □2 □OAT□ | □□ |
| | ADA □AR□I□□ SI□□ | □2 |
| | ROADSID□ SI□□ □O□□ □OST | □2 |

| | | |
|---|---|---|
| | T□□RMO□LASTI□ □ROSSWAL□ A□D □A□□M□□T MAR□I□□ □□□□A□□□D W□T □I□□T □ISI□ILIT□□ | □□ |
| | □IT□□I□□ RAIL | □□ |
| | ST□□L □I□□ □OLLARD | □□ |
| | TRAIL SI□□ | □2 |
| | □I□IS□I□□ □RO□□□T SIT□ | 22 |
| | MO□ILI□ATIO□ | □ |

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

| | |
|---|---|
| S□□A□□D | San □oaquin □alley air pollution control district |
| A□MD | air quality management district |
| □ISS | cast□in□steel shell |
| □SL | crosshole sonic logging |
| □□L | gamma□gamma logging |
| M□TS | □altrans Material □ngineering and Testing Services |

**Add to section 1-1.06:**

Abbreviations in the Items and Applicable Sections are also used in the □id Item List □□roposal 2.

**Replace the headings and paragraphs of Section 1-1.07 with:**

**1-1.07 DEFINITIONS**

**1-1.07A General**

Interpret terms as defined in the □ontract documents.

**1-1.07B Glossary**

**abandon:** Render unserviceable in place.

**acts of God:** *Acts of God* as defined in □ub □ont □ode □ □10□.

**activity:** Tas□, event, or other pro□ect element on a schedule that contributes to completing the pro□ect. An activity has a description, start date, finish date, duration, and one or more logic ties.

**adjust:** Raise or lower a facility to match a new grade line.

**aerially deposited lead:** Lead primarily from vehicle emissions deposited within unpaved areas or formerly unpaved areas.

**Authorized Facility Audit List:** □altrans□developed list of facilities. □or the Authori□ed □acility Audit List, go the M□TS website.

**authorized laboratory:** Independent testing laboratory □1□not employed or compensated by any subcontractor or subcontractor□s affiliate providing other services for the □ontract and □2□authori□ed by the Department.

**Authorized Material List:** □altrans□developed list of authori□ed materials. □or the Authori□ed Material List go to the M□TS website.

**Authorized Material Source List:** □altrans□developed list of authori□ed source materials. □or the Authori□ed Material Source List go to the M□TS website.

**base:** Layer of specified material of planned thic□ness placed immediately below the pavement or surfacing.

**basement material:** Material in an e□cavation or emban□ment under the lowest layer to be placed.

**bid item:** Wor□unit for which the □idder provides a price.

**Bid Item List:** List of bid items, units of measure, and the associated quantities. The verified □id Item List is the □id Item List with verified prices. The □ontract □roposal □□roposal 2□of Low □idder at the Department□s website is the verified □id Item List. After contract award, interpret a reference to the □id Item List as a reference to the verified □id Item List.

**borrow:** □ill acquired from an e□cavation source outside the described cut area.

1. **local borrow:** Material obtained by widening cuts or e□cavating from sources outside the planned or authori□ed cross section on the □ob site. The location of the local borrow is described or designated by the □ngineer.
2. **imported borrow:** □orrow that is not local borrow.

**bridge:** Structure that:

1. □as a bridge number
2. □arries a □1□utility, □2□railroad, or □□□vehicle, pedestrian, or other traffic over, under, or around obstructions or waterways

**building-construction contract:** □ontract that has *Building Construction* on the cover of the *Notice to Bidders and Special Provisions*.

**California Test:** □altrans□developed test for determining wor□quality. □or □alifornia Tests, go to the M□TS website.

**Caltrans**: State of □alifornia Department of Transportation

**certificate of compliance:** □ertificate stating the material complies with the □ontract.

**Certified Industrial Hygienist:** Industrial hygienist certified in comprehensive practice by the American □oard of Industrial □ygiene.

**change order work:** Wor□described in a □hange Order, including e□tra wor□and wor□described in the □ontract as change order wor□.

**closure:** □losure of a traffic lane or lanes, including shoulder, ramp, or connector lanes, within a single traffic control system.

**commercial quality:** □uality meeting the best general practices.

**commercial source:** □stablished business operating as a material source for the general public.

**Contract:** Written and e□ecuted contract between the Department and the □ontractor.

**Contract acceptance:** Director□s written acceptance of a completed □ontract.

**Contract time:** □umber of original wor□ing days as ad□usted by any time ad□ustment.

**Contractor:** □erson or business or its legal representative entering into a □ontract with the Department for performance of the wor□.

**controlling activity:** □onstruction activity that will e□tend the scheduled completion date if delayed.

**County:** The □ounty of □resno

**critical path:** Longest continuous chain of activities for the pro□ect that has the least amount of total float of all chains. In general, a delay on the critical path e□tends the scheduled completion date.

**critical path method:** □etwor□based planning technique using activity durations and relationships between activities to calculate a schedule for the entire pro□ect.

**culvert:** Structure other than a bridge that provides an opening under a roadway.

**data date:** Day after the date through which a schedule is current. □verything occurring earlier than the data date is as□built and everything on or after the data date is planned.

**day:** 2□ consecutive hours running from midnight to midnight; calendar day.

1. **business day:** Day on the calendar e□cept a Saturday and a holiday.
2. **working day:** Time measure unit for wor□ progress. A wor□ing day is any 2□□consecutive□hour period e□cept:
   2.1. Saturday and a holiday.
   2.2. Day during which you cannot perform wor□ on the controlling activity for at least □0 percent of the scheduled wor□ shift with at least □0 percent of the scheduled labor and equipment due to any of the following:
      2.2.1. Adverse weather□related conditions.
      2.2.2. Traffic maintenance under the □ontract.
      2.2.□. Suspension of a controlling activity that you and the □ngineer agree benefits both parties.
      2.2.□. □nanticipated event not caused by either party, such as:
         2.2.□v.1. Act of □od
         2.2.□2. Act of a public enemy.
         2.2.□.□. □pidemic.
         2.2.□.□. □ire.
         2.2.□.□. □lood.
         2.2.□.□. □overnor□declared state of emergency.
         2.2.□.□. Landslide.
         2.2.□.□. □uarantine restriction.
      2.2.□. Issue involving a third party, including:
         2.2.□.1. Industry or area□wide labor stri□e.
         2.2.□2. Material shortage.
         2.2.□.□. □reight embargo.
         2.2.□.□. □urisdictional requirement of a law enforcement agency.
         2.2.□.□. Wor□force labor dispute of a utility or nonhighway facility owner resulting in a nonhighway facility rearrangement not described and not solely for the □ontractor□s convenience. Rearrangement of a nonhighway facility includes installation, relocation, alteration, or removal of the facility.
   2.□. Day during a concurrent delay.
□. **original working days:**
   □.1. Wor□ing days to complete the wor□ shown on the *Notice to Bidders* for a non□cost□plus□time□ based bid
   □.2. Wor□ing days bid to complete the wor□ for a cost□plus□time□based bid

   Where wor□ing days is specified without the modifier *original* in the conte□t of the number of wor□ing days to complete the wor□, interpret the number as the number of original wor□ing days as ad□usted by any time ad□ustment.

**deduction:** Money permanently ta□en from a progress payment or the final payment. Deductions are cumulative and are not retentions under □ub □ont □ode □ □10□.

**delay:** □vent that e□tends the completion of an activity.

1. **excusable delay:** Delay caused by the Department and not reasonably foreseeable when the wor□ began, such as:
   1.1. □hange in the wor□
   1.2. Department action that is not part of the □ontract
   1.□. □resence of an underground utility main not described in the □ontract or in a location substantially different from that specified
   1.□. Described facility rearrangement not rearranged as described, by the utility owner by the date specified, unless the rearrangement is solely for the □ontractor□s convenience

1. Department's failure to obtain timely access to the right-of-way
1. Department's failure to review a submittal or provide notification in the time specified

2. **critical delay:** Excusable delay that extends the scheduled completion date
3. **concurrent delay:** Occurrence of at least 2 of the following events in the same period of time, either partially or entirely:
   1. Critical delay
   2. Delay to a controlling activity caused by you
   3. Non–working day

**Department:** The Fresno County Board of Supervisors and its authorized representatives.

**District Office:** County of Fresno Department of Public Works and Planning

**detour:** Temporary route for traffic around a closed road part. A passageway through a job site is not a detour.

**Director:** Department's Chairman

**disadvantaged business enterprise:** Disadvantaged business enterprise as defined in 49 CFR 26.5.

**dispose of:** Remove from the job site.

**divided highway:** Highway with separated traveled ways for traffic, generally in opposite directions.

**Engineer:** The County's Director of Public Works and Planning, acting through their authorized designees.

**early completion time:** Difference in time between an early scheduled completion date and the work completion date.

**environmentally sensitive area:** Area within or near construction limits where access is prohibited or limited to protect environmental resources.

**estimated cost:** Estimated cost of the project as shown on the *Notice to Bidders*.

**extra work:** Any work, desired or performed, but not included in the original Contract.

**federal-aid contract:** Contract that has a federal-aid project number on the cover of the *Specifications*.

**final pay item:** Bid item whose quantity shown on the Bid Item List is the quantity paid.

**finished grade:** Final surface of the completed facility. If the work under the Contract includes stage construction, the relation between the finished grade and the work under the Contract is shown.

**fixed cost:** Labor, material, or equipment cost directly incurred by the Contractor as a result of performing or supplying a particular bid item that remains constant regardless of the item's quantity.

**float:** Difference between the earliest and latest allowable start or finish times for an activity.

1. **Department-owned float:** Time saved on the critical path by actions of the Department. It is the last activity shown on the schedule before the scheduled completion date.

**force account work:** Work ordered on a construction project without an existing agreement on its cost, and performed with the understanding that the contractor will bill the owner according to the cost of labor, materials, and equipment, plus a certain percentage for overhead and profit.

**grading plane:** Basement material surface on which the lowest layer of subbase, base, pavement, surfacing, or other specified layer is placed.

**highway:** Whole right-of-way or area reserved for use in constructing the roadway and its appurtenances.

**holiday:** Holiday shown in the following table:

**Holidays**

| □oliday | Date observed |
|---|---|
| □very Sunday | □very Sunday |
| □ew □ear□s Day | □anuary 1st |
| □irthday of Martin Luther □ing, □r. | □rd Monday in □anuary |
| Presidents' Day | □rd Monday in □ebruary |
| □esar □have□ Day | March □1st |
| Memorial Day | Last Monday in May |
| Independence Day | □uly □th |
| Labor Day | 1st Monday in September |
| □eterans Day | □ovember 11th |
| Than□sgiving Day | □th Thursday in □ovember |
| Day after Than□sgiving Day | Day after Than□sgiving Day |
| □hristmas Day | December 2□th |

If □anuary 1st, March □1st, □uly □th, □ovember 11th, or December 2□th fall on a Sunday, the Monday following is a holiday. If □anuary 1st, March □1st, □uly □th, □ovember 11th, or December 2□th fall on a Saturday, the preceding □riday is a holiday.

**hours of darkness:** □ours of dar□ness as defined in □eh □ode □ 2□0.

**idle equipment:** □quipment:

1. On the □ob site at the start of a delay
2. Idled because of the delay
□. □ot operated during the delay

**informal-bid contract:** □ontract that has *Informal Bid Authorized by Pub Cont Code § 10122* on the cover of the *Notice to Bidders and Special Provisions*.

**job site:** Area within the defined boundaries of a pro□ect.

**Labor Surcharge and Equipment Rental Rates:** □altrans publication that lists labor surcharge and equipment rental rates.

**landscaping:** □ractice of a landscaping contractor under 1□ □A □ode of Regs □ □□2.2□.

**material:** Any product or substance specified for use in the construction of a pro□ect.

**material shortage:**

1. Shortage of raw or produced material that is area□wide and caused by an unusual mar□et condition e□cept if any of the following occurs:
   1.1. Shortage relates to a produced, nonstandard material
   1.2. Supplier□s and the □ontractor□s priority for filling an order differs
   1.□. □vent outside the □nited States for a material produced outside the □nited States
2. □navailability of water that delays a controlling activity

**material source facility audit:** Self□audit and a □altrans audit evaluating a facility□s capability to consistently produce materials that comply with □altrans standards.

**median:** □ortion of a divided highway separating the traveled ways including inside shoulders.

**milestone:** □vent activity that has □ero duration and is typically used to represent the start or end of a certain stage of the pro□ect.

**mobilization:** □reparatory wor□ that must be performed or costs incurred before starting wor□ on the various items on the □ob site □□ub □ont □ode □ 1010□□.

**modify:** Add to or subtract from an appurtenant part.

**narrative report:** Document submitted with each schedule that discusses topics related to pro□ect progress and scheduling.

**near critical path:** □hain of activities with total float e□ceeding that of the critical path but having not more than 10 wor□ing days of total float.

**obliterate:** □lace an earth cover over or root, plow, pulveri□e, or scarify.

**Office engineer:** The Director of □ublic Wor□s and □lanning for the □ounty of □resno

**pavement:** □ppermost layer of material placed on a traveled way or shoulder.

**plans:** Standard plans, revised standard plans, and pro□ect plans.

1. **standard plans:** Drawings standard to Department construction pro□ects. These plans are in a boo□ titled *Standard Plans*.
2. **revised standard plans:** □ew or revised standard plans. These plans are listed in the *List of Revised Standard Plans* in a boo□ titled *Specifications*.
3. **project plans:** Drawings specific to the pro□ect, including authori□ed shop drawings. These plans also include a section titled *Project Details* of a boo□ titled *Specifications*.

**plant establishment period:** □umber of days shown on the *Notice to Bidders* for plant establishment.

**quality characteristic:** □haracteristic of a material that is measured to determine conformance with a given requirement.

**quality control plan:** □ontractor□s plan to ensure □ □.

**reconstruct:** Remove and disassemble and construct again at an e□isting or new location.

**relocate:** Remove and install or place in a new location.

**remove:** Remove and dispose of.

**reset:** Remove and install or place laterally at the same station location.

**roadbed:** Roadway portion e□tending from the curb line to curb line or the shoulder line to shoulder line. A divided highway has 2 roadbeds.

**roadside:** Area between the outside shoulder edge and the right□of□way limits.

**roadway:** □ortion of the highway within the outside lines of curbs, sidewal□s, slopes, ditches, channels, or waterways. A roadway includes the structures and features necessary for safety, protection of facilities, and drainage.

**salvage:** Remove, clean, and haul to a specified location.

**schedule:**

1. **baseline schedule:** Initial schedule showing the original wor□ plan starting on the date of □ontract approval. This schedule shows no completed wor□ to date and no negative float or negative lag to any activity.
2. **revised schedule:** Schedule that incorporates a proposed or past change to logic or activity durations.
3. **updated schedule:** □urrent schedule developed from the accepted baseline and any subsequent accepted updated or revised schedules through regular monthly review to incorporate actual past progress.

**scheduled completion date:** □lanned wor□ completion date shown on the current schedule.

**shoulder:** Roadway portion contiguous with the traveled way for accommodation of a stopped vehicle, emergency use, and lateral support of base and surface courses.

**small tool:** Tool or piece of equipment not listed in Labor Surcharge and □quipment Rental Rates that has a replacement value of □□00 or less.

**specifications:** Standard specifications, revised standard specifications, and special provisions.

1. **standard specifications:** Specifications standard to Department construction pro□ects. These specifications are in a boo□titled *Standard Specifications*.
2. **revised standard specifications:** □ew or revised standard specifications. These specifications are in a section titled *Revised Standard Specifications* of a boo□titled *Specifications*.
□. **special provisions:** Specifications specific to the pro□ect. These specifications are in a section titled *Special Provisions* of a boo□titled *Specifications*.

**State:** State of □alifornia, including its agencies, departments or divisions whose conduct or action is related to the wor□.

**Structure Design:** Offices of Structure Design of the Department of Transportation.

**subbase:** Layer of material between a base and the basement material.

**subgrade:** Roadbed portion on which pavement, surfacing, base, subbase, or a layer of any other material is placed.

**submittal:**

1. **action submittal:** Written and graphic information and samples that require the Department□s response.
2. **informational submittal:** Written information that does not require the Department□s response.

**substantial defects:** Defects plainly seen as damaged, displaced, or missing parts or improper functioning of materials, parts, equipment, or systems.

**substructure:** □ridge parts below the bridge seats, pier tops, and haunches for rigid□framed bridges or spring lines for arched bridges; includes abutment bac□walls, abutment parapets, and wingwalls.

**superstructure:** □ridge parts e□cept the substructure.

**supplemental project information:** Information relevant to the pro□ect, specified as supplemental pro□ect information, and made available to bidders.

**surfacing:** □ppermost layer of material placed on a traveled way or shoulders; pavement.

**time impact analysis:** Analysis using a □□M schedule developed specifically to demonstrate the effect a proposed or past change or delay has on the current scheduled completion date.

**time-scaled network diagram:** □raphic depiction of a □□M schedule comprised of activity bars with relationships for each activity represented by arrows. The tail of each arrow connects to the activity bar for the predecessor and points to the successor.

**total bid:** Sum of the item totals as verified by the Department; original □ontract price.

**total float:** Amount of time that an activity or chain of activities can be delayed before e□tending the scheduled completion date.

**traffic:** □edestrians, bicyclists, ridden or herded animals, vehicles, streetcars, and other conveyances either singularly or together while using any highway for purposes of travel.

**traffic lane:** □ortion of traveled way used for the movement of a single line of vehicles.

**traveled way:** □ortion of the roadway for the movement of vehicles, e□clusive of the shoulders, berms, sidewal□s, and par□ing lanes.

**tunnel:** Tunnel as defined in □ □A □ode of Regs □ □□0□ et seq.

**unauthorized work:** Wor□ performed beyond the lines and grades described in the □ontract or established by the □ngineer or e□tra wor□ performed without Department authori□ation.

**unsuitable material:** Material encountered below the natural ground surface in emban□ment areas or below the grading plane in e□cavation areas that the □ngineer determines to be in any of the following conditions:

1. Of such unstable nature that it cannot be compacted to the specified density using ordinary methods at optimum moisture content.
2. Too wet to be properly compacted and cannot be dried before incorporating it into the wor□. □□cessive moisture alone is not sufficient cause for determining that the material is unsuitable.
□. Inappropriate for the planned use.

**withhold:** Money temporarily or permanently ta□en from a progress payment.

**work:** Resources and activities required for □ontract acceptance, including labor, materials, equipment, and the created product.

**work plan:** Detailed formulation of a program of action.

**work zone:** Area of a highway with construction, maintenance, or utility wor□ activities.

**1-1.08 DISTRICTS**

**Add to the end of Section 1-1.09**

This pro□ect is not in a free□e□thaw area.

**Replace the headings and paragraphs of Section 1-1.10 with:**

**1-1.10 PAVEMENT CLIMATE REGIONS**

To help account for the effects of various climatic conditions on pavement performance, the State has been divided into □ climate regions. The pro□ect□s pavement climate region is Inland □alley.

**Replace the headings and paragraphs of Section 1-1.11 with:**

**1-1.11 WEBSITES, ADDRESSES, AND TELEPHONE NUMBERS**

**Websites, Addresses, and Telephone Numbers**

| Reference or agency or department unit | Website | Address | Telephone no. |
|---|---|---|---|
| Authori□ed Material Lists Authori□ed Material Source Lists | https:□dot.ca.gov□programs□engineering□services□authori□ed□materials□lists | □□ | □□ |
| □A □nified □ertification □rogram□s list of certified D□□s | https:□dot.ca.gov□programs□civil□rights□dbe□search | □□ | □□ |
| *California MUTCD* | https:□dot.ca.gov□programs□safety□programs□camutcd | □□ | □□ |
| Department | http:□www.co.fresno.ca.us | 2220 Tulare Street<br>Design Division – Seventh □loor<br>□resno, □A □□□21 | □□□□□□00□□□0□ |
| Department of □onservation, Office of Mine Reclamation | http:□www.conservation.ca.gov□dmr□ | □□ | □□ |
| Department of Industrial Relations | http:□www.dir.ca.gov | □□□ □olden □ate Ave.,<br>San □rancisco, □A □□102 | □□ |
| Design Services □ □ontract Administration, □lanholders, □id Results | https:□www.co.fresno.ca.us□planholders | 2220 Tulare Street<br>Design Division – Seventh □loor<br>□resno, □A □□□21 | Tel: □□□□□□00□□□0□<br>□a□:□□□□□□□□□□<br>□□0□ □mail: DesignServices□fresnocountyca.gov |
| Division of Accounting, Office of □□ternal Accounts □ayable | https:□dot.ca.gov□programs□accounting | Ma□or □onstruction □ayment and Information □nit<br>Office of □□ternal Accounts □ayable<br>Division of Accounting<br>Department of Transportation<br>□.O. □o□1□□0□□<br>Sacramento, □A □□□1□□□0□□ | □□1□□22□□□01□ |
| Division of □onstruction | http:□www.dot.ca.gov□hq□construc□ | □□ | □□ |
| □eotechnical Services | http:□www.dot.ca.gov□hq□esc□geotech | □eotechnical Services<br>Department of Transportation<br>□□00 □olsom □lvd<br>Sacramento, □A □□□1□□□□12 | □□1□□22□□□000 |
| M□TS | http:□www.dot.ca.gov□hq□esc□Translab□ | Materials □ngineering and Testing Services<br>Department of Transportation<br>□□00 □olsom □lvd<br>Sacramento, □A □□□1□□□□12 | □□1□□22□□□000 |
| *MPQP* | https:□dot.ca.gov□programs□construction□material□plant□quality□program | □□ | □□ |

| | | | |
|---|---|---|---|
| Office □ngineer | □□ | Director of □ublic Wor□s □ □lanning<br>□resno □ounty<br>2220 Tulare St, □th □loor<br>□resno, □A □□□21 | □□□□□□00□□0□□ |
| Offices of Structure Design, Documents □nit | □□ | MS□ □□□□□□l<br>Documents □nit Offices of Structure Design<br>Department of Transportation<br>1□01 □0th St<br>Sacramento, □A □□□1□□□00□ | □□1□□22□□0□1□ |
| □ublication Distribution □nit | □□ | □ublication □nit<br>Department of Transportation<br>1□00 Royal Oa□s Dr<br>Sacramento, □A □□□1□□□□00 | □□ |

**Replace the headings and paragraphs of Section 1-1.12 with the following:**

**1-1.12 MISCELLANY**

Ma□e chec□s and bonds payable to the □ounty of □resno.

**Replace Section 2 with:**

# 2 BIDDING

**2-1.01 GENERAL**

Section 2 includes specifications related to bid eligibility and the bidding process.

**2-1.02 BID INELIGIBILITY**

A firm that has provided architectural or engineering services to the Department for this contract before bid submittal for this contract is prohibited from any of the following:

1. Submitting a bid
2. Subcontracting for a part of the wor□
□. Supplying materials

**2-1.03 CONTRACTOR REGISTRATION**

□o contractor or subcontractor may be listed on a bid proposal for a public wor□s pro□ect unless registered with the Department of Industrial Relations pursuant to Labor □ode section 1□2□.□ □with limited e□ceptions from this requirement for bid purposes only under Labor □ode section 1□□1.1□a□□.

**2-1.04–2-1.05 RESERVED**

**2-1.06 BID DOCUMENTS**

**2-1.06A General**

The *Bid* boo□ includes bid forms and certifications and may be requested from Design Services and are available online at http:□www.□id□□press.com.

The *Specifications* includes the *Notice to Bidders*, revised standard specifications, pro□ect details, and special provisions.

The *Specifications*, pro□ect plans, and any addenda to these documents may be accessed at Design Services.

The *Standard Specifications* and *Standard Plans* may be purchased at the □ublication Distribution □nit or accessed online at https:□dot.ca.gov□programs□design□ccs□standard□plans□and□standard□specifications.

### 2-1.06B Supplemental Project Information

The Department ma□es the following supplemental pro□ect information available:

**Supplemental Project Information**

| Where Available | Description |
|---|---|
| Available on Design Services webpage | □ross Sections |
| Included in □ro□ect Details | □onstruction □ro□ect □unding Sign<br>Arborist's report □201□ □ersion□ |

### 2-1.06C–2-1.06D Reserved

### 2-1.07 JOB SITE AND DOCUMENT EXAMINATION

□□amine the □ob site and bid documents. □otify the Department of apparent errors and patent ambiguities in the plans, specifications, and □id Item List. □ailure to do so may result in re□ection of a bid or rescission of an award.

□id submission is your ac□nowledgment that you have e□amined the □ob site and bid documents and are satisfied with:

1. □eneral and local conditions to be encountered
2. □haracter, quality, and scope of wor□ to be performed
3. □uantities of materials to be furnished
4. □haracter, quality, and quantity of surface and subsurface materials or obstacles
5. Requirements of the contract

### 2-1.08 RESERVED

### 2-1.09 BID ITEM LIST

Submit a bid based on the bid item quantities the Department shows on □id Item List.

### 2-1.10 SUBCONTRACTOR LIST

On the Subcontractor List form, list each subcontractor to perform wor□ in an amount in e□cess of 1□2 of 1 percent of the total bid or □10,000, whichever is greater □□ub □ont □ode □ □100 et seq.□

□or each subcontractor listed, the Subcontractor List form must show:

1. □usiness name and the location of its place of business.
2. □alifornia contractor license number for a non□federal□aid contract.
3. □ublic wor□s contractor registration number.
4. □ortion of wor□ it will perform. Show the portion of the wor□ by:
   1. □id item numbers for the subcontracted wor□
   2. □ercentage of the subcontracted wor□ for each bid item listed
   3. Description of the subcontracted wor□ if the percentage of the bid item listed is less than 100 percent

### 2-1.11 RESERVED

### 2-1.12 DISADVANTAGED BUSINESS ENTERPRISES

### 2-1.12A General

Section 2□1.12 applies to a federal□aid contract.

□nder □□ □□R 2□.1□b□:

> The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or se□ in the performance of this contract. The contractor shall carry out applicable requirements of □□ □□R part 2□ in the award and administration of DOT□assisted contracts. □ailure

by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

□1□ Withholding monthly progress payments;
□2□ Assessing sanctions;
□□□ Liquidated damages; and□or
□□□ Disqualifying the contractor from future bidding as non□responsible.

Include this assurance in each subcontract you sign with a subcontractor.

### 2-1.12B Disadvantaged Business Enterprise Goal

#### 2-1.12B(1) General

Section 2□1.12□ applies if a D□□ goal is shown on the *Notice to Bidders*.

The Department shows a goal for D□□s to comply with the D□□ program ob□ectives provided in □□ □□R 2□.1.

Ma□e wor□available to D□□s and select wor□parts consistent with the available D□□s, including subcontractors, suppliers, service providers, and truc□ers.

Meet the D□□ goal shown on the *Notice to Bidders* or demonstrate that you made adequate good faith efforts to meet this goal.

□ou are responsible to verify at bid opening the D□□ firm is certified as a D□□ by the □alifornia □nified □ertification □rogram and possess the wor□codes applicable to the type of wor□the firm will perform on the □ontract.

Determine that selected D□□s perform a commercially useful function for the type of wor□the D□□ will perform on the □ontract as provided in □□ □□R 2□.□□(c)(1)–□□. □nder □□ □□R 2□.□□(c)(1)–□□, the D□□ must be responsible for the e□ecution of a distinct element of wor□and must carry out its responsibility by actually performing, managing, and supervising the wor□.

All DBE participation will count toward Caltrans' federally mandated statewide overall D□□ goal.

□redit for materials or supplies you purchase from D□□s will be evaluated on a contract□by□contract basis and counts toward the goal in the following manner:

1. 100 percent if the materials or supplies are obtained from a D□□ manufacturer.
2. □0 percent if the materials or supplies are obtained from a D□□ regular dealer.
□. Only fees, commissions, and charges for assistance in the procurement and delivery of materials or supplies if they are obtained from a D□□ that is neither a manufacturer nor a regular dealer. □□ □□R 2□.□□ defines *manufacturer* and *regular dealer*.

□ou receive credit toward the goal if you employ a D□□ truc□ing company that is performing a commercially useful function. The Department uses the following factors in determining whether a D□□ truc□ing company is performing a commercially useful function:

- The D□□ must be responsible for the management and supervision of the entire truc□ing operation for which it is responsible on a particular contract, and there cannot be a contrived arrangement for the purpose of meeting D□□ goals.
- The D□□ must itself own and operate at least one fully licensed, insured, and operational truc□used on the contract.
- The D□□ receives credit for the total value of the transportation services it provides on the □ontract using truc□s it owns, insures, and operates using drivers it employs.
- The D□□ may lease truc□s from another D□□ firm, including an owner□operator who is certified as a D□□. The D□□ who leases truc□s from another D□□ receives credit for the total value of the transportation services the lessee D□□ provides on the □ontract.

- The D□□ may lease truc□s without drivers from a non□D□□ truc□leasing company. If the D□□ leases truc□s from a non□D□□ truc□leasing company and uses its own employees as drivers, it is entitled to credit for the total value of these hauling services.
- A lease must indicate that the D□□ has e□clusive use of and control over the truc□. This does not preclude the leased truc□from wor□ing for others during the term of the lease with the consent of the D□□, so long as the lease gives the D□□ absolute priority for use of the leased truc□. Leased truc□s must display the name and identification number of the D□□.

□□□ □□R 2□.□□□d□□

**2-1.12B(2) DBE Commitment Submittal**

Submit D□□ information under section 2□1.□□.

Submit a copy of the quote from each D□□ shown on the D□□ □ommitment form that describes the type and dollar amount of wor□shown on the form. Submit a D□□ □onfirmation form for each D□□ shown on the D□□ □ommitment form to establish that it will be participating in the □ontract in the type and dollar amount of wor□shown on the form. If a D□□ is participating as a □oint venture partner, submit a copy of the □oint venture agreement.

**2-1.12B(3) DBE Good Faith Efforts Submittal**

□ou can meet the D□□ requirements by either documenting commitments to D□□s to meet the □ontract goal or by documenting adequate good faith efforts to meet the □ontract goal. An adequate good faith effort means that the bidder must show that it too□all necessary and reasonable steps to achieve a D□□ goal that, by their scope, intensity, and appropriateness to the ob□ective, could reasonably be e□pected to meet the D□□ goal.

If you have not met the D□□ goal, complete and submit the D□□ □ood □aith □fforts Documentation form under section 2□1.□□ showing that you made adequate good faith efforts to meet the goal. Only good faith efforts directed toward obtaining participation by D□□s are considered.

Submit good faith efforts documentation within the specified time to protect your eligibility for award of the contract in the event the Department finds that the D□□ goal has not been met.

Refer to □□ □□R 2□app A for guidance regarding evaluation of good faith efforts to meet the D□□ goal.

The Department considers D□□ commitments of other bidders in determining whether the low bidder made good faith efforts to meet the D□□ goal.

**2-1.13 – 2-1.30 RESERVED**

**2-1.31 OPT OUT OF PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS**

□ou may opt out of the payment ad□ustments for price inde□fluctuations specified in section □□1.0□. To opt out, submit a completed Opt Out of □ayment Ad□ustments for □rice Inde□ □luctuations form under section 2□1.□□.

**2-1.32 RESERVED**

**2-1.33 BID DOCUMENT COMPLETION AND SUBMITTAL**

**2-1.33A General**

□omplete forms in the *Bid* boo□.

Submit an electronic bid online at http:□www.□id□□press.com □Section 2□1.□□D□or submit a hardcopy bid:

1. □nder sealed cover
2. Mar□ed as a bid
□. Identifying the contract number and the bid opening date

□ertain bid  forms must be submitted with the bid and properly e□ecuted.

□ertain other forms and information must be submitted either with the bid or within the prescribed period after bid opening as specified elsewhere in these special provisions.

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

If an agent other than the authori□ed corporation officer or a partnership member signs the bid, file a □ower of Attorney with the Department either before opening bids or with the bid. Otherwise, the bid may be nonresponsive.

**2-1.33B  Bid Item List and Bid Comparison**

Submit a bid based on the bid item quantities the Department shows on □roposal 2.  □ids will be evaluated and the low bidder determined as indicated in the *Notice to Bidders.*

Do not submit an unbalanced bid. An unbalanced is a bid is one in which one or more bid items is□are considered by the Department to have been bid at an amount that is unreasonably high or unreasonably low.  A bid may be considered to be non□responsive and may be re□ected if it is considered by the Department to be unbalanced.

**2-1.33C  Bid Document Completion**

□roposal items are identified by title and by the word “Proposal” followed by the number assigned to the proposal item in question.  □roposal items are included in the *Bid Book.*

**2-1.33C(1)  Proposal 1 - Proposal to the Board of Supervisors of Fresno County**

**2-1.33C(2)  Proposal 2 - Bid Item List**

One or more sheet□s□or list□s□upon which the bidder completes the bid.

□ill out completely including a unit price and total for each unit price□based item and a total for each lump sum item.

Do not make any additions such as “plus tax”, “plus freight”, or conditions such as “less 2% if paid by 15th”.

□se in□or typewriter for paper bids.

**2-1.33C(3) Proposal 3 - Evaluation of Bid Item List**

Describes how inconsistences and irregularities are evaluated and corrected when Design Services reviews the Item List.

**2-1.33C(4)  Proposal 4 - Bid Security and Signature**

Submit one of the following forms of bidder□s security equal to at least 10 percent of the bid:

- □ash
- □ashier□s chec□
- □ertified chec□
- Signed bidder□s bond by an admitted surety insurer

Indicate type of bid security provided.

- □ash – Acceptable but not recommended. □ash is deposited in a clearing account and is returned to bidders by □ounty warrant.  This process may ta□e several wee□s.
- Cashier’s or Certified Checks. This type of security is held until the bid is no longer under consideration.  If submitted by a potential awardee, they will be returned when the contract is fully e□ecuted by the bidder and bonds and insurance have been approved.

- □id □onds □Must be signed by the bidder and by the attorney□in□fact for the bonding company. □rovide notari□ed signature of attorney□in□fact accompanied by bonding company's affidavit authori□ing attorney□in□fact to e□ecute bonds. An unsigned bid bond will be cause for re□ection.

Provide contractor's license information.

State business name and if business is a:

- □orporation □list officers
- □artnership □list partners
- □oint □enture □list members; if members are corporations or partnerships, list their officers or partners.
- Individual □list Owner's name and firm name style

Signature of □idder □the following lists types of companies and corresponding authori□ed signers.

- □orporation □by an officer
- □artnership □by a partner
- □oint □enture □by a member
- Individual □by the Owner

If signature is by a □ranch Manager, □stimator, Agent, etc., the bid must be accompanied by a power of attorney authori□ing the individual to sign the bid in question or to sign bids more generally, otherwise the bid may be re□ected.

□usiness Address □Firm's Street Address

Mailing Address □□.O. □o□or Street Address

□omplete, sign, and return with bid.

**2-1.33C(5) Proposal 5 - Noncollusion Declaration**

Must be completed, signed, and returned with bid.

**2-1.33C(6) Proposal 6 - Public Contract Code Section 10285.1 Statement**

Select "has" or "has not" in accordance with instructions on form, return with completed for with bid. Note that signing the bid constitutes signing this statement.

**2-1.33C(7) Proposal 7 - Public Contract Code Section 10162 Questionnaire And Public Contract Code 10232 Statement**

Select "yes" or "no" accordance with instructions on form, include explanation if "yes" is selected. Return completed form with bid. □ote that signing the bid constitutes signing this questionnaire and statement.

**2-1.33C(8) Proposal 8(a) through Proposal 8(f) - Subcontractors**

Sheet□s□or spaces where upon which bidders list subcontractors. List each subcontractor to perform wor□ in an amount in e□cess of 1□2 of 1 percent of the total bid or □10,000, whichever is greater □□ub □ont □ode □ □100 et seq.□.

The *Subcontractor List* submitted with the bid must show the name, location of business, wor□ portions to be performed, and the contractor's license number for each subcontractor listed.

- □se subcontractor□s business name style as registered with the License □oard.
- Specify the city in which the subcontractor's business is located and the state if other than □alifornia.

- Description of the wor□ to be performed by the subcontractor. Indicate with bid item numbers from the bid item list and□or wor□ descriptions similar to those on bid item list.
- List license number and Department of Industrial Relations registration number for each subcontractor.

□pon request from Design Services, provide the following additional information within 2□ hours of bid opening if not included on the *Subcontractor List* submitted with the bid:

- □omplete physical address for each subcontractor listed.
- □ercentage of the total bid or dollar amount associated with each subcontractor listed.

**2-1.33C(16) Proposal 16 - *Opt out of payment adjustments for price index fluctuations***

□ou may opt out of the payment ad□ustments for price inde□ fluctuations specified in section □□1.0□. To opt out, submit a completed *Opt Out of Payment Adjustments for Price Index Fluctuations* form with your bid.

**2-1.33C(17) Proposal 17 - *Guaranty***

Does not need to be signed with the bid. □art of the contract which must be signed by the contractor when contract is e□ecuted.

**2-1.34 BIDDER'S SECURITY**

Submit one of the following forms of bidder□s security equal to at least 10 percent of the bid:

1. □ash
2. □ashier□s chec□
□. □ertified chec□
□. Signed bidder□s bond by an admitted surety insurer

Submit cash, cashier's check, certified check, or bidder's bond with your bid.

**2-1.35–2-1.39 RESERVED**

**2-1.40 BID WITHDRAWAL**

1. An authori□ed agent may withdraw a bid before the bid opening date and time by submitting a written bid withdrawal request at the location where the bid was submitted. Withdrawing a bid does not prevent you from submitting a new bid. An authori□ed agent is an individual authori□ed to submit a bid.
2. After the bid opening time, you cannot withdraw a bid.

**2-1.41–2-1.42 RESERVED**

**2-1.43 BID OPENING**

The Department publicly opens and reads bids at the time and place shown on the *Notice to Bidders*.

**2-1.44–2-1.45 RESERVED**

**2-1.46 DEPARTMENT'S DECISION ON BID**

The Department□s decision on the bid amount is final.

The Department may re□ect:

1. All bids
2. A nonresponsive bid

### 2-1.47 BID RELIEF

The Department may grant bid relief under □ub □ont □ode □ □100 et seq. Submit any request for bid relief to Design Services.

### 2-1.48 RESERVED

### 2-1.49 SUBMITTAL FAILURE HISTORY

The Department considers a bidder□s past failure to submit documents required after bid opening in determining a bidder□s responsibility.

### 2-1.50 RESERVED

### 2-1.51 DISCLOSURE OF SELF-DEALING TRANSACTIONS

This provision is only applicable if the contractor is operating as a corporation □a for□profit or non□profit corporation□or if during the term of this agreement, the contractor changes its status to operate as a corporation.

Members of the contractor's Board of Directors shall disclose any self□dealing transactions that they are a party to while contractor is providing goods or performing services under this agreement. A self□dealing transaction shall mean a transaction to which the contractor is a party and in which one or more of its directors has a material financial interest. Members of the □oard of Directors shall disclose any self□ dealing transactions that they are a party to by completing and signing a Self□Dealing Transaction Disclosure □orm which is included in *Project Details* of these special provisions.

In the event that the □ontractor □to whom the pro□ect is awarded□is operating as a corporation or incorporates during the course of the construction contract, and any member of its board of directors is engaged or intends to become engaged in self□dealing transaction□s□, each member of its board of directors who is engaged or intends to become engaged in a self□dealing transaction or transactions must complete and submit to the □ounty a completed Self□Dealing Transaction Disclosure □orm □in □ro□ect Details□for each such transaction prior to engaging therein or immediately thereafter.

## 3 CONTRACT AWARD AND EXECUTION

**Replace the headings and paragraphs of Section 3 with:**

### 3-1.01 GENERAL

Section □ includes specifications related to contract award and e□ecution.

### 3-1.02 CONSIDERATION OF BIDS

### 3-1.02A General

□ids will be compared on the basis listed in the □otice to □idders.

### 3-1.02B Tied Bids

The Department brea□s a tied bid with a coin toss:

### 3-1.03 CONTRACTOR REGISTRATION

□o contractor or subcontractor may be awarded a contract for public wor□on a public wor□s pro□ect □awarded on or after April 1, 201□□unless registered with the Department of Industrial Relations pursuant to Labor □ode section 1□2□.□.

### 3-1.04 CONTRACT AWARD

### 3-1.04A BID PROTEST PROCEDURES

Any bid protest must be submitted in writing and delivered by the □idder by either of the following means: □1□via e□mail to DesignServices□ fresnocountyca.gov; or □2□via certified mail, return receipt requested to the following address: Design Division, Department of □ublic Wor□s and □lanning, 2220 Tulare Street, Si□th □loor, □resno, □A □□□21.

**The bid protest must be received no later than 5:00 p.m. of the seventh (7th) calendar day following the deadline for submittal of the specific bid document(s) placed at issue by the protest.** Any bidder filing a protest is encouraged to submit the bid protest via e-mail, because the deadline is based on the Department's receipt of the bid protest. A bid protest accordingly may be rejected as untimely if it is not received by the deadline, regardless of the date on which it was postmarked. The Bidder's compliance with the following additional procedures also is mandatory:

a. The initial protest document shall contain a complete statement of the grounds for the protest, including a detailed statement of the factual basis and any supporting legal authority.

b. The protest shall identify and address the specific portion of the document(s) forming the basis for the protest.

c. The protest shall include the name, address and telephone number of the person representing the protesting party.

d. The Department will provide a copy of the initial protest document and any attached documentation to all other bidders or proposers who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.

e. The Board of Supervisors will issue a decision on the protest. If the Board of Supervisors determines that a protest is frivolous, the party originating the protest may be determined to be irresponsible and that party may be determined to be ineligible for future contract awards.

f. The procedure and time limits set forth herein are mandatory and are the bidder's sole and exclusive remedy in the event of a bid protest. Failure by the bidder to comply with these procedures shall constitute a waiver of any right to further pursue the bid protest, including the subsequent filing of a Government Code Claim or legal proceedings.

### 3-1.04B AWARD PERIOD

If the Department awards the contract, the award is made to the lowest responsible bidder within [blank] calendar days after bid opening.

The Department may extend the specified award period if the bidder agrees.

You may request to extend the award period by faxing a request to Design Services before 5:00 p.m. on or before the last day of the award period. If you do not make this request, after the specified award period:

1. Your bid becomes invalid
2. You are not eligible for the award of the contract

### 3-1.05 CONTRACT BONDS (PUB CONT CODE §§ 10221 AND 10222)

The successful bidder must furnish 2 bonds conforming to the requirements in the *Agreement* of these special provisions.

### 3-1.06 CONTRACTOR LICENSE

For a federal-aid contract, the Contractor must be properly licensed as a contractor from contract award through Contract acceptance (Sub Cont Code 7101[blank]).

For a non-federal-aid contract:

1. Contractor must be properly licensed as a contractor from bid opening through Contract acceptance (Bus & Prof Code § 7028.1[blank])

2. □oint venture bidders must obtain a □oint venture license before contract award □□us □ □rof □ode □ □02□.1□

**3-1.07 INSURANCE POLICIES**

The successful bidder must submit copies of its insurance policies conforming to the requirements in the *Agreement* of these special provisions.

**3-1.08 –3-1.10 RESERVED**

**3-1.11 PAYEE DATA RECORD**

□omplete and deliver to the □ngineer a □ayee Data Record form when requested by the □ngineer.

**3-1.12–3-1.17 RESERVED**

**3-1.18 CONTRACT EXECUTION**

The successful bidder must sign the *Agreement*.

Deliver to Design Services:

1. Signed *Agreement* including the attached form □□WA□12□□
2. □ontract bonds
3. Documents identified in section □□1.0□
4. □or a federal□aid contract, *Local Agency Bidder - DBE Information* form

Design Services must receive these documents before the 10th business day after the bidder receives the contract.

The bidder□s security may be forfeited for failure to e□ecute the contract within the time specified □□ub □ont □ode □□ 101□1, 101□2, and 101□□□.

**3-1.19 BIDDERS' SECURITIES**

The Department □eeps the securities of the 1st, 2nd, and □rd low bidders until the contract has been e□ecuted. The other bidders□securities, other than bidders□bonds, are returned upon determination of the 1st, 2nd, and □rd low bidders, and their bidders□bonds are of no further effect □□ub □ont □ode □ 101□□□.

# 4 SCOPE OF WORK

**Replace Section 4-1.02 with:**

**4-1.02 INTENT**

The □ontract intent is to provide for wor□ completion using the best general practices.

□othing in the specifications, special provisions, Standard Specifications, or in any other □ontract document voids the □ontractor□s public safety responsibilities.

**Replace the paragraphs of Section 4-1.07C with the following:**

**4-1.07C Reserved**

**Replace Section 4-1.13 with:**

**4-1.13 CLEANUP**

□efore final inspection, leave the □ob site neat and presentable and dispose of:

1. Rubbish
2. □□cess materials

□. □alsewor□
□. Temporary structures
□. □quipment

Remove warning, regulatory, and guide signs when directed by the □ngineer.

# 5 CONTROL OF WORK

**Delete the 9th Paragraph of Section 5-1.01**

**Add the following before the last sentence in Section 5-1.02**

□altrans Standard □lans, □ity of □resno Standard Drawings, and any other other□agency Standard Drawings included in the "Project Details" section of the book entitled "Specifications" have the same ranking as Standard Plans."

All other drawings in the "Project Details" section of the book entitled "Specifications" have the same ran□ing as □ro□ect □lans.

Tables and other documents in the "Project Details" section of the book entitled "Specifications" have the same ran□ing as Special □rovisions. If a portion of a document in the □ro□ect Details section conflicts with the Special □rovisions, the Special □rovisions shall prevail.

**Replace the headings and paragraphs of Section 5-1.09 with:**

**5-1.09 RESERVED**

**Replace Section 5-1.12 with:**

**5-1.12 ASSIGNMENT**

□o third□party agreement relieves you or your surety of the responsibility to complete the wor□. Do not sell, transfer, or otherwise dispose of any □ontract part without prior written consent from the Department.

If you assign the right to receive □ontract payments, the □ngineer accepts the assignment upon the □ngineer□s receipt of a notice. Assigned payments remain sub□ect to deductions and withholds described in the □ontract. The Department may use withheld payments for wor□completion whether payments are assigned or not.

A pending or disapproved request for assignment does not relieve you of the responsibility to commence and pursue wor□timely and in strict accordance with contract documents.

**Replace the headings and paragraphs of Section 5-1.13C with:**

**5-1.13C RESERVED**

**Replace the headings and paragraphs of Section 5-1.13D with:**

**5-1.13D RESERVED**

**Add the following paragraph to the end of Section 5-1.16 with:**

**Submit Daily Log records to the Engineer weekly for the entire course of work unless the Engineer requests another interval.**

**Replace the paragraphs of Section 5-1.20B(4) with:**

**5-1.20B(4) CONTRACTOR–PROPERTY OWNER AGREEMENT**

□efore procuring material from or disposing or stoc□piling of material on non□highway property:

1. □rovide proof that the property where materials are to be stoc□piled or equipment par□ed□stored is appropriately □oned and□or permitted for the use proposed by the □ontractor.
2. Obtain written authori□ation from each and every owner of the property where materials are to be stoc□piled or equipment par□ed□stored.

1. Provide proof that the signors of the authorization are the owners of the property.
2. Provide an executed release from the property owners absolving the Department from any and all responsibility in connection with the stockpiling of materials or parking storage of equipment on said property.
3. Obtain written permission from the Engineer to stockpile materials or park store equipment at the location designated in said authorization.

Before Contract acceptance, submit a document signed by the owner of the material source or disposal site stating that the Contractor has complied with the Contractor owner agreement.

Failure by the Contractor to provide written authorization shall result in the withholding of all funds due to the Contractor until said authorization is received by the County.

**Replace the paragraph of Section 5-1.20C with:**

**5-1.20C RAILROAD RELATIONS**

If the Contract includes an agreement with a railroad company, the Department makes the provisions of the agreement available in Project Details in the document titled "Railroad Relations and Insurance Requirements." Comply with the requirements in the document.

**5-1.20G FRESNO IRRIGATION DISTRICT (FID)**

It is Contractor's responsibility to investigate and understand all necessary requirements to obtain encroachment permit from FID prior to bidding. The Contractor shall pay for all costs associated with all permits as described herein. Contractor will be responsible for obtaining the permits, including but not limited to, filing, coordination, miscellaneous forms, fees, revisions, measures, etc.

The FRESNO IRRIGATION DISTRICT bid item is specifically provided to reimburse Contractor for payment of fee charged by the FID and paid by the Contractor after the Contractor has completed the application process.

The amount paid will be the amount of the fee only. No payment will be made for overhead, labor or processing costs. Full compensation for any overhead, labor and processing costs will be considered to be included in the various items of work, and no separate compensation will be made therefor.

**Replace the paragraphs of Section 5-1.23A with:**

**5-1.23A General**

Section 1.2 includes specifications for action and informational submittals.

Any submittal not specified as an informational submittal is an action submittal.

Submit action and informational submittals to the Engineer. Unless otherwise specified in these Specifications, submittals shall be provided via email in .pdf format.

Each submittal must have a cover sheet that must include:

1. Contract number
2. Project Name
3. Date
4. Submittals and resubmittals if applicable must be numbered sequentially
5. Structure number if applicable
6. Contractor
7. Person responsible for submitting the submittal
8. Signature of Contractor's representative sending submittal
9. Section number and or item submittal is referencing
10. Pages of submittal, excluding cover sheet

The Department re□ects a submittal if it has any error or omission.

If the last day for submitting a document falls on a Saturday or holiday, it may be submitted on the ne□t business day with the same effect as if it had been submitted on the day specified.

Documents must be submitted in the □nglish language.

□onvert documents to □S customary units.

**Replace Section 5-1.26 with:**

**5-1.26 CONSTRUCTION SURVEYS**

The □ngineer places sta□es and□or mar□s as the □ngineer determines to be necessary to establish the lines and grades required for the wor□.

Submit your request for □ngineer□furnished sta□es:

1 Once sta□ing area is ready for sta□es
2. On a Request for □onstruction Sta□es form

After your submittal, the □ngineer starts sta□ing within 2 wor□ing days.

□reserve sta□es and mar□s placed by the □ngineer. If the sta□es or mar□s are destroyed, the □ngineer replaces them at the Engineer's earliest convenience and deducts the cost from the contract. The wor□ performed by the □ngineer will be on time and materials basis. □ost can range from □□00 to □1,□00 per day depending on the survey crew si□e and equipment required for the wor□ to be performed.

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

**5-1.27E CHANGE ORDER BILLS**

Maintain separate records for change order wor□ costs.

**5-1.32 AREAS FOR USE**

Occupy the highway only for purposes necessary to perform the wor□.

Defend, indemnify, and hold the Department harmless to the same e□tent as under section □□1.0□.

The Department does not allow temporary residences within the □ounty right□of□way.

# 6 CONTROL OF MATERIALS

**Replace Section 6-1.05 with:**

**6-1.05 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION**

□nless substitution is e□pressly precluded in the special provisions, a reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. □nless the Department has made a public interest finding e□pressly authori□ing sole source procurement of a particular item, you may use a product that is equal to or better than the specified brand or trade name if authori□ed.

Submit a substitution request with a time period that:

1. □ollows □ontract award
2. Allows □0 days for review
□. □auses no delay

Include substantiating data with the substitution request that proves that substitution:

1. □auses no delay

2. Is of equal or better quality and suitability

If the special provisions disallow substitution of a particular item, provide the specified item and do not propose substitution.

# 7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

**Replace the 2nd Paragraph of Section 7-1.02K(2) with:**

The general prevailing wage rates and any applicable changes to these wage rates are available:

1. From Design Services
2. From the Department of Industrial Relations Web site

**Replace Section 7-1.02K(3) with:**

0 22 1

Keep accurate payroll records.

Submit a copy of your certified payroll records, weekly, including those of subcontractors. Include:

1. Each employee's:
   1.1. Full name
   1.2. Address
   1.3. Social security number
   1.4. Work classification
   1.5. Straight time and overtime hours worked each day and week
   1.6. Actual wages paid for each day to each:
      1.6.1. Journeyman
      1.6.2. Apprentice
      1.6.3. Worker
      1.6.4. Other employee you employ for the work
   1.7. Pay rate
   1.8. Itemized deductions made
   1.9. Check number issued
   1.10. Fringe Benefits
2. Apprentices and the apprentice to journeyman ratio

Each certified payroll record must include a Statement of Compliance form signed under penalty of perjury that declares:

1. Information contained in the payroll record is true, correct, and complete
2. Employer has complied with the requirements of sections 1771, 1771.1, and 1776 for any work performed by his or her employees on the public works project
3. Wage rates paid are at least those required by the Contract

Submitted certified payrolls for hauling and delivering ready-mixed concrete must be accompanied by a written time record. The time record must include:

1. Truck driver's full name and address
2. Name and address of the factory or batching plant
3. Time the concrete was loaded at the factory or batching plant
4. Time the truck returned to the factory or batching plant
5. Truck driver's signature certifying under penalty of perjury that the information contained in this written time record is true and correct

Ma□e certified payroll records available for inspection at all reasonable hours at your main office on the following basis:

1. □pon the employee□s request or upon request of the employee□s authori□ed representative, ma□e available for inspection a certified copy of the employee□s payroll record.
2. Refer the public□s requests for certified payroll records to the Department. □pon the public□s request, the Department ma□es available for inspection or furnishes copies of your certified payroll records. Do not give the public access to the records at your main office.

Ma□e all payroll records available for inspection and copying or furnish a copy upon request of a representative of the:

1. Department
2. Division of Labor Standards □nforcement of the Department of Industrial Relations
□. Division of Apprenticeship Standards of the Department of Industrial Relations

□urnish the Department the location of the records. Include the street address, city, and county. □urnish the Department a notification of a location and address change within □ business days of the change.

□omply with a request for the records within 10 days after you receive a written request. If you do not comply within this period, the Department withholds from progress payments a □100 penalty for each day or part of a day for each wor□er until you comply. □ou are not assessed this penalty for a subcontractor□s failure to comply with Labor □ode □ 1□□□.

The Department withholds from progress payments for delinquent or inadequate records □Labor □ode □ 1□□1.□□. If you have not submitted an adequate record by the month□s 1□th day for the period ending on or before the 1st of that month, the Department withholds up to 10 percent of the monthly progress estimate, e□clusive of mobili□ation. The Department does not withhold more than □10,000 or less than □1,000.

**7-1.02K(4)i Apprenticeship Requirements for non-Federal Projects**

A. □ursuant to Sections 1□□0□1□□0 of the Labor □ode of the State of □alifornia, the Director of the Department of Industrial Relations has determined the general prevailing rate of wages in the locality for each craft or type of wor□er needed to e□ecute the wor□. Said wage rates pursuant to Section 1□□□.2 of the Labor □ode are on file with the □ler□ to the □resno □ounty □oard of Supervisors, and will be made available to any interested person on request. A copy of this wage scale may also be obtained at the following Web Site: *www.dir.ca.gov/dlsr*.

□. □ursuant to Section 1□□□ of the Labor □ode of the State of □alifornia, nothing in this Article shall prevent the employment of properly registered apprentices upon public wor□s. □very such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he□she is employed, and shall be employed only at the wor□ of the craft or trade to which he□she is registered.

□. Only apprentices, as defined in Section □0□□, who are in training under apprenticeship standards and written apprentice agreements under □hapter □ □commencing at Section □0□0□, Division □, of the Labor □ode, are eligible to be employed on public wor□s. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under which he□she is training.

D. □resno □ounty is committed to increasing the availability of employment and training opportunities, with particular attention to the plight of those who are most economically disadvantaged. In an effort to advance that purpose, the □ounty will require that the □ontractor and each subcontractor employed on this □ro□ect shall use their best efforts to ensure that thirty□three percent □□□□ □of apprentice hours, as determined by □alifornia Labor □ode Section 1□□□.□ for each contractor and subcontractor of any tier on this □ro□ect, are performed by qualified participants in state approved apprenticeship programs who also are

current or former “Welfare to Work” participants in the CalWORKs program. Provided, that nothing contained in this Paragraph D shall be interpreted to relieve or in any way diminish the obligation of the Contractor and each subcontractor to comply fully with all applicable apprenticeship laws in accordance with the California Labor Code and the California Code of Regulations; and accordingly such requirements as are contractually imposed by this Paragraph D shall be in addition to such legally mandated requirements, and applicable only to the extent fully consistent therewith.

**Replace Section 7-1.02M(2) with:**

**7-1.02M(2) Fire Prevention**

Cooperate with local fire prevention authorities in eliminating hazardous fire conditions.

Obtain the phone numbers of the nearest fire suppression agency, California Department of Forestry and Fire Protection (Cal Fire) unit headquarters, United States Forest Service (USFS) Ranger district office, and U.S. Department of Interior (BLM) field office. Submit these phone numbers to the Engineer before the start of Job site activities.

Immediately report to the nearest fire suppression agency fires occurring within the project limits.

Prevent project personnel from setting open fires that are not part of the work.

Prevent the escape of and extinguish fires caused directly or indirectly by Job site activities

Except for motor trucks, truck tractors, buses, and passenger vehicles, equip all hydrocarbon-fueled engines, both stationary and mobile including motorcycles, with spark arresters that meet USFS standards as specified in the *Forest Service Spark Arrester Guide*. Maintain the spark arresters in good operating condition. Spark arresters are not required by Cal Fire, the BLM, or the USFS on equipment powered by properly maintained exhaust-driven turbo-charged engines or equipped with scrubbers with properly maintained water levels. The *Forest Service Spark Arrester Guide* is available at the district offices.

Each toilet must have a metal ashtray at least 4 inches in diameter by 4 inches deep half-filled with sand and within easy reach of anyone using the facility.

Locate flammable materials at least 30 feet away from equipment service, parking, and gas and oil storage areas. Each small mobile or stationary engine site must be cleared of flammable material for a radius of at least 10 feet from the engine.

Each area to be cleared and grubbed must be cleared and kept clear of flammable material such as dry grass, weeds, brush, downed trees, oily rags and waste, paper, cartons, and plastic waste. Before clearing and grubbing, clear a fire break at the outer limits of the areas to be cleared and grubbed. Other fire breaks may be ordered and are change order work.

Furnish the following fire tools:

1. 1 shovel and 1 fully charged fire extinguisher 4A rated at 240:20 or more on each truck, personnel vehicle, tractor, grader, or other heavy equipment.
2. 1 shovel and 1 back-pack 5-gallon water-filled tank with pump for each welder.
3. 1 shovel or 1 chemical pressurized fire extinguisher, fully charged, for each gasoline-powered tool, including chain saws, soil augers, and rock drills. The fire tools must always be within 25 feet from the point of operation of the power tool. Each fire extinguisher must be of the type and size required by the Pub Res Code § 4442 and 14 CCR Code of Regs § 1250. Each shovel must be size O or larger and at least 36 inches long.

Furnish a pick-up truck and driver for the sole purpose of fire control during working hours. The truck must be equipped with:

1. 10 shovels, 10 axes, 2 back-pack 5-gallon water-filled tanks with pumps

2. 100-gallon tan- of water with a gasoline motor powered pump and 100 feet of --inch hose on a reel.

The pic-up truc- and operator must patrol the area of construction for at least 1-2 hour after -ob site activities have ended.

In addition to being available at the site of the wor-, the truc- and operator must patrol the area of construction from noon until at least 1-2 hour after -ob site activities have ended. If the fire danger rating is very high or e-treme, the truc- and operator must patrol the area of construction while wor- is being done and for at least 1-2 hour after -ob site activities have ended.

-al -ire, -S-S, and -LM have established the following ad-ective class ratings for - levels of fire danger for use in public information releases and fire protection signing: low, moderate, high, very high, e-treme. Obtain the fire danger rating daily for the pro-ect area from the nearest -al -ire unit headquarters, -S-S ranger district office, or -LM field office.

Arrangements have been made with -al -ire, -S-S, and -LM to notify the Department when the fire danger rating is very high or e-treme. This information will be furnished to the -ngineer who will notify you for dissemination and action in the area affected. If a discrepancy between this notice and the fire danger rating obtained from the nearest office of either -al -ire or -S-S e-ists, you must conduct operations according to the higher of the two fire danger ratings.

If the fire danger rating reaches very high:

1. -alling of dead trees or snags must be discontinued.
2. -o open burning is permitted and fires must be e-tinguished.
3. Welding must be discontinued e-cept in an enclosed building or within an area cleared of flammable material for a radius of 1- feet.
4. -lasting must be discontinued.
5. Smo-ing is allowed only in automobiles and cabs of truc-s equipped with an ashtray or in cleared areas immediately surrounded by a fire brea- unless prohibited by other authority.
6. -ehicular travel is restricted to cleared areas e-cept in case of emergency.

If the fire danger rating reaches e-treme, ta-e the precautions specified for a very high fire danger rating e-cept smo-ing is not allowed in an area immediately surrounded by a firebrea- and wor- of a nature that could start a fire requires that properly equipped fire guards be assigned to such operation for the duration of the wor-.

The -ngineer may suspend wor- wholly or in part due to ha-ardous fire conditions. The days during this suspension are non–wor-ing days.

If field and weather conditions become such that the determination of the fire danger rating is suspended, section --1.02M-2-will not be enforced for the period of the suspension of the determination of the fire danger rating. The -ngineer will notify you of the dates of the suspension and resumption of the determination of the fire danger rating.

**Add between the 9th and 10th paragraphs of Section 7-1.03:**

0--1--1-

If a height differential of more than 0.0- foot is created by construction activities at a -oint transverse to the direction of traffic on the traveled way or a shoulder sub-ect to public traffic, construct a temporary taper at the -oint with a slope complying with the requirements shown in the following table:

**Temporary Tapers**

| □eight differential □foot□ | Slope □hori□ontal:vertical□ | |
|---|---|---|
| | Taper use of 1□ days or less | Taper use of more than 1□ days |
| □reater than 0.0□ | 100:1 or flatter | 200:1 or flatter |
| 0.0□–0.0□ | □0:1 or flatter | □0:1 or flatter |

□or a taper on e□isting asphalt concrete or concrete pavement, construct the taper with minor □MA under section □□2.0□.

□rind e□isting surfaces to accommodate a minimum taper thic□ness of 0.10 foot under either of the following conditions:

1. □MA material such as rubberi□ed □MA, polymer□modified bonded wearing course, or open□graded friction course is unsuitable for ra□ing to a ma□imum 0.02 foot thic□ness at the edge
2. Taper will be in place for more than 1□ days

□or a taper on a bridge dec□ or approach slab, construct the taper with polyester concrete under section □0□□.0□□.

The completed surface of the taper must be uniform and must not vary more than 0.02 foot from the lower edge of a 12□foot straightedge when placed on its surface parallel and perpendicular to traffic.

If authori□ed, you may use alternative materials or methods to construct the required taper.

**Replace the headings and paragraphs of Section 7-1.04 with:**

**7-1.04 PUBLIC SAFETY**

**7-1.04A GENERAL**

□ou are responsible to provide for public safety.

Do not construct a temporary facility that interferes with the safe passage of traffic.

□ontrol dust resulting from the wor□, inside and outside the right□of□way.

Move wor□ers, equipment, and materials without endangering traffic.

Whenever your activities create a condition ha□ardous to the public, furnish, erect and maintain those fences, temporary railing, barricades, lights, signs, and other devices and ta□e any other necessary protective measures to prevent damage or in□ury to the public.

Any fences, temporary railing, barricades, lights, signs, or other devices furnished, erected and maintained by you are in addition to those for which payment is provided elsewhere in the specifications.

□rovide flaggers whenever necessary to ensure that the public is given safe guidance through the wor□ □one. At locations where traffic is being routed through construction under one□way controls, move your equipment in compliance with the one□way controls unless otherwise ordered.

□se of signs, lights, flags, or other protective devices must comply with the *California MUTCD* and any directions of the □ngineer. Signs, lights, flags or other protective devices must not obscure the visibility of, nor conflict in intent, meaning, and function of either e□isting signs, lights and traffic control devices, or any construction area signs.

□eep e□isting traffic signals and highway lighting in operation. Other forces within the Department will perform routine maintenance of these facilities during the wor□.

□over signs that direct traffic to a closed area.

Install temporary illumination in a manner which the illumination and the illumination equipment does not interfere with public safety. The installation of general roadway illumination does not relieve you from furnishing and maintaining any protective devices.

□quipment must enter and leave the highway via e□isting ramps and crossovers and must move in the direction of traffic. All movements of wor□men and construction equipment on or across lanes open to traffic must be performed in a manner that do not endanger the public. □our vehicles or other mobile equipment leaving an open traffic lane to enter the construction area must slow down gradually in advance of the location of the turnoff to give the traffic following an opportunity to slow down. When leaving a wor□area and entering a roadway carrying traffic, your vehicles and equipment must yield to traffic.

Immediately remove hauling spillage from a roadway lane or shoulder open to traffic. When hauling on roadways, trim loads and remove material from shelf areas to minimi□e spillage.

□otify the □ngineer not less than □ days before the anticipated start of an activity that will change the vertical or hori□ontal clearance available to traffic, including shoulders.

Do not store vehicles, material, or equipment in a way that:

1. □reates a ha□ard to the public
2. Obstructs traffic control devices

Do not install or place temporary facilities used to perform the wor□which interfere with the free and safe passage of traffic.

Temporary facilities that could be a ha□ard to public safety if improperly designed must comply with design requirements described in the □ontract for those facilities or, if none are described, with standard design criteria or codes appropriate for the facility involved. Submit shop drawings and design calculations for the temporary facilities and show the standard design criteria or codes used. Shop drawings and supplemental calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State.

If you appear to be neglectful or negligent in furnishing warning devices and ta□ing protective measures, the □ngineer may direct your attention to the e□istence of a ha□ard. □ou must furnish and install the necessary warning devices. If the □ngineer points out the inadequacy of warning devices and protective measures, that action on the part of the □ngineer does not relieve you from your responsibility for public safety or abrogate your obligation to furnish and pay for these devices and measures.

Install Type □ temporary railing or other authori□ed protective systems under any of the following conditions:

1. □□cavations: Where the near edge of the e□cavation is within 1□ feet from the edge of an open traffic lane
2. Temporarily unprotected permanent obstacles: When the wor□includes the installation of a fi□ed obstacle together with a protective system, such as a sign structure together with protective railing, and you elect to install the obstacle before installing the protective system; or you, for your convenience and as authori□ed, remove a portion of an e□isting protective railing at an obstacle and do not replace such railing completely the same day
□. Storage areas: When material or equipment is stored within 1□ feet of the edge of an open traffic lane and the storage is not otherwise prohibited by the □ontract
□. □eight differentials: When construction operations create a height differential greater than 0.1□ feet within 1□ feet of the edge of traffic lane

Installation of Type □ temporary railing is not required if an e□cavation within 1□ feet from the edge of an open traffic lane is protected by any of the following:

1. Steel plate or concrete covers of adequate thic□ness to prevent accidental entry by traffic or the public
2. Side slope where the downhill slope is □:1 □hori□ontal: vertical□or less unless a naturally occurring condition
□. □arrier or railing

Offset the approach end of Type  temporary railing a minimum of 1 feet from the edge of an open traffic lane. Install the temporary railing on a s ew toward the edge of the traffic lane of not more than 1 foot transversely to 10 feet longitudinally with respect to the edge of the traffic lane. If the 1 foot minimum offset cannot be achieved, the temporary railing must be installed on the 10 to 1 s ew to obtain the ma imum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules must be installed at the approach end of the temporary railing.

Secure Type  temporary railing in place before starting wor for which the temporary railing is required.

Where 2 or more lanes in the same direction are ad acent to the area where the wor is being performed, including shoulders, the ad acent lane must be closed under any of the following conditions:

1. Wor is off the traveled way but within  feet of the edge of the traveled way, and the approach speed is greater than  miles per hour
2. Wor is off the traveled way but within  feet of the edge of the traveled way, and the approach speed is less than  miles per hour

losure of the ad acent traffic lane is not required when performing any of the following:

1. Wor ing behind a barrier
2. aving, grinding, or grooving
. Installing, maintaining, or removing traffic control devices e cept Type  temporary railing

Do not reduce an open traffic lane width to less than 10 feet. When traffic cones or delineators are used for temporary edge delineation, the side of the base of the cones or delineators nearest to traffic is considered the edge of the traveled way.

If a traffic lane is closed with channeli ers for e cavation wor , move the devices to the ad acent edge of the traveled way when not e cavating. Space the devices as specified for the lane closure.

Do not move or temporarily suspend anything over a traffic lane open to the public unless the public is protected.

**7-1.04B WORK ZONE SAFETY AND MOBILITY**

**7-1.04B(1) POLICY**

In order to ensure safe and efficient flow of traffic through wor ones, the ounty of resno, via its eneral lan, Transportation and irculation lement, olicy TRA 1, has adopted the use of AAS TO Standards as supplemented by altrans and ounty Department of ublic Wor s and lanning Standards.

**7-1.04B(2)TRAFFIC MANAGEMENT PLAN**

Perform traffic management shall be in accordance with Section 12, “TEMPORARY TRAFFIC CONTROL,” of these special provisions.

**7-1.04B(3)TEMPORARY TRAFFIC CONTROL PLAN**

Prepare traffic control plan(s) in accordance with Section 12, “TEMPORARY TRAFFIC CONTROL,” of these special provisions.

**7-1.04B(4)PUBLIC INFORMATION**

rovide notice to public agencies and others to the e tent required, if any, elsewhere in these special provisions. The ngineer provides other noticing not identified to be performed by the ontractor.

**Replace the headings and paragraphs of Section 7-1.06 with:**

## 7-1.06 INSURANCE

### 7-1.06A General

□othing in the □ontract is intended to establish a standard of care owed to any member of the public or to e□tend to the public the status of a third□party beneficiary for any of these insurance specifications.

### 7-1.06B Casualty Insurance

Obtain and maintain insurance on all of your operations with companies acceptable to the Department as follows:

1. □eep all insurance in full force and effect from the start of the wor□ through □ontract acceptance.
2. All insurance must be with an insurance company with a rating from A.M. □est □inancial Strength Rating of A or better and a □inancial Si□e □ategory of □III or better.
3. Maintain completed operations coverage with a carrier acceptable to the State through the e□piration of the patent deficiency in construction statute of repose set forth in □iv □ro □ode □ □□□.1.

### 7-1.06C Workers' Compensation and Employer's Liability Insurance

□nder Labor □ode □ 1□□0, secure the payment of wor□er□s compensation under Labor □ode □ □□00.

Submit to the Department the following certification before performing the wor□ □Labor □ode □ 1□□1□:

> I am aware of the provisions of Section □□00 of the Labor □ode which require every employer to be insured against liability for wor□ers□compensation or to underta□e self□insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the wor□ of this contract.

□ontract signing constitutes certification submittal.

□rovide □mployer□s Liability Insurance in amounts not less than:

1. □1,000,000 for each accident for bodily in□ury by accident
2. □1,000,000 policy limit for bodily in□ury by disease
3. □1,000,000 for each employee for bodily in□ury by disease

If there is an e□posure of in□ury to your employees under the □.S. Longshoremen□s and □arbor Wor□ers□ □ompensation Act, the □ones Act, or under laws, regulations, or statutes applicable to maritime employees, coverage must be included for such in□uries or claims.

### 7-1.06D Liability Insurance

#### 7-1.06D(1) General

□arry □eneral Liability and □mbrella or □□cess Liability Insurance covering all operations by or on behalf of you providing insurance for bodily in□ury liability and property damage liability for the following limits and including coverage for:

1. □remises, operations and mobile equipment
2. □roducts and completed operations
3. □road form property damage □including completed operations□
4. □□plosion, collapse, and underground ha□ards
5. □ersonal in□ury
6. □ontractual liability

#### 7-1.06D(2) Liability Limits/Additional Insureds

Refer to the *Agreement* of these special provisions

Additional insured coverage must be provided by a policy provision or by an endorsement providing coverage at least as broad as *Additional Insured* □□orm □□endorsement form □□ 2010, as published by the Insurance Services Office □ISO□, or other form designated by the Department.

**7-1.06D(3) Contractor's Insurance Policy is Primary**

The policy must stipulate that the insurance afforded the additional insureds applies as primary insurance. Any other insurance or self□insurance maintained by the State is e□cess only and must not be called upon to contribute with this insurance.

**7-1.06E Automobile Liability Insurance**

□omply with requirements in the *Agreement* of these special provisions

**7-1.06F Policy Forms, Endorsements, and Certificates**

□rovide your □eneral Liability Insurance under □ommercial □eneral Liability policy form no. □□0001 as published by the Insurance Services Office □ISO□or under a policy form at least as broad as policy form no. □□0001.

**7-1.06G NOT USED**

**7-1.06H Enforcement**

The Department may assure your compliance with your insurance obligations. Ten days before an insurance policy lapses or is canceled during the □ontract period you must submit to the Department evidence of renewal or replacement of the policy.

If you fail to maintain any required insurance coverage, the Department may maintain this coverage and withhold or charge the e□pense to you or terminate your control of the wor□.

□ou are not relieved of your duties and responsibilities to indemnify, defend, and hold harmless the State, its officers, agents, and employees by the Department□s acceptance of insurance policies and certificates.

Minimum insurance coverage amounts do not relieve you for liability in e□cess of such coverage, nor do they preclude the State from ta□ing other actions available to it, including the withholding of funds under this □ontract.

**7-1.06I Self-Insurance**

□omply with the *Agreement* of these special provisions

**Replace the headings and paragraphs of Section 7-1.07 with:**

**7-1.07 LEGAL ACTIONS AGAINST THE DEPARTMENT**

**7-1.07A General**

If legal action is brought against the Department over compliance with a State or federal law, rule, or regulation applicable to highway wor□, then:

1. If the Department in complying with a court order prohibits you from performing wor□, the resulting delay is a suspension related to your performance, unless the Department terminates the □ontract.
2. If a court order other than an order to show cause or the final □udgment in the action prohibits the Department from requiring you to perform wor□, the Department may delete the prohibited wor□or terminate the □ontract.

**7-1.07B Seal Coat Claims**

**Not Used**

**7-1.07C Claims**

This section applies to non□seal coat pro□ects which involve asphalt concrete paving. □ay for claims for personal property damage caused by your wor□. □laims are limited to:

1. 10 percent of the total bid

Within □0 days of the last wor□ing day placement of hot mi□ asphalt, do the following:

1. □rocess and resolve all claims reported or submitted to you by the public as follows:
   1.1. Within □ business days of receipt of a claim, submit to the Department a copy of the claim, a written analysis of the claim, and a statement indicating whether or not you will pay the claim. If you re□ect a claim, provide the reasons for re□ection in writing.
   1.2. If the claimant becomes dissatisfied with your handling of the claim, immediately refer the claimant to the local district claims office for assistance in resolving the claim.
2. Submit to the Department evidence of your paid claims.

All claims presented to the Department, □□ovt □ode □ □00 et seq.□are processed and resolved by the Department as follows:

1. The claims are processed as formal government claims sub□ect to all laws and policies and are resolved as the Department determines including referring the claim to you for handling.
2. If the Department approves settlement of a claim or is ordered to pay pursuant to a court order, the claim is paid from funds withheld from you.
□. Within 3 business days of the Department's determination that you are responsible for resolving the claim, the Department sends a copy of the claim to you for resolution or notifies you of the Department's decision to resolve the claim.

The Department withholds an amount not to e□ceed □ percent of the total bid to resolve all claims. The amount is held no longer than □0 days following the last wor□ing day so that the Department has ample time to resolve any pending claims. After □0 days, any remaining amount withheld is returned to you.

If no withheld funds remain or have been returned, the Department may pay any claims and see□ reimbursement from you through an offset or any other legal means. Any reimbursement or offset to be recovered from you, including all other paid claims, is limited to 10 percent of the total bid.

Section □□1.0□□ does not limit your obligation to defend and indemnify the Department.

**Add between the 1st and 2nd paragraphs of section 7-1.11A:**

□omply with □□ □□R □□1.□a□b□.

# 8 PROSECUTION AND PROGRESS

**Replace the headings and paragraphs in Section 8 with:**

## 8-1.01 GENERAL

Section □ includes specifications related to prosecuting the □ontract and wor□ progress.

### 8-1.01A Work Hours

□erform all wor□ on wor□ing days during daytime.

□ou may request approval to wor□ on a holiday or on a non□wor□ing day. If, pursuant to such request, the □ngineer authori□es you to wor□ on a holiday or on a non□wor□ing day, you pay the actual cost incurred by the Department to perform all inspection, surveying, testing, and all other pro□ect□related wor□ by the Department on such holiday or non□wor□ing day. Such payment will be deducted from monies due or which may become due to the □ontractor.

□lan wor□ so that all construction operations performed each day, including cleanup of the pro□ect site, establishment of appropriate traffic control and any other wor□ necessary for the safety of the public shall be completed within the daytime hours.

Do not perform wor□ during nighttime unless approved by the □ngineer

Request approval to wor during nighttime in writing and include the appropriate traffic control plans and wor plans which clearly identify all provisions for illuminating all portions of the wor site, including any flagging operations.

If you fail to complete wor during the daytime hours, the ngineer may stop all wor upon the onset of nighttime and order you to perform any and all wor the ngineer deems necessary to ensure the safety of the public during the nighttime hours.

ou are not entitled to any additional compensation or e tension of the contract time as a result of the ngineer stopping the wor due to the onset of nighttime.

### 8-1.02 SCHEDULE

#### 8-1.02A General

pon completion of all wor, the Department returns the withholds associated with section 1.02 and ma es a payment ad ustment for wor not performed in the same manner as wor character changes.

#### 8-1.02B Level 1 Critical Path Method Schedule

##### 8-1.02B(1) General

o pay item is provided for Level 1 ritical ath ro ect Schedule. ayment is considered to be included in the various items of wor.

efore or at the preconstruction conference, submit a M baseline schedule.

or each schedule, submit:

1. lotted original, time scaled networ diagram on a sheet at least 1 2 by 11 inches with a title bloc and timeline
2. A electronic copy in D Adobe Acrobat compatible format via email to the ngineer.

##### 8-1.02B(2) Schedule Format

On each schedule, show:

1. lanned and actual start and completion dates of each wor activity, including applicable:
   1.1. Submittal development
   1.2. Submittal review and acceptance
   1. Material procurement
   1. ontract milestones and constraints
   1. quipment and plant setup
   1. Interfaces with outside entities
   1. rection and removal of falsewor and shoring
   1. Test periods
   1. Ma or traffic stage change
   1.10. inal cleanup
2. Order that you propose to prosecute the wor
. Logical lin s between the time scaled wor activities
. All controlling activities
. Legible description of each activity
. At least 1 predecessor and 1 successor to each activity e cept for pro ect start and pro ect end milestones
. Duration of at least 1 wor ing day for each activity
. Start milestone date as the ontract approval date

##### 8-1.02B(3) Updated Schedule

Submit a monthly updated schedule that includes the status of wor completed to date and the wor yet to be performed as planned.

□ou may include changes to updated schedules that do not alter a critical path or e□tend the scheduled completion date compared to the current schedule. □hanges may include:

1. Adding or deleting activities
2. □hanging activity constraints
□. □hanging durations
□. □hanging logic

If any proposed change in planned wor□ would alter the critical path or e□tend the scheduled completion date, submit a revised schedule within 1□ days of the proposed change.

**8-1.02C–8-1.02F Reserved**

**8-1.03 PRECONSTRUCTION CONFERENCE**

Attend a preconstruction conference with □ey personnel, including your assigned representative, at a time and location determined by the □ngineer. Submit documents as required before the preconstruction conference.

□e prepared to discuss the topics and documents shown in the following table:

| Topic | Document |
|---|---|
| □otential claim and dispute resolution | □otential claim forms |
| □ontractor□s representation | Assignment of □ontractor□s representative |
| D□□ | □inal utili□ation reports |
| □quipment | □quipment list |
| Labor compliance and equal employment opportunity | □ob site posters and benefit and payroll reports |
| Material inspection | □otice of Materials to be □sed form |
| Materials on hand | Request for □ayment for Materials on □and form |
| Measurements | □□ |
| □artnering | □□ |
| □uality control | □□ plans |
| Safety | In□ury and Illness □revention □rogram and □ob site posters |
| Schedule | □aseline schedule and Wee□ly Statement of Wor□ing Days form |
| Subcontracting | Subcontracting Request form |
| Surveying | Survey Request form |
| Traffic control | Traffic contingency plan and traffic control plans |
| □tility wor□ | □□ |
| Weight limitations | □□ |
| Water pollution control | SW□□□ or W□□□ |
| Wor□ restrictions | □LA□s |
| Action submittals | □□ |

**8-1.04 START OF JOB SITE ACTIVITIES**

**8-1.04A General**

□rovide signed contracts, bonds, and evidence of insurance timely as required.

This section, □□1.04, “Start of Job Activities,” does not modify remedies available to the Department should you fail to provide signed contracts bonds and insurance timely.

Submit a notice □2 hours before starting □ob site activities. If the pro□ect has more than 1 location of wor□, submit a separate notice for each location.

□ou may start □ob site activities before receiving notice of □ontract approval if you:

1. Deliver the signed □ontract, bonds, and evidence of insurance to the Department

2. Submit □2□hour notice
□. Obtain an encroachment permit from the Department
□. Are authori□ed by the Department to start
□. □erform wor□at your own ris□
□. □erform wor□under the □ontract

If the □ontract is approved, wor□already performed that complies with the □ontract is authori□ed.

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

**8-1.04B Standard Start**

□e prepared to begin wor□at the pro□ect site no later than the 10th business day after award of the □ontract by the Department.

The □ngineer may issue a notice to proceed as soon as the □ontracts, including bonds and insurance certificates, have been approved.

Start wor□on the day shown in the notice to proceed, unless an early start has been approved.

The □ngineer may issue a notice of commencement of contract time if you fail to provide □ontracts, including bonds and insurance certificates or other required documents timely.

A notice of commencement of contract time does not authori□e you to start wor□on the pro□ect site, but contract time begins to elapse on the date shown in the notice of commencement of contract time.

**Complete work before the expiration of**

**FORTY-FIVE (45) WORKING DAYS**

from the date shown in said □otice to □roceed, or in the □otice of □ommencement of □ontract Time, whichever comes first.

□omplete all wor□, including corrective wor□and punch list wor□, prior to the e□piration of the allotted wor□ing days. Wor□ing days continue to accrue until corrective wor□and punch list wor□is completed and accepted.

**Pay to the County of Fresno the sum of**

**Three thousand two hundred dollars ($3,200.00)**

per day for each and every calendar day□s delay in finishing the wor□, including corrective wor□and punch list wor□, in e□cess of the total number of wor□ing days prescribed above.

**8-1.05 TIME**

□ontract time starts on the day specified in the notice to proceed or in the notice of commencement of contract time as described in section □□1.0□ or on the day you start □ob site activities, whichever occurs first.

□omplete the wor□within the □ontract time.

Meet each specified interim wor□completion date.

The □ngineer issues a *Weekly Statement of Working Days* by the end of the following wee□.

The *Weekly Statement of Working Days* shows:

1. Wor□ing days and non–wor□ing days during the reporting wee□
2. Time ad□ustments
□. Wor□ completion date computations, including wor□ing days remaining
□. □ontrolling activities

### 8-1.06 SUSPENSIONS

The □ngineer may suspend wor□ wholly or in part due to conditions unsuitable for wor□ progress. □rovide for public safety and a smooth and unobstructed passageway through the wor□ □one during the suspension as specified in sections □□1.0□ and □□1.0□. □roviding the passageway is force account wor□. The Department ma□es a time ad□ustment for the suspension due to a critical delay.

The □ngineer may suspend wor□ wholly or in part due to your failure to □1□ fulfill the □ngineer□s orders, □2□ fulfill a □ontract part, or □□□perform weather□dependent wor□ when conditions are favorable so that weather□related unsuitable conditions are avoided or do not occur. The Department may provide for a smooth and unobstructed passageway through the wor□ during the suspension and deduct the cost from payments. The Department does not ma□e a time ad□ustment for the suspension.

□pon the □ngineer□s order of suspension, suspend wor□ immediately. Resume wor□ when ordered.

### 8-1.07 DELAYS

#### 8-1.07A General

To request a delay□related time or payment ad□ustment, submit an R□I.

#### 8-1.07B Time Adjustments

The Department may ma□e a time ad□ustment for a critical delay. The □ngineer uses information from the schedule to evaluate requests for time ad□ustments.

To request an ad□ustment, submit a revised schedule showing the delay□s effect on the controlling activity. If the delay has:

1. Occurred, submit records of the dates and what wor□ was performed during the delayed activity
2. □ot occurred, submit the e□pected dates or duration of the delayed activity

□pdate the schedule to the last wor□ing day before the start of the delay if ordered.

#### 8-1.07C Payment Adjustments

The Department may ma□e a payment ad□ustment for an e□cusable delay that affects your costs.

Only losses for idle equipment, idle wor□ers, and moving or transporting equipment are eligible for delay□ related payment ad□ustments.

The □ngineer determines payment for idle time of equipment in the same manner as determinations are made for equipment used in the performance of force account wor□ under section □□1.0□ with the following e□ceptions:

1. Delay factor in the *Labor Surcharge and Equipment Rental Rates* applies to each equipment rental rate.
2. Daily number of payable hours equals the normal wor□ing hours during the delay, not to e□ceed □ hours per day.
□. Delay days e□clude non–wor□ing days.
□. Mar□ups are not added.

The □ngineer determines payment ad□ustment for the idle wor□ers under section □□1.0□□, but does not add mar□ups.

The □ngineer includes costs due to necessary e□tra moving or transporting of equipment.

The Department does not ma□e a payment ad□ustment for overhead incurred during non–wor□ing days of additional construction seasons e□perienced because of delay.

**8-1.08–8-1.09 RESERVED**

**8-1.10 LIQUIDATED DAMAGES**

**8-1.10A General**

The Department specifies liquidated damages □□ub □ont □ode □1022□□. Liquidated damages, if any, accrue starting on the 1st day after the e□piration of the wor□ing days through the day of □ontract acceptance e□cept as specified in sections □□1.10□ and □□1.10□.

The Department withholds liquidated damages before the accrual date if the anticipated liquidated damages may e□ceed the value of the remaining wor□.

Liquidated damages are specified in section □□1.0□.

**8-1.10B Failure to Complete Work Parts within Specified Times**

The Department may deduct specified damages from payments for each day needed to complete a wor□ part in e□cess of the time specified for completing the wor□ part.

Damages for untimely completion of wor□ parts may not be equal to the daily amount specified as liquidated damages for the pro□ect as a whole, but the Department does not simultaneously assess damages for untimely completion of wor□ parts and for the whole wor□.

Damages accrue starting the 1st day after a wor□ part e□ceeds the specified time through the day the specified wor□ part is complete.

**8-1.10C Failure to Complete Work Parts by Specified Dates**

The Department may deduct specified damages from payments for each day needed to complete a wor□ part in e□cess of the specified completion date for the wor□ part.

Damages for untimely completion of a wor□ part may not be equal to the daily amount specified as liquidated damages for the pro□ect as a whole, but the Department does not simultaneously assess damages for untimely completion of a wor□ part and the whole wor□.

Damages accrue starting the 1st day after an unmet completion date through the day the wor□ part is complete.

**8-1.10D RESERVED**

**8-1.11–8-1.12 RESERVED**

**8-1.13 CONTRACTOR'S CONTROL TERMINATION**

The Department may terminate your control of the wor□ for failure to do any of the following □□ub □ont □ode □102□□□:

1. Supply an adequate wor□force
2. Supply material as described
□. □ay subcontractors □□ub □ont □ode □102□2□
□. □rosecute the wor□ as described in the □ontract

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

□or a federal□aid pro□ect, the Department may terminate your control of the wor□ for failure to include "Required □ontract □rovisions, □ederal□Aid □onstruction □ontracts" in subcontracts.

The Department gives notice to you and your surety at least □ 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 ta□es control of the wor□.

The Department may complete the wor if the Department terminates the ontractor s control or you abandon the pro ect ub ont ode 102 . The Department determines the unpaid balance under ub ont ode 102 and the ontract.

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

### 8-1.14 CONTRACT TERMINATION

#### 8-1.14A General

The Director may terminate the ontract if it serves the State s best interest. The Department issues you a written notice, implements the termination, and pays you.

#### 8-1.14B Relief from Responsibility for Work

pon receiving a termination notice:

1. Stop wor
2. otify subcontractors and suppliers of the ontract termination and stop ontract related wor
. erform the ngineer ordered wor to secure the ob site for termination
. Remove equipment
. Sub ect to the ngineer s authori ation, settle termination related claims and liabilities involving subcontractors and suppliers; assign to the Department the rights, titles, or interests held by you with respect to these parties

#### 8-1.14C Responsibility for Materials

pon receiving a termination notice, protect unused material until:

1. ou submit an inventory of materials already produced, purchased, or ordered but not yet used; include the location of the material.
2. The ngineer identifies materials that will be retained by the Department. Submit bills of sales or other records of material title.
. The ngineer confirms that unused materials paid by progress payment and materials furnished by the State have been delivered and stored as ordered.
. The titles are transferred for materials purchased by the Department.

Dispose of materials that will not be retained by the Department.

#### 8-1.14D Contract Acceptance after Termination

The ngineer recommends ontract acceptance after determining the completion of:

1. Wor ordered to be completed before termination
2. Other wor ordered to secure the pro ect before termination
. Material delivery and title transfer

The Department pays you under section 1.1 .

#### 8-1.14E Payment Adjustment for Termination

If the Department issues a termination notice, the ngineer determines the payment for termination based on the following:

1. Direct cost for the wor :
   1.1. Including:
      1.1.1. Mobili ation.
      1.1.2. Demobili ation.
      1.1. . Securing the ob site for termination.
      1.1. . Losses from the sale of materials.
   1.2. ot including:
      1.2.1. ost of materials you eep.

1.2.2. □rofit reali□ed from the sale of materials.
1.2.□. □ost of material damaged by:
1.2.□.1. Act of □od.
1.2.□.2. Act of a public enemy.
1.2.□.□. □ire.
1.2.□.□. □lood.
1.2.□.□. □overnor□declared state of emergency.
1.2.□.□. Landslide.
1.2.□.□. Tsunami.
1.2.□. Other credits.

2. □ost of remedial wor□, as estimated by the □ngineer, is not reimbursed.
□. Allowance for profit not to e□ceed □ percent of the cost of the wor□. □rove a li□elihood of having made a profit had the □ontract not been terminated.
□. Material handling costs for material returned to the vendor or disposed of as ordered.
□. □osts in determining the payment ad□ustment due to the termination, e□cluding attorney fees and litigation costs.

Termination of the □ontract does not relieve the surety of its obligation for any □ust claims arising out of the wor□performed.

**8-1.15–8-1.16 RESERVED**

# 9 PAYMENT

**Add the following Section 9-1.01A**

## 9-1.01A COMPENSATION

The bid items shown in the bid item list represent full compensation for performing all wor□. □ull compensation for any wor□for which there is no bid item shall be considered to be included in the various items of wor□.

**Replace the headings and paragraphs of Section 9-1.03 with:**

## 9-1.03 PAYMENT SCOPE

The Department pays you for furnishing the resources and activities required to complete the wor□. The Department□s payment is full compensation for furnishing the resources and activities, including:

1. Ris□, loss, damage repair, or cost of whatever character arising from or relating to the wor□and performance of the wor□
2. □LA□s and ta□es
□. Any royalties and costs arising from patents, trademar□s, and copyrights involved in the wor□

The Department does not pay for your loss, damage, repair, or e□tra costs of whatever character arising from or relating to the wor□that is a direct or indirect result of your choice of construction methods, materials, equipment, or manpower, unless specifically mandated by the □ontract.

□ayment is:

1. □ull compensation for all wor□involved in each bid item shown on the □id Item List by the unit of measure shown for that bid item
2. □or the price bid for each bid item shown on the □id Item List or as changed by change order with a specified price ad□ustment

□ull compensation for wor□specified in divisions I, II, and □ is included in the payment for the bid items unless:

1. □id item for the wor□is shown on the □id Item List

2. Wor□ is specified as change order wor□

Wor□ paid for under one bid item is not paid for under any other bid item.

□ayment for a bid item includes payment for wor□ in sections referenced by the section set forth by that bid item.

**Notwithstanding anything to the contrary in these special provisions, full compensation for performing all work as shown, as specified, and as directed by the Engineer is considered to be included in the various bid items, and no additional payment will be made, except pursuant to a contract change order to perform work not shown and/or specified.**

**If one or more bid item(s) is/are not included, perform the work as shown and as specified and payment therefor is considered to be included in the various items of work.**

If an alternative is described in the □ontract, the Department pays based on the bid items for the details and specifications not described as an alternative unless the bid item is described as an alternative, in which case, the Department pays based on the details and specifications for that alternative.

The Department pays for change order wor□ based on one or a combination of the following:

1. □id item prices
2. □orce account
□. Agreed price
□. Specialist billing

If the □ngineer chooses to pay for change order wor□ based on an agreed price, but you and the □ngineer cannot agree on the price, the Department pays by force account.

If a portion of e□tra wor□ is covered by bid items, the Department pays for this wor□ as changed quantities in those items. The Department pays for the remaining portion of the e□tra wor□ by force account or agreed price.

If the amount of a deduction or withhold e□ceeds final payment, the Department invoices you for the difference, to be paid upon receipt.

□ay your subcontractors within 10 days of receipt of each progress payment under □ub □ont □ode □□ 102□2 and 102□2.□.

## 9-1.07 PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS

### 9-1.07A General

Section □□1.0□ applies to asphalt contained in materials for pavement structures and pavement surface treatments such as □MA, tac□ coat, asphaltic emulsions, bituminous seals, asphalt binders, and modified asphalt binders placed in the wor□. Section □□1.0□ does not apply if you opted out of payment ad□ustments for price inde□ fluctuations at the time of bid.

The □ngineer ad□usts payment whenever the □alifornia statewide crude oil price inde□ for the month the material is placed is more than □ percent higher or lower than the price inde□ at the time of bid.

The □alifornia Department of Transportation determines the □alifornia statewide crude oil price inde□ each month on or about the 1st business day of the month using the average of the posted prices in effect for the previous month as posted by □hevron, □□onMobil, and □onoco□hillips for the □uena □ista and Midway Sunset fields.

If a company discontinues posting its prices for a field, the Department determines the inde□ from the remaining posted prices. The Department may include additional fields to determine the inde□.

□or the □alifornia statewide crude oil price inde□, go to the □alifornia Department of Transportation Division of □onstruction Web site.

If the ad□ustment is a decrease in payment, the Department deducts the amount from the monthly progress payment.

The Department ma□es payment ad□ustments due to price inde□ fluctuations for changed quantities under section □□1.0□.

If you do not complete the wor□ within the □ontract time, payment ad□ustments during the overrun period are determined using the □alifornia statewide crude oil price inde□ in effect for the month in which the overrun period began.

If the price inde□ at the time of placement increases:

1. □0 percent or more over the price inde□ at bid opening, notify the □ngineer.
2. 100 percent or more over the price inde□ at bid opening, do not furnish material containing asphalt until the □ngineer authori□es you to proceed with that wor□. The Department may decrease bid item quantities, eliminate bid items, or terminate the □ontract.

□efore placing material containing asphalt, submit the current sales and use ta□ rate in effect in the ta□ □urisdiction where the material is to be placed.

Submit a public weighmaster□s certificate for □MA, tac□coat, asphaltic emulsions, and modified asphalt binders, including those materials not paid for by weight. □or slurry seals, submit a separate public weighmaster□s certificate for the asphaltic emulsion.

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

**9-1.16F Retentions**

The Department, once in each month, shall cause an estimate in writing to be made by the □ngineer. The estimate shall include the total amount of wor□ done and acceptable materials furnished, provided the acceptable materials are listed as eligible for partial payment as materials in the special provisions and are furnished and delivered by the □ontractor on the ground and not used or are furnished and stored for use on the contract, if the storage is within the State of □alifornia and the □ontractor furnishes evidence satisfactory to the □ngineer that the materials are stored sub□ect to or under the control of the Department, to the time of the estimate, and the value thereof. The estimate shall also include any amounts payable for mobili□ation. Daily e□tra wor□ reports furnished by the □ontractor less than □ calendar days, not including Saturdays, Sundays and legal holidays, before the preparation of the monthly progress estimate shall not be eligible for payment until the following month□s estimate.

The amount of any material to be considered in ma□ing an estimate will in no case e□ceed the amount thereof which has been reported by the □ontractor to the □ngineer on State□furnished forms properly filled out and e□ecuted, including accompanying documentation as therein required, less the amount of the material incorporated in the wor□ to the time of the estimate. Only materials to be incorporated in the wor□ will be considered. The estimated value of the material established by the □ngineer will in no case e□ceed the contract price for the item of wor□ for which the material is furnished.

The Department shall retain □ percent of the estimated value of the wor□ done and □ percent of the value of materials so estimated to have been furnished and delivered and unused or furnished and stored as aforesaid as part security for the fulfillment of the contract by the □ontractor. The Department will not hold retention for mobili□ation or demobili□ation.

The Department shall pay monthly to the □ontractor, while carrying on the wor□, the balance not retained, as aforesaid, after deducting therefrom all previous payments and all sums to be □ept or retained under the provisions of the contract. □o monthly estimate or payment shall be required to be made when, in the □udgment of the □ngineer, the wor□ is not proceeding in accordance with the provisions of the contract.

□o monthly estimate or payment shall be construed to be an acceptance of any defective wor□ or improper materials.

Attention is directed to the prohibitions and penalties pertaining to unlicensed contractors as provided in □usiness and □rofessions □ode Sections □02□.1□a□and □0□1.

□o partial payment will be made for any materials on hand which are furnished but not incorporated in the wor□.

**Add the following Section 9-1.23:**

**9-1.23 RESOLUTION OF CONTRACT CLAIMS**

□ublic wor□s contract claims of three hundred seventy□five thousand dollars □□□□□,000□or less which arise between a □ontractor and a local public agency shall be resolved in accordance with the provisions of □alifornia □ublic □ontract □ode Sections 2010□2010□.□, inclusive. In addition, □alifornia □ublic □ontract □ode Section □20□ requires that the procedure established therein shall apply to all claims □as therein defined□filed by a contractor in connection with a public wor□s pro□ect. Accordingly, this contract e□pressly incorporates all of the terms and conditions of those statutory provisions, which are as follows:

**California Public Contract Code Section 9204**

□a□ The Legislature finds and declares that it is in the best interests of the state and its citi□ens to ensure that all construction business performed on a public wor□s pro□ect in the state that is complete and not in dispute is paid in full and in a timely manner.

□b□ □otwithstanding any other law, including, but not limited to, Article □.1 □commencing with Section 102□0□of □hapter 1 of □art 2, □hapter 10 □commencing with Section 1□100□of □art 2, and Article 1.□ □commencing with Section 2010□□of □hapter 1 of □art □, this section shall apply to any claim by a contractor in connection with a public wor□s pro□ect.

□c□ □or purposes of this section:

□1□"Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:

□A□A time e□tension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public wor□s pro□ect.

□□□□ayment by the public entity of money or damages arising from wor□done by, or on behalf of, the contractor pursuant to the contract for a public wor□s pro□ect and payment for which is not otherwise e□pressly provided or to which the claimant is not otherwise entitled.

□□□□ayment of an amount that is disputed by the public entity.

□2□"Contractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section □000□of Division □ of the □usiness and □rofessions □ode who has entered into a direct contract with a public entity for a public wor□s pro□ect.

□□□□A□"Public entity" means, without limitation, except as provided in subparagraph (B), a state agency, department, office, division, bureau, board, or commission, the □alifornia State □niversity, the □niversity of □alifornia, a city, including a charter city, county, including a charter county, city and county, including a charter city and county, district, special district, public authority, political subdivision, public corporation, or nonprofit transit corporation wholly owned by a public agency and formed to carry out the purposes of the public agency.

□□□"Public entity" shall not include the following:

□i□The Department of Water Resources as to any pro□ect under the □urisdiction of that department.

□ii□The Department of Transportation as to any pro□ect under the □urisdiction of that department.

(iii) The Department of Parks and Recreation as to any project under the jurisdiction of that department.
(iv) The Department of Corrections and Rehabilitation with respect to any project under its jurisdiction pursuant to Chapter 11 (commencing with Section 5000) of Title 15 of Part 3 of the Penal Code.
(v) The Military Department as to any project under the jurisdiction of that department.
(vi) The Department of General Services as to all other projects.
(vii) The High-Speed Rail Authority.

(3) "Public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.
(4) "Subcontractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who either is in direct contract with a contractor or is a lower tier subcontractor.

(d)(1) (A) Upon receipt of a claim pursuant to this section, the public entity to which the claim applies shall conduct a reasonable review of the claim and, within a period not to exceed 30 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and a contractor may, by mutual agreement, extend the time period provided in this subdivision.
(B) The claimant shall furnish reasonable documentation to support the claim.
(C) If the public entity needs approval from its governing body to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 30 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the public entity shall have up to three days following the next duly publicly noticed meeting of the governing body after the 30-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.
(D) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. If the public entity fails to issue a written statement, paragraph (3) shall apply.

(2) (A) If the claimant disputes the public entity's written response, or if the public entity fails to respond to a claim issued pursuant to this section within the time prescribed, the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the public entity shall schedule a meet and confer conference within 30 days for settlement of the dispute.
(B) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the public entity shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the public entity and the claimant sharing the associated costs equally. The public entity and claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

□□□□or purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utili□ed shall conform to the timeframes in this section.

□D□□nless otherwise agreed to by the public entity and the contractor in writing, the mediation conducted pursuant to this section shall e□cuse any further obligation under Section 2010□.□□ to mediate after litigation has been commenced.

□□□This section does not preclude a public entity from requiring arbitration of disputes under private arbitration or the □ublic Wor□s □ontract Arbitration □rogram, if mediation under this section does not resolve the parties' dispute.

□□□□ailure by the public entity to respond to a claim from a contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed re□ected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

□□□Amounts not paid in a timely manner as required by this section shall bear interest at □ percent per annum.

□□□If a subcontractor or a lower tier subcontractor lac□s legal standing to assert a claim against a public entity because privity of contract does not e□ist, the contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that the contractor present a claim for wor□ which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the public entity shall furnish reasonable documentation to support the claim. Within □□ days of receipt of this written request, the contractor shall notify the subcontractor in writing as to whether the contractor presented the claim to the public entity and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

□e□ The te□t of this section or a summary of it shall be set forth in the plans or specifications for any public wor□s pro□ect that may give rise to a claim under this section.

□f□ A waiver of the rights granted by this section is void and contrary to public policy, provided, however, that □1□upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and □2□a public entity may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

□g□ This section applies to contracts entered into on or after □anuary 1, 201□.

□h□ □othing in this section shall impose liability upon a public entity that ma□es loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

□i□ This section shall remain in effect only until □anuary 1, 202□, and as of that date is repealed, unless a later enacted statute, that is enacted before □anuary 1, 202□, deletes or e□tends that date.

**California Public Contract Code Sections 20104 – 20104.6**

**Section 20104**

**(a)(1)** This article applies to all public wor□s claims of three hundred seventy□five thousand dollars □□□□□,000□or less which arise between a contractor and a local agency.

**(2)** This article shall not apply to any claims resulting from a contract between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article □.1 □commencing with Section 102□0□of □hapter 1 of □art 2.

**(b)(1)** "□ublic wor□" means "public wor□s contract" as defined in Section 1101 but does not include any wor□or improvement contracted for by the state or the Regents of the □niversity of □alifornia.

**(2)** "□laim" means a separate demand by the contractor for □A□a time e□tension, □□□payment of money or damages arising from wor□done by, or on behalf of, the contractor pursuant to the contract for a public wor□and payment of which is not otherwise e□pressly provided for or the claimant is not otherwise entitled to, or □□□an amount the payment of which is disputed by the local agency.

**(c)** The provisions of this article or a summary thereof shall be set forth in the plans or specifications for any wor□which may give rise to a claim under this article.

**(d)** This article applies only to contracts entered into on or after □anuary 1, 1□□1.

**Section 20104.2**

□or any claim sub□ect to this article, the following requirements apply:

**(a)** The claim shall be in writing and include the documents necessary to substantiate the claim. □laims must be filed on or before the date of final payment. □othing in this subdivision is intended to e□tend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.

**(b) (1)** □or claims of less than fifty thousand dollars □□□0,000□, the local agency shall respond in writing to any written claim within □□ days of receipt of the claim, or may request, in writing, within □0 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

**(2)** If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

**(3)** The local agency□s written response to the claim, as further documented, shall be submitted to the claimant within 1□ days after receipt of the further documentation or within a period of time no greater than that ta□en by the claimant in producing the additional information, whichever is greater.

**(c) (1)** □or claims of over fifty thousand dollars □□□0,000□and less than or equal to three hundred seventy□five thousand dollars □□□□□,000□, the local agency shall respond in writing to all written claims within □0 days of receipt of the claim, or may request, in writing, within □0 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

**(2)** If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

**(3)** The local agency's written response to the claim, as further documented, shall be submitted to the claimant within □0 days after receipt of the further documentation, or within a period of time no greater than that ta□en by the claimant in producing the additional information or requested documentation, whichever is greater.

**(d)** If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 1□ days of receipt of the local agency's response or within 1□ days of the local agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. □pon a demand, the local agency shall schedule a meet and confer conference within □0 days for settlement of the dispute.

**(e)** □ollowing the meet and confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in □hapter 1 □commencing with Section □00□and □hapter 2 □commencing with Section □10□of □art □of Division □.□of Title 1 of the □overnment □ode. □or purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision □a□until the time that claim is denied as a result of the meet and confer process, including any period of time utili□ed by the meet and confer process.

**(f)** This article does not apply to tort claims and nothing in this article is intended nor shall be construed to change the time periods for filing tort claims or actions specified by □hapter 1 □commencing with Section □00□and □hapter 2 □commencing with Section □10□of □art □of Division □.□of Title 1 of the □overnment □ode.

**Section 20104.4**

The following procedures are established for all civil actions filed to resolve claims sub□ect to this article:

**(a)** Within □0 days, but no earlier than □0 days, following the filing or responsive pleadings, the court shall submit the matter to nonbinding mediation unless waived by mutual stipulation of both parties. The mediation process shall provide for the selection within 1□ days by both parties of a disinterested third person as mediator, shall be commenced within □0 days of the submittal, and shall be concluded within 1□ days from the commencement of the mediation unless a time requirement is e□tended upon a good cause showing to the court or by stipulation of both parties. If the parties fail to select a mediator within the 1□□day period, any party may petition the court to appoint the mediator.

**(b) □1)** If the matter remains in dispute, the case shall be submitted to □udicial arbitration pursuant to □hapter 2.□ □commencing with Section 11□1.10□of Title □ of □art □ of the □ode of □ivil □rocedure, notwithstanding Section 11□1.11 of that code. The □ivil Discovery Act □Title □ □commencing with Section 201□.010□of □art □ of the □ode of □ivil □rocedure□shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to □udicial arbitration.

**(2)** □otwithstanding any other provision of law, upon stipulation of the parties, arbitrators appointed for purposes of this article shall be e□perienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to e□ceed their customary rate, and such fees and e□penses shall be paid equally by the parties, e□cept in the case of arbitration where the arbitrator, for good cause, determines a different division. In no event shall these fees or e□penses be paid by state or county funds.

**(3)** In addition to □hapter 2.□ □commencing with Section 11□1.10□of Title □ of □art □ of the □ode of □ivil □rocedure, any party who after receiving an arbitration award requests a trial de novo but

does not obtain a more favorable □udgment shall, in addition to payment of costs and fees under that chapter, pay the attorney□s fees of the other party arising out of the trial de novo.

**(c)** The court may, upon request by any party, order any witnesses to participate in the mediation or arbitration process.

**Section 20104.6**

**(a)** □o local agency shall fail to pay money as to any portion of a claim which is undisputed e□cept as otherwise provided in the contract.

**(b)** In any suit filed under Section 2010□.□, the local agency shall pay interest at the legal rate on any arbitration award or □udgment. The interest shall begin to accrue on the date the suit is filed in a court of law.

**Add the following Sections 9-1.24A, 9-1.24B, and 9-1.25:**

**9-1.24A SUPPLEMENTAL WORK (PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS)**

This item is provided solely to provide funds necessary for ad□ustments to the prices of those oil□ containing materials expressly specified as eligible for such adjustments in “Payment Adjustments for Price Index Fluctuations,” elsewhere in these special provisions.

The amount included for this item is an estimate only, and is a predetermined amount included in the bid proposal sheet□s□for the pro□ect.

This item, “Supplemental Work (Payment Adjustments for Price Index Fluctuations” is purely administrative in nature, is not intended to limit such payment ad□ustments to the number provided in the bid proposal sheet(s), nor is it intended to modify or supplement the provisions in “Payment Adjustments for Price Index Fluctuations,” in any manner whatsoever. Any and all such adjustments shall be made in strict conformance with the requirements in said section.

The provisions in Section □1.0□, "□hanged □uantity □ay Ad□ustments" of the Standard Specifications shall not apply to the item “Supplemental Work (Payment Adjustments for Price Index Fluctuations).”

**9-1.25 SUPPLEMENTAL WORK**

The Supplemental Wor□bid item is provided to compensate the □ontractor for new and unforeseen wor□ necessary to construct the pro□ect as designed and intended. Supplemental Wor□is not for design changes. Supplemental Wor□will be classed as e□tra wor□in accordance with the provisions of Section □1.0□, "□hanges and □□tra Wor□," of the Standard Specifications. The dollar amount for supplemental wor□shown in the □roposal is an estimate only, and shall be included in each bidder□s proposal.

Supplemental wor□shall be performed only upon direct written authori□ation from the □ngineer and daily e□tra wor□reports shall be submitted to and approved by the □ngineer. The contractor shall maintain separate records for e□tra wor□performed in accordance with the provisions of Section □1.2□," Records,” of the Standard Specifications and these special provisions.

□ayment will be based on the total amount of authori□ed Supplemental Wor□actually performed. The provisions in Section □1.0□, "□hanged □uantity □ay Ad□ustments" of the Standard Specifications shall not apply to the item “Supplemental Work.”

# DIVISION II GENERAL CONSTRUCTION

## 10 GENERAL

## 12 TEMPORARY TRAFFIC CONTROL

**Replace section 12-1.04 with:**

### 12-1.04 FLAGGING COSTS

ou pay the cost of furnishing all flaggers, including transporting flaggers and furnishing stands and towers for flaggers to provide for the passage of traffic through the wor as specified in sections 1.0 and 1.0.

**Replace section 12-2 with:**

### 12-2 CONSTRUCTION PROJECT FUNDING SIGNS

### 12-2.01 GENERAL

Details for construction pro ect funding signs are in *Project Details*.

eep construction pro ect funding signs clean and in good repair at all times.

### 12-2.02 MATERIALS

rovide onstruction pro ect funding signs, posts, and mounting hardware.

onstruction pro ect funding signs must be wood post signs complying with section 2.

Sign panels for construction pro ect funding signs must be framed, single sheet aluminum panels complying with section 2.2.

The bac ground on construction pro ect funding signs must be Type II retroreflective sheeting on the Authori ed Material List for signing and delineation materials.

The legend must be retroreflective, e cept for nonreflective blac letters and numerals. The colors blue and orange must comply with R olor no. and no. , respectively, as specified in the ederal ighway Administration s *Color Tolerance Chart*.

The si e of the legend on construction pro ect funding signs must be as described. Do not add any additional information unless authori ed.

FRESNO COUNTY MEASURE “C” TRANSPORTATION FUNDS

### 12-2.03 CONSTRUCTION

rovide and Install a total of 2 construction pro ect funding signs at the locations designated by the ngineer before starting ma or wor activities visible to highway users.

pon completion and acceptance of the wor , the signs shall be removed and become the property of the ontractor.

### 12-2.04 PAYMENT

The Department pays you for onstruction unding Signs as follows:

1. □□ percent of the item upon installation of each sign
2. 100 percent of the item upon removal of each sign

**Replace Section 12-3.01C With:**

**12-3.01C Construction**

If channeli□ing devices are used on the pro□ect, perform all layout wor□ necessary to place channeli□ing devices:

1. On the proper alignment
2. □niformly at the location and spacing described
□. Straight on a tangent alignment
□. On a true arc in a curved alignment

If temporary traffic control devices are damaged, displaced, or stop operating or functioning as described from any cause during the progress of the wor□, immediately repair, repaint, or replace the components and restore them to their original locations and positions.

If ordered, furnish and place additional temporary traffic control devices. This wor□ is not change order wor□ if:

1. Required to conform with your traffic control plan
2. Required to conform with the M□T□D
□. □ecessary for public safety or convenience as determined by the □ngineer
□. Required to perform staged construction shown on the plans

**Replace Section 12-3.03C With:**

**12-3.03C Construction**

If plastic traffic drums are used on pro□ect, use 1 type of plastic traffic drum on the pro□ect.

□se the same type and brand of retroreflective sheeting for all plastic traffic drums used on the pro□ect.

Do not use sandbags or comparable ballast.

Moving plastic traffic drums from location to location if ordered after initial placement is not change order wor□ if:

1. Required to conform with your traffic control plan
2. Required to conform with the M□T□D
□. □ecessary for public safety or convenience as determined by the □ngineer
□. Required to perform staged construction shown on the plans

**Replace Section 12-3.10C With:**

**12-3.10C Construction**

If barricades are used on the pro□ect, place each barricade such that the stripes slope downward in the direction road users are to pass.

□lace each sand□filled bag near the ground level on the lower parts of the frame or stays to serve as ballast for the barricades. Do not place ballast on top of barricades or over any retroreflective barricade rail face that is facing traffic.

Do not remove barricades that are shown to be left in place at the time of wor□ completion.

Moving a barricade from location to location is change order wor□ if ordered after initial placement of the barricade unless.

1. Required to conform with your traffic control plan
2. Required to conform with the M□T□D
□. □ecessary for public safety or convenience as determined by the □ngineer

□. Required to perform staged construction shown on the plans

**Replace Section 12-3.20C(1) With:**

**12-3.20C1 General**

If type □ temporary rail is used on the pro□ect, before placing Type □ temporary railing on the □ob site, paint the e□posed surfaces of the railing with white paint complying with the specifications for acrylic emulsion paint for e□terior masonry.

□lace Type □ temporary railing on a firm, stable foundation. □rade the foundation to provide a uniform bearing surface throughout the entire length of the railing.

Structure e□cavation and bac□fill must comply with section 1□□□ e□cept compaction of earth fill placed behind Type □ temporary railing in a curved layout is not required.

□lace and maintain the abutting ends of □□ concrete units in alignment without substantial offset from each other.

The drilling of holes and bonding of threaded rods or dowels must comply with the specifications for drilling and bonding dowels in section □1□1.

Install a reflector on the top or face of the rail of each rail unit placed within 10 feet of a traffic lane. Apply adhesive for mounting the reflector under the reflector manufacturer□s instructions.

Install a Type □ mar□er panel at each end of railing placed ad□acent to a 2□lane, two□way highway and at the end facing traffic for railing installed ad□acent to a one□way roadbed. If the railing is placed on a s□ew, install the mar□er at the end of the s□ew nearest the traveled way. Type □ mar□er panels must comply with section □2 e□cept you must furnish the mar□er panels.

After removing Type □ temporary railing:

1. Restore the area to its previous condition or construct it to its planned condition if temporary e□cavation or emban□ment was used to accommodate the railing.
2. Remove all threaded rods or dowels to a depth of at least 1 inch below the surface of the concrete. □ill the resulting holes with mortar under section □1□1 e□cept cure the mortar by the water method or by the curing compound method using curing compound no. □.

If the □ngineer orders a lateral move of Type □ temporary railing and repositioning is not shown, the lateral move is change order wor□ unless:

1. Required to conform with your traffic control plan
2. Required to conform with the M□T□D
□. □ecessary for public safety or convenience as determined by the □ngineer
□. Required to perform staged construction shown on the plans

**Replace Section 12-3.22C With:**

**12-3.22C Construction**

If crash cushion modules are used on the pro□ect, use the same type of crash cushion module for a single grouping or array.

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

Secure the sand□filled modules in place before starting an activity requiring a temporary crash cushion.

Maintain sand□filled temporary crash cushions in place at each location, including times when wor□ is not actively in progress. □ou may remove the crash cushions during the wor□ shift for access to the wor□ if the e□posed fi□ed obstacle is 1□ feet or more from the nearest lane carrying traffic. Reset the crash cushion before the end of the wor□ shift.

Immediately repair sand-filled temporary crash cushion modules damaged due to your activities. Remove and replace any module damaged beyond repair. Repair and replacement of temporary crash cushion modules damaged by traffic are change order wor.

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

Attach a Type R or Type  marker panel to the front of the temporary crash cushion if the closest point of the crash cushion array is within 12 feet of the traveled way. Firmly fasten the marker panel to the crash cushion with commercial quality hardware or by other authorized methods. Attach the Type R marker panel such that the top of the panel is 1 inch below the module lid. Attach the Type  marker panel such that the bottom of the panel rests upon the pallet or roadway surface if pallets are not used.

A lateral move of a temporary crash cushion module is change order wor if ordered and the repositioning is not shown, unless required for staged construction.

Remove sand-filled temporary crash cushion modules, including sand, pallets or frames, and marker panels, at ontract acceptance. Do not install sand-filled temporary crash cushion modules in the permanent wor.

**Replace section 12-3.31C with:**

**12-3.31C Construction**

If portable flashing beacons are used on the project, remove portable flashing beacons from the traveled way at the end of each night's wor. You may store the flashing beacon at selected central locations within the highway where designated by the ngineer.

Moving portable flashing beacons from location to location if ordered after initial placement is change order wor unless:

1. Required to conform with your traffic control plan
2. Required to conform with the MT D
. ecessary for public safety or convenience as determined by the ngineer
. Required to perform staged construction shown on the plans

**Replace the headings and paragraphs of Section 12-4 with:**

**12-4 MAINTAINING TRAFFIC**

**12-4.01 GENERAL**

**12-4.01A General**

Section 12..01 includes general specifications for maintaining vehicular traffic through construction wor ones.

If local authorities regulate traffic, notify them at least  business days before the start of ob site activities. ooperate with the local authorities to handle traffic through the wor one and to make arrangements to eep the wor one clear of parked vehicles.

**12-4.01B Materials**

ot sed

**12-4.01C CONSTRUCTION**

urnishing and operating pilot cars is not change order wor.

### 12-4.01D Payment

Not used

## 12-4.02 TRAFFIC CONTROL SYSTEMS

### 12-4.02A General

#### 12-4.02A(1) Summary

Section 12-4.02 includes specifications for providing a traffic control system to close traffic lanes, shoulders, and roadways.

A traffic control system for a closure includes the temporary traffic control devices described as part of the traffic control system. Temporary traffic control devices must comply with section 12-3.

#### 12-4.02A(2) Definitions

**designated holidays:** Designated holidays are shown as "holidays" in Section 1-1.07B.

#### 12-4.02A(3) Submittals

##### 12-4.02A(3)(a) General

The Contractor shall prepare and submit to the County Construction Engineer for approval, a traffic control system plan indicating the means and methods he will employ to institute and maintain traffic control for all phases of the work within the project. The traffic control system plan shall be submitted to the County Construction Engineer as early as possible, preferably **five (5) working days** prior to pre-construction meeting. The Engineer will require five (5) working days to review the initial submittal of the traffic control system plan and an additional five (5) working days for each successive review.

**No work at the project site which has the possibility to impact vehicular traffic, including preparatory work such as the installation of construction project funding signs if such work may impact vehicular traffic, shall commence until the traffic control system plan has been approved in writing by the Engineer. In the event that the traffic control system plan is not submitted timely, the Engineer may issue a notice of commencement of contract time prior to approval of the traffic control system plan, and working days will begin to accrue against the allotted contract time.**

Late submittal of the traffic control plan or revisions thereafter required, due to the inadequacy of the plan, shall not be accepted as justification for the delay in the start of the working days for the project.

It shall be the Contractor's responsibility to provide, install, maintain, and remove any and all detour signage and traffic control devices and to obtain all permits, including permits from Fresno Irrigation District, as may be necessary to establish detours as part of the contractor's traffic control plan.

Traffic will not be allowed to be limited to one direction when construction activities are not actively in progress. Providing, installing, maintaining, and removing all traffic control, including portable changeable message signs if required, obtaining and complying with all permits, and providing all traffic control operations shall be the responsibility of the contractor, and no additional compensation will be allowed therefor.

##### 12-4.02A(3)(b) Closure Schedules

Not used

##### 12-4.02A(3)(c) Contingency Plans for Closures

Not used

#### 12-4.02A(4) Quality Assurance

Reserved

### 12-4.02B Materials

Not used

**12-4.02C Construction**

**12-4.02C(1) General**

Traffic will be controlled by flagmen by eyesight, radio □walkie talkie□or baton. In the event these methods do not work satisfactorily, as determined by the □ngineer, a pilot car will be required.

The □ngineer may require a pilot car to be used during earthwork operations in preparation of the grading plane or other operations when the Contractor's operations cover an area beyond the line of sight, or beyond the range of radios or when the baton method does not function satisfactorily.

Work that interferes with traffic is limited to the hours when closures are allowed.

**12-4.02C(2)–12-4.02C(6) Reserved**

**12-4.02C(7) Traffic Control System Requirements**

**12-4.02C(7)(a) General**

□ontrol traffic using stationary closures.

If components of the traffic control system are displaced or cease to operate or function as specified, immediately repair them to their original condition or replace them and place them back in their original locations.

□ehicles equipped with attenuators must comply with section 12□□.2□.

□ach vehicle used to place, maintain, and remove components of a traffic control system on a multilane highway must have a Type II flashing arrow sign that must operate whenever the vehicle is used for placing, maintaining, or removing the components. □or a stationary closure, vehicles with a Type II flashing arrow sign not involved in placing, maintaining, or removing the components must display only the caution display mode. If a flashing arrow sign is required for a closure, activate the sign before the closure is in place.

**12-4.02C(7)(b) Stationary Closures**

□□cept for channeli□ing devices placed along open trenches or e□cavations ad□acent to the traveled way, remove the components of the traffic control system for a stationary closure from the traveled way and shoulders at the end of each work period. □ou may store the components at authori□ed locations within the limits of the highway.

If a traffic lane is closed with channeli□ing devices for e□cavation work, move the devices to the ad□acent edge of the traveled way when not e□cavating. Space the devices as shown for the lane closure.

**12-4.02C(7)(c) Reserved**

**12-4.02C(8) Traffic Control System Signs**

**12-4.02C(8)(a) General**

Traffic control system signs must comply with section 12□□.11.

**12-4.02C(8)(b) Connector and Ramp Closure Signs**

□ot □sed

**12-4.02C(9)–12-4.02C(11) Reserved**

**12-4.02C(12) Failure to Provide Traffic Control.**

If you do not provide the traffic control and it becomes necessary for the □ngineer to notify you of your duties according to the Standard Specifications and these special provisions, you will pay □200 per 1□□ minute period or portion thereof to the □ounty for all the time required to acquire the traffic control, including pilot car.

Such payment shall commence at the time notice of the improper traffic control condition is given to you or your authori□ed representative by the □ngineer and shall terminate when the condition is corrected. Such payment will be deducted from your payment.

In addition thereto, when it is necessary for the □ngineer to perform the wor□, you will pay the actual cost for the performance thereof. Such amount will be deducted from the your payment. This will be in addition to any penalties imposed in these special provisions.

The provisions in this section will not relieve you from your responsibility to provide such additional devices or ta□e such measures as may be necessary to comply with the provisions in Section □□1.0□, "□ublic Safety," of the Standard Specifications.

**12-4.02D Payment**

The Department pays for change order wor□ for a traffic control system by force account for increased traffic control and uses a force account analysis for decreased traffic control.

Traffic control system for lane closure is paid for as traffic control system. □lagging costs are paid for as specified in section 12□1.0□.

The requirements in section □□1.0□ for payment ad□ustment do not apply to traffic control system. Ad□ustments in compensation for traffic control system will be made for an increase or decrease in traffic control wor□ if ordered and will be made on the basis of the cost of the necessary increased or decreased traffic control. The ad□ustment will be made on a force account basis for increased wor□ and estimated on the same basis in the case of decreased wor□.

A traffic control system required by change order wor□ is paid for as a part of the change order wor□.

□ull compensation for furnishing and operating the pilot car, □including driver, radios, and any other equipment and labor required□ shall be considered as included in the contract lump sum price paid for traffic control system and no further payment will be made.

**12-4.03 FALSEWORK OPENINGS**

Reserved

**12-4.04 PEDESTRIAN FACILITIES**

**12-4.04A General**

Section 12□□.0□ includes specifications for providing temporary pedestrian facilities.

Temporary pedestrian facilities must comply with section 1□□2.02.

**12-4.04B Materials**

□ot □sed

**12-4.04C Construction**

□onduct all planning and operations to ensure and facilitate safe use by the public, including pedestrians and equestrians, at all times when construction activities are not actively in progress.

□or purposes of the following specification, the portion of the pro□ect from □ings □anyon to □utler is one segment, and from □utler to □lovis is another segment.

The contractor may close, to all public users, only one segment of the entire pro□ect length at any given time, and then, only when construction operations are actively ongoing within that segment.

The entire length of the entire trail shall be rendered safe for all users prior to the end of each wor□ing day in both segments, and both segments shall be open to all users at all times when no construction operations are actively ongoing.

The contractor shall plan, e□ecute the wor□ and maintain the site so that it e□hibits no unusual or increased ha□ard to any potential user the trail is open in accordance with the requirements herein.

Submit a plan to accomplish the construction in accordance with these requirements, identifying the segment to be closed during daily wor, the duration of each closure in wor ing days, and the wor to be completed during the closure. This need not necessarily identify each tas to be completed each day, but rather, must at least identify the wor to be completed in a single succession of consecutive wor ing days during which one particular segment is to be closed. Such a succession of consecutive wor ing days is identified as a "closure." Minimize the number of closures to the extent practicable, as determined by the ngineer.

ost prominently, maintain, and later remove and dispose, durable, legible, written notice of planned closures at least one wee in advance thereof at each intersection of the pro ect with a public street.

rovide for public safety at all times, whether construction activities are actively ongoing or not.

**12-4.04D Payment**

ull compensation for providing for safety of the public, including pedestrians and equestrians, is included in the lump sum bid price for traffic control system, and no additional compensation will be allowed therefor.

**12-4.06–12-4.10 RESERVED**

# 13 WATER POLLUTION CONTROL

**Add to Section 13-1.01:**

**STATE WATER RESOURCES CONTROL BOARD (SWRCB) NOTICE OF INTENT FILING (NOI) FEE**

omplete the OI filing process started by the ounty on the SWR website using information available in the contract, field and website. The ngineer will lin your plan to the pro ect on the SWR website.

The SWR OI bid item is specifically provided to reimburse ontractor for payment of OI filing fee charged by the SWR and paid by the ontractor after the ontractor has completed the OI filing process started by the ounty.

The amount paid will be the amount of the fee only. o payment will be made for overhead or processing costs. ull compensation for any overhead and processing costs will be considered to be included in the various items of wor, and no separate compensation will be made therefor.

The provisions of section 1 1.06 for increased or decreased quantities shall not apply to the "State Water Resources Control Board Notice of Intent" bid item.

The SWR website can be found at:

**https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.xhtml**

**Replace 13-1.01A with:**

**13-1.01A Summary**

Section 1 1 includes general specifications for preventing, controlling, and abating water pollution within waters of the State.

Information on forms, reports, and other documents is in the following altrans manuals:

1. ield uide to onstruction Site Dewatering

2. Stormwater □ollution □revention □lan □SW□□□□and Water □ollution □ontrol □rogram □W□□□□ □reparation Manual
□. □onstruction Site □est Management □ractices □□M□s□Manual
□. □onstruction Site Monitoring □rogram □uidance Manual

□ou may view these manuals at the Stormwater and Water □ollution □ontrol Information lin□at the □altrans Division of □onstruction website or purchase them at the □altrans □ublication Distribution □nit.

A W□□□ and a SW□□□ must comply with the □altrans Stormwater □ollution □revention □lan □SW□□□□ and Water □ollution □ontrol □rogram □W□□□□□reparation Manual and must be prepared using the latest template posted on the □onstruction stormwater website.

**Replace Section 13-1.01D92) with**

**13-1.01D(2) Regulatory Requirements**

□omply with the discharge requirements in the □□D□S □eneral □ermit for Storm Water Discharges Associated with □onstruction and Land Disturbance Activities; Order □o. 200□□000 □□DW□, □AS000002 □□onstruction □eneral □ermit□and any amendments thereto issued by the SWR□□. The □onstruction □eneral □ermit may be found at:

http:□□www.waterboards.ca.gov□water□issues□programs□stormwater□constpermits.shtml

Discharges from manufacturing facilities, such as batch plants and crushing plants, must comply with the discharge requirements in the □□D□S □eneral □ermit for Storm Water Discharges Associated with Industrial Activities; Order □o. 201□□00□□□DW□, □AS000001 □Industrial □eneral □ermit□, issued by the SWR□□. □or the Industrial □eneral □ermit, go to the SWR□□ website.

□or a batch plant and crushing plant outside a □ob site or within a □ob site that serves one or more contracts, obtain coverage under the Industrial □eneral □ermit before operating a batch plant to manufacture concrete, □MA, or other material or a crushing plant to produce roc□or aggregate.

This □ro□ect disturbs appro□imately 2.0 acres of soil.

**Replace Section 13-1.01D(4)(b) with:**

**13-1.01D(4)(b) Qualifications**

The W□□ manager must:

1. □omply with the requirements provided in the □onstruction □eneral □ermit for:
   1.1. □S□ if the pro□ect requires a W□□□
   1.2. □SD if the pro□ect requires a SW□□□
2. □omplete the stormwater management training described at the Stormwater and Water □ollution □ontrol Information lin□at the □altrans Division of □onstruction website

**Add to the end of section 13-2.01A:**

Schedule all soil□disturbing activities, such as clearing and grubbing, roadway e□cavation, and emban□ment construction, to occur from 10□1□2021 to 12□20□2021. The R factor is □.2

**Add between the 4th and 5th paragraphs of section 13-2.01C:**

The □entral □alley Regional Water □uality □ontrol □oard will review the authori□ed SW□□□.

**Add to section 13-3.01A:**

This pro□ect□s ris□level is 1.

**Replace Section 13-4.03G with:**

### 13-4.03G Dewatering

Dewatering consists of discharging accumulated stormwater, groundwater, or surface water from e□cavations or temporary containment facilities.

If dewatering is required, perform dewatering wor□ as specified for the wor□ items involved, such as a temporary ATS or dewatering and discharge.

If dewatering and discharging activities are not specified for a wor□ item and you perform dewatering activities:

1. □onduct dewatering activities under the □altrans *Field Guide for Construction Site Dewatering*.
2. □nsure any dewatering discharge does not cause erosion, scour, or sedimentary deposits that could impact natural bedding materials.
□. Discharge the water within the pro□ect limits. Dispose of the water if it cannot be discharged within pro□ect limits due to site constraints or contamination.
□. Do not discharge stormwater or non□stormwater that has an odor, discoloration other than sediment, an oily sheen, or foam on the surface. Immediately notify the □ngineer upon discovering any such condition.

# 14 ENVIRONMENTAL STEWARDSHIP

**Replace the 2nd paragraph of section 14-6.03B with:**

The Department anticipates nesting or attempted nesting by migratory and nongame birds from □ebruary 1□ to August □1.

**Add to section 14-6.03B:**

Do not perform tree removal or vegetation trimming during the nesting season unless authori□ed by the □ngineer.

**Add to section 14-10.01:**

1. Do not discharge petroleum products, any construction materials, ha□ardous materials, pesticides, fuels, lubricants, oils, hydraulic fluids, raw cement, concrete, asphalt, paint, coating material, drilling fluids, or other construction□related potentially ha□ardous substances to surface water and□or soil. In the event of a prohibited discharge, notify the □ngineer immediately.
2. □or the entire duration of the □ro□ect, you must use silt fencing, straw wattles, or other effective management practices along the construction □one to prevent soil or sediment get into the □ancher □ree□.
□. □ou must protect all disturbed pro□ect areas from washout and erosion.
□. □ou must restore all temporarily affected areas to pre□construction contours and conditions upon completion of construction activities.
□. □ou must remove all materials resulting from the □ro□ect and dispose of them properly.

**Add Section 14-12.04:**

### 14-12.04 RELATIONS WITH SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (SJVAPCD)

Although this pro□ect does not require the submittal of a dust control plan to the S□□A□□D, you are responsible for compliance with all applicable S□□A□□D regulations and requirements. This section is provided for your information, and nothing herein or elsewhere within these special provisions shall be construed as limiting your responsibility for complying with all applicable rules and regulations.

**Replace Section 14-12.04–14.12.08 With:**

**14-12.05–14.12.08 RESERVED**

## 15 EXISTING FACILITIES

**Delete:**

**15-1.03D–15-1.03K Reserved**

**Replace with:**

**15-1.03D REMOVE FENCE (TYPE CL)**

Where shown to be removed, remove e□isting fences if present only after directed in writing by the □ngineer. The provisions of section □□1.0□ for increased or decreased quantities shall not apply to the "Remove Existing Fence" bid item.

□ull compensation for demolishing, removing and properly disposing the e□isting fence, posts, concrete footings and its appurtenances shall be considered to be included in items of wor□, and no further compensation shall be paid therefor.

The payment quantity for removing and disposing e□isting fence is the length measured along the centerline of the fence.

**15-1.03E REMOVE LIGHT POLE**

Where shown to be removed, remove the e□isting privately owned light pole if present only after directed in writing by the □ngineer. In the event you cannot safely disconnect and dispose the light pole prior to disconnecting the power at its source, do not commence removal until rendered safe. □ou may contact the property owner or power company to disengage the power before removal. The provisions of section □□1.06 for increased or decreased quantities shall not apply to the "Remove Light □ole" bid item.

□ull compensation for demolishing, removing and properly disposing the e□isting light poles, concrete footings and any electrical wor□ to safely abandon electrical wiring shall be considered to be included in items of wor□, and no further compensation shall be paid therefor.

The payment quantity for removing and disposing e□isting light pole is per unit basis.

**15-1.03F–15-1.03K Reserved**

# DIVISION III EARTHWORK AND LANDSCAPPE

## 17 GENERAL

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

□lear and grub vegetation only within the e□cavation and emban□ment slope lines.

**Replace the 1st sentence in the 2nd paragraph in section 17-2.03A with:**

□ut tree branches that e□tend over any public roadway or trail and hang within 12 feet of finished grade and as directed by the engineer. Trim for clearance over the trail as shown in □ro□ect Details.

**Replace 17-2.03B with:**

**17-2.03B Clearing**

□lear all construction areas where materials are to be removed, placed, constructed, or installed within the e□cavation and emban□ment slope lines of □1□all vegetation such as trees, logs, upturned stumps, roots of downed trees, brush, grass, and weeds and □2□other ob□ectionable material including concrete, masonry, and debris.

Do not clear within the □ID right of way.

**Add the following to 17-2.03C:**

Do not perform grubbing outside the e□cavation and emban□ment slope lines e□cept to the e□tent that materials removed from within the e□cavation and emban□ment slope lines will be unavoidable in disturb areas lying beyond said lines.

**Add the following:**

**17-3 TREE AND TREE STUMP REMOVAL**

Refer to □ro□ect Details for the Arborist Report and its Amendment, are hereinafter referred to collectively as "The Report."

The Report ma□es reference to various activities such as preparation for planting and maintenance of plantings. This pro□ect includes no planting or irrigation systems whatsoever.

To the e□tent that The Report describes actions to be ta□en with respect to removal, trimming, or pruning of trees, or any other activity as required by the plans and specifications for the pro□ect, The Report shall serve to specify and prescribe the performance of the wor□ and standards for its acceptance. Any use of the word "should" or its equivalent shall be considered to be equivalent to the same statement with the use of the work "shall" or its logical equivalent in place of "should."

Any trees designated to be removed in the Arborist Report and its Amendment in □ro□ect Details of these Special □rovisions shall be removed and removal shall be paid on a unit basis at the bid price therefor.

Any vegetation with a trun□ diameter of less than four inches measured at four feet above ground level which is not designated to be removed in the arborist's report, and which must be removed, as confirmed by the engineer, by virtue of its position in relation to the wor□ to be constructed, shall be removed and removal shall be considered to be included in the contract price paid for clearing and grubbing.

It is the intent that removal of all trees to be removed with a trun□ diameter of less than four inches measured at four feet above ground level be paid for on a unit basis in accordance with the bid proposal sheet and these special provisions.

**17-3.04 Payment:**

□ull compensation for removing and properly removing and disposing Trees and Tree Stumps shall be considered to be included in items of wor□, and no further compensation shall be paid therefor.

The payment quantity for removing and disposing e□isting Trees with stump shall be paid on a unit basis in the bid item R□MO□□ TR□□ A□D ASSO□IAT□D ST□M□.

The payment quantity for removing and disposing e□isting Stumps shall be paid on a unit basis in the bid item R□MO□□ ST□M□.

# 19 EARTHWORK

**Replace 2nd paragraph of section 19-2.01A Summary with:**

Roadway e□cavation consists of all e□cavation involved in the grading and construction of the roadway, trail, par□ing area and any other grading wor□ depicted in the plans.

**Add between the 1st and 2nd paragraphs of section 19-5.03B:**

Item 2 of the 1st paragraph does not apply.

# 20 LANDSCAPE

**Replace Section 20-1.02B with:**

**20-1.02B Water**

Ma□e arrangements for supplying water. Water must be of a quality that promotes plant growth.

**Replace Section 20-3.01C(2) With:**

## 20-3.01C(2) - Pruning

Trim all trees to provide clearance as required for the trail in accordance with detail shown □ro□ect Details of these Special □rovisions.

Trim, raise, and perform weight reduction in accordance with requirements for each tree as shown in the arborist's report in □ro□ect Details.

Where "Raise" is indicated in the Report, or when otherwise required to provide clearance, trim trees to provide the minimum clearance for the trail as shown on the diagram in □ro□ect Details.

Where "Raise" is indicated for a particular tree and the tree does not overhang the trail to be constructed, trim to provide clearance over the □ID easement as described in the Report.

Regardless of the stated effect of trimming as identified in the report, such as "raise", all trees shall be trimmed appropriately to prove a neat and balanced appearance and to minimi□e the li□elihood of falling limbs, all in accordance with the pruning specifications in The Report of these special provisions.

All tree trimming and pruning, regardless of whether it is to provide clearance, to reduce weight, or to provide a balanced appearance, shall be considered to be included in the price paid for "Pruning" and no additional compensation will be allowed therefor.

The Report provides specifications for pruning which reference and recommends certain A□SI publications. The contractor is required to acquire, have on site and comply with all publications referenced in the report.

□ou are not required to employ or subcontract your own licensed arborist, but you may wish to consider doing so.

□omply with all applicable requirements.

When a number of trees is, in your opinion, ready for post□pruning inspection and possible approval, by the County's arborist, provide not less than three wor□ing days written notice to the engineer.

Any wor□ not recommended for approval by the arborist must be pursued until corrected and no additional compensation will be allowed therefor.

The □ounty will provide up to si□ separate inspection trips by its arborist in addition to the initial □ic□off meeting which may or may not occur in the field. In the event that more than si□ inspections are required by the arborist due to re□inspection or for any other reason, the actual cost to the county to employ the arborist for such additional visits will be deducted from monies due or which may become due to you.

□ontractor is responsible to obtain any necessary permits from □resno Irrigation District □□ID□in order to access or use its facility to perform pruning.

**20-5.03D Decomposed Granite**

**Add before the first paragraph in section 20-5.03D(1)(c):**

□ive business days before delivery of the materials to the □obsite, submit a five□pound sample of decomposed granite.

**Replace 20-5.03D(4) with:**

Stabili□ed decomposed granite shall be paid by the area measured in place.

# DIVISION V SURFACINGS AND PAVEMENTS

## 36 GENERAL

**Replace the headings and paragraphs of Section 36-3 with:**

**36-3 PAVEMENT SMOOTHNESS**

**36-3.01 GENERAL**

**36-3.01A Summary**

Section □□□□ includes specifications for measuring the smoothness of pavement surfaces.

**36-3.01B Definitions**

Reserved

**36-3.01C Submittals**

**36-3.01C(1) General**

Reserved

**36-3.01C(2) Reserved**

**36-3.01C(3) Reserved**

**36-3.01C(4) Straightedge Measurements**

Within 2 business days of measuring smoothness with a straightedge, submit a list of the areas requiring smoothness correction. Identify the areas by:

1. Location number
2. District□□ounty□Route
□. □eginning station or post mile to the nearest 0.01 mile
□. □or correction areas within a traffic lane:

□.1. Lane direction, *NB, SB, EB*, or *WB*
□.2. Lane number from left to right in the direction of travel
□.□. Wheel path, *L* for left, *R* for right, or *B* for both

□. □or correction areas not within a traffic lane:
□.1. Identify the pavement area, such as shoulder, weigh station, or turnout
□.2. Direction and distance from the centerline, *L* for left or *R* for right

□. □stimated si□e of correction area

**36-3.01D Quality Assurance**

**36-3.01D(1) General**

Reserved

**36-3.01D(2) Reserved**

**36-3.01D(3) Quality Control**

**36-3.01D(3)(a) General**

Reserved

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

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

Test pavement smoothness using a 12□foot straightedge.

**36-3.01D(3)(b)(ii) Reserved**

**36-3.01D(3)(b)(iii) Reserved**

**36-3.01D(4) Department Acceptance**

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

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

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

**36-3.02 MATERIALS**

□ot □sed

**36-3.03 CONSTRUCTION**

□erform pavement smoothness testing in areas selected by the □ngineer in the presence of the □ngineer.

**36-3.04 PAYMENT**

□ot □sed

## Replace Section 39 with:

# 39 ASPHALT CONCRETE

### 39-1 GENERAL

**39-1.01 GENERAL**

Section □□ includes specifications for performing asphalt concrete wor□.

### 39-1.02 MATERIALS

□ot □sed

### 39-1.03 CONSTRUCTION

□ot □sed

### 39-1.04 PAYMENT

□ot □sed

## 39-2 HOT MIX ASPHALT

### 39-2.01 GENERAL

### 39-2.01A General

### 39-2.01A(1) Summary

Section □□□2.01 includes general specifications for producing and placing hot mi□asphalt.

□MA includes one or more of the following types:

1. Type A □MA
2. R□MA□□
□. O□ □□
□. □W□
□. Minor □MA

WMA technologies must be on the Authori□ed Material List for WMA authori□ed technologies.

□or □MA that uses asphalt binder containing crumb rubber modifier, submit a □rumb Rubber □sage Report form monthly and at the end of the pro□ect.

Wherever reference is made to the following test methods, the year of publication for these test methods is as shown in the following table:

| Test method | □ear of publication |
|---|---|
| AAS□TO M 1□ | 2011 □201□□ |
| AAS□TO M □2□ | 201□ |
| AAS□TO R □0 | 2002 □201□□ |
| AAS□TO R □□ | 201□ |
| AAS□TO T 2□ | 201□ |
| AAS□TO T □□ | 201□ |
| AAS□TO T □□ | 201□ |
| AAS□TO T □□ | 2002 □2010□ |
| AAS□TO T 1□□ | 201□ |
| AAS□TO T 1□□ | 200□ |
| AAS□TO T 20□ | 2012 |
| AAS□TO T 2□□ | 201□ |
| AAS□TO T 2□□ | 200□ □2012□ |
| AAS□TO T 2□□ | 201□ |
| AAS□TO T □0□ | 2011 |
| AAS□TO T □0□ | 201□ |
| AAS□TO T □0□ | 2010 |
| AAS□TO T □12 | 201□ |
| AAS□TO T □2□ | 201□ |
| AAS□TO T □2□ | 201□ |
| AAS□TO T □□□ | 200□ |
| ASTM D□□□D□□M | 201□$^{\varepsilon 1}$ |
| ASTM D□2 | 2012b |
| ASTM D21□ | 2010 |
| ASTM D2□□ | 201□ |
| ASTM D□□□ | 201□ |
| ASTM D200□ | 2011 |
| ASTM D20□□ | 200□ □Reapproved 201□□ |
| ASTM D2□□□ | 1□□□ □Reapproved 200□□ |
| ASTM D□□□1 | 2010 |
| ASTM D□□2□ | 200□ |
| ASTM D□□□1□D□□□1M | 2011$^{\varepsilon 1}$ |
| Asphalt Institute MS□2 | □th edition □201□□ |

**39-2.01A(2) Definitions**

**binder replacement:** □inder from RA□ e□pressed as a percent of the total binder in the mi□.

**coarse aggregate:** Aggregate retained on a no. □ sieve.

**fine aggregate:** Aggregate passing a no. □ sieve.

**leveling course:** Thin layer of □MA used to correct minor variations in the longitudinal and transverse profile of the pavement before placement of other pavement layers.

**miscellaneous areas:** Areas outside the traveled way and shoulders such as:

1. Median areas not including inside shoulders
2. Island areas
□. Sidewal□s
□. □utters
□. Ditches
□. Overside drains
□. Aprons at ends of drainage structures

□. Driveways and driveway approaches

**processed RAP:** RA□ that has been fractionated.

**supplemental fine aggregate:** Mineral filler consisting of roc□dust, slag dust, hydrated lime, hydraulic cement, or any combination of these and complying with AAS□TO M 1□.

**39-2.01A(3) Submittals**

**39-2.01A(3)(a) General**

Reserved

**39-2.01A(3)(b) Job Mix Formula**

**39-2.01A(3)(b)(i) General**

□□cept for the □MA to be used in miscellaneous areas and di□es, submit your proposed □M□ for each type of □MA to be used. The □M□ must be submitted on the □ontractor □ob Mi□ □ormula □roposal form along with:

1. Mi□design documentation on □ontractor □ot Mi□Asphalt Design Data form dated within 12 months of submittal
2. □M□ verification on a □altrans □ot Mi□Asphalt □erification form, if applicable
□. □M□ renewal on a □altrans □ob Mi□ □ormula Renewal form, if applicable
□. SDS for:
   □.1. Asphalt binder
   □.2. Supplemental fine aggregate e□cept fines from dust collectors
   □.□. Antistrip additives

The □ontractor □ot Mi□Asphalt Design Data form must show documentation on aggregate quality.

If you cannot submit a Department□verified □M□ on a □altrans □ot Mi□Asphalt □erification form dated within 12 months before □MA production, the □ngineer verifies the □M□.

Submit a new □M□ if you change any of the following:

1. Target asphalt binder percentage greater than □0.2 percent
2. Asphalt binder supplier
□. □ombined aggregate gradation
□. Aggregate sources
□. Liquid antistrip producer or dosage
□. Average binder content in a new processed RA□ stoc□pile by more than □2.00 percent from the average RA□ binder content reported on page □ of your □ontractor □ot Mi□Asphalt Design Data form
□. Average ma□imum specific gravity in a new processed RA□ stoc□pile by more than □0.0□0 from the average ma□imum specific gravity value reported on page □ of your □ontractor □ot Mi□Asphalt Design Data form
□. Any material in the □M□, e□cept lime supplier and source

Allow the □ngineer □ business days from a complete □M□ submittal for document review of the aggregate qualities, mi□design, and □M□. The □ngineer notifies you if the proposed □M□ submittal is accepted.

If your □M□ fails verification testing, submit an ad□usted □M□ based on your testing. The ad□usted □M□ must include a new □ontractor □ob Mi□ □ormula □roposal form, □ontractor □ot Mi□Asphalt Design Data form, and the results of the failed verification testing.

□ou may submit an ad□usted aggregate gradation T□ on a □ontractor □ob Mi□ □ormula □roposal form before verification testing. Aggregate gradation T□ must be within the T□ limits specified.

**39-2.01A(3)(b)(ii) Job Mix Formula Renewal**

□ou may request a □M□ renewal by submitting:

1. □roposed □M□ on a □ontractor □ob Mi□ □ormula □roposal form
2. □reviously verified □M□ documented on a □altrans □ot Mi□Asphalt □erification form dated within 12 months
□. Mi□design documentation on a □ontractor □ot Mi□Asphalt Design Data form used for the previously verified □M□

**39-2.01A(3)(b)(iii) Job Mix Formula Modification**

□or an authori□ed □M□, submit a modified □M□ if you change any of the following:

1. Asphalt binder supplier
2. Liquid antistrip producer
□. Liquid antistrip dosage

□ou may change any of the above items only once during the □ontract.

Submit your modified □M□ request at least 1□ days before production. □ach modified □M□ submittal must include:

1. □roposed modified □M□ on □ontractor □ob Mi□ □ormula □roposal form, mar□ed *Modified*.
2. Mi□design records on □ontractor □ot Mi□Asphalt Design Data form for the authori□ed □M□ to be modified.
□. □M□ verification on □ot Mi□Asphalt □erification form for the authori□ed □M□ to be modified.
□. Test results for the modified □M□ in compliance with the mi□design specifications. □erform tests at the mi□design O□□ as shown on the □ontractor Asphalt Mi□Design Data form.

With an accepted modified □M□ submittal, the □ngineer verifies each modified □M□ within 10 days of receiving all verification samples.

**39-2.01A(3)(c) Quality Control Plan**

With your proposed □M□ submittal, submit a □□ plan for □MA.

The □□ plan must describe the organi□ation and procedures for:

1. □ontrolling □MA quality characteristics
2. Ta□ing samples, including sampling locations
□. □stablishing, implementing, and maintaining □□
□. Determining when corrective actions are needed
□. Implementing corrective actions
□. □sing methods and materials for bac□filling core locations

The □□ plan must address the elements affecting □MA quality, including:

1. Aggregates
2. Asphalt binder
□. Additives
□. □roduction
□. □aving

The □□ plan must include aggregate □□ sampling and testing during lime treatment.

The □□ □lan must include action and suspension limits and details of corrective action to be ta□en if any process is outside of those limits. Suspension limits must not e□ceed specified acceptance criteria.

The □□ plan must describe how test results will be submitted including times for sampling and testing for each quality characteristic.

Allow □ business days for review of the □□ plan.

If you change □□ procedures, personnel, or sample testing locations, submit a □□ plan supplement before implementing the proposed change. Allow □ business days for review of the □□ plan supplement.

**39-2.01A(3)(d) Test Results**

□or mi□design, □M□ verification, production start□up, and each 10,000 tons, submit AAS□TO T 2□□ and AAS□TO T □2□ □Modified□test results to the □ngineer.

Submit all □□ test results, e□cept AAS□TO T 2□□ and AAS□TO T □2□ □Modified□, within □ business days of a request. Submit AAS□TO T 2□□ □□ tests within 1□ days of sampling.

□or tests performed under AAS□TO T □2□ □Modified□, submit test data and 1 tested sample set within □ business days of sampling.

If coarse and fine durability inde□ tests are required, submit test results within 2 business days of sampling.

If a tapered notched wedge is used, submit compaction test result values within 2□ hours of testing.

**39-2.01A(3)(e) Reserved**

**39-2.01A(3)(f) Liquid Antistrip Treatment**

If liquid antistrip treatment is used, submit the following with your proposed □M□ submittal:

1. One 1 pt sample
2. Infrared analysis, including copy of absorption spectra
□. □ertified copy of test results
□. □ertificate of compliance for each liquid antistrip shipment. On each certificate of compliance, include:
   □.1. □our signature and printed name
   □.2. Shipment number
   □.□. Material type
   □.□. Material specific gravity
   □.□. Refinery
   □.□. □onsignee
   □.□. Destination
   □.□. □uantity
   □.□. □ontact or purchase order number
   □.10. Shipment date
□. □roposed proportions for the liquid antistrip

□or each delivery of liquid antistrip to the □MA production plant, submit a 1 pt sample to the □ngineer. Submit shipping documents. Label each liquid antistrip sampling container with:

1. Liquid antistrip type
2. Application rate
□. Sample date
□. □ontract number

At the end of each day□s production shift, submit production data in electronic media. □resent data on electronic media in a tab delimited format. □se line feed carriage return with 1 separate record per line for each production data set. Allow enough fields for the specified data. Include data titles at least once per report. □or each □MA mi□ing plant type, submit the following information in the order specified:

1. □or batch plant mi□ing:
   1.1. □roduction date
   1.2. Time of batch completion
   1.□. Mi□si□e and type
   1.□. □ach ingredient□s weight
   1.□. Asphalt binder content as a percentage of the total weight of mi□

1.□. Liquid antistrip content as a percentage of the asphalt binder weight

2. □or continuous mi□ing plant:
   2.1. □roduction date
   2.2. Data capture time
   2.□. Mi□si□e and type
   2.□. □low rate of wet aggregate collected directly from the aggregate weigh belt
   2.□. Aggregate moisture content as a percentage of the dry aggregate weight
   2.□. □low rate of asphalt binder collected from the asphalt binder meter
   2.□. □low rate of liquid antistrip collected from the liquid antistrip meter
   2.□. Asphalt binder content as a percentage of the total weight of mi□ calculated from:
      2.□.1. Aggregate weigh belt output
      2.□.2. Aggregate moisture input
      2.□.□. Asphalt binder meter output
   2.□. Liquid antistrip content as a percentage of the asphalt binder weight calculated from:
      2.□.1. Asphalt binder meter output
      2.□.2. Liquid antistrip meter output

**39-2.01A(3)(g) Lime Treatment**

If aggregate lime treatment is used, submit the following with your proposed □M□ submittal and each time you produce lime□treated aggregate:

1. □□act lime proportions for fine and coarse virgin aggregates
2. If marination is required, the averaged aggregate quality test results within 2□ hours of sampling
□. □or dry lime aggregate treatment, a treatment data log from the dry lime and aggregate proportioning device in the following order:
   □.1. Treatment date
   □.2. Time of day the data is captured
   □.□. Aggregate si□e being treated
   □.□. □MA type and mi□ aggregate si□e
   □.□. Wet aggregate flow rate collected directly from the aggregate weigh belt
   □.□. Aggregate moisture content, e□pressed as a percentage of the dry aggregate weight
   □.□. □low rate of dry aggregate calculated from the flow rate of wet aggregate
   □.□. Dry lime flow rate
   □.□. Lime ratio from the authori□ed □M□ for each aggregate si□e being treated
   □.10. Lime ratio from the authori□ed □M□ for the combined aggregates
   □.11. Actual lime ratio calculated from the aggregate weigh belt output, aggregate moisture input, and dry lime meter output, e□pressed as a percentage of the dry aggregate weight
   □.12. □alculated difference between the authori□ed lime ratio and the actual lime ratio
□. □or lime slurry aggregate treatment, a treatment data log from the slurry proportioning device in the following order:
   □.1. Treatment date
   □.2. Time of day the data is captured
   □.□. Aggregate si□e being treated
   □.□. Wet aggregate flow rate collected directly from the aggregate weigh belt
   □.□. Moisture content of the aggregate □ust before treatment, e□pressed as a percentage of the dry aggregate weight
   □.□. Dry aggregate flow rate calculated from the wet aggregate flow rate
   □.□. Lime slurry flow rate measured by the slurry meter
   □.□. Dry lime flow rate calculated from the slurry meter output
   □.□. Authori□ed lime ratio for each aggregate si□e being treated
   □.10. Actual lime ratio calculated from the aggregate weigh belt and slurry meter output, e□pressed as a percentage of the dry aggregate weight
   □.11. □alculated difference between the authori□ed lime ratio and actual lime ratio
   □.12. Dry lime and water proportions at the slurry treatment time

□ach day during lime treatment, submit the treatment data log on electronic media in tab delimited format. □ach continuous treatment data set must be a separate record using a line feed carriage return to present the specified data on 1 line. The reported data must include data titles at least once per report.

**39-2.01A(3)(h) Warm Mix Asphalt Technology**

□ot □sed

**39-2.01A(3)(i) Reserved**

**39-2.01A(3)(m)–39-2.01A(3)(o) Reserved**

**39-2.01A(4) Quality Assurance**

**39-2.01A(4)(a) General**

AAS□TO T □2□ □Modified□is AAS□TO T □2□ with the following parameters:

1. Target air voids must equal □.0 □ 1.0 percent
2. Specimen height must be □0 □ 1 mm
□. □umber of test specimens must be □ to run 2 tests
□. Do not average the 2 test results
□. Test specimen must be a 1□0 mm gyratory compacted specimen
□. Test temperature must be set at:
   □.1. 11□ □2 degrees □ for □□ □□
   □.2. 122 □2 degrees □ for □□ □□
   □.□. 1□1 □2 degrees □ for □□ □0 and above
□. Measurements for impression must be ta□en at every 100 passes along the total length of the sample
□. Inflection point is the number of wheel passes at the intersection of the creep slope and the stripping slope at ma□imum rut depth
□. Testing shut off must be set at 2□,000 passes
10. Submersion time for samples must not e□ceed □ hours

Ta□e samples under □alifornia Test 12□.

If a WMA technology is used, a technical representative for the WMA technology must attend the preconstruction meeting.

**39-2.01A(4)(b) Job Mix Formula Verification**

The □ngineer verifies the □M□ from samples ta□en from □MA produced by the plant to be used. The production set point at the plant must be within □0.2 from the asphalt binder percentage T□ shown in your □ontractor □ob Mi□ □ormula □roposal form. □otify the □ngineer at least 2 business days before sampling materials. Samples may be ta□en from a different pro□ect including a non□Department pro□ect if you ma□e arrangements for the □ngineer to be present during sampling.

In the □ngineer□s presence and from the same production run, ta□e samples of:

1. Aggregates. □oarse, fine, and supplemental fine aggregates must be ta□en from the combined cold□ feed belt or the hot bins. If lime treatment is required, samples must be ta□en from individual stoc□piles before lime treatment. Samples must be at least 120 lb for each coarse aggregate, □0 lb for each fine aggregate, and 10 lb for each type of supplemental fine aggregate. □or hot□bin samples, the Department combines these aggregate samples to verify the T□ submitted on a □ontractor □ob Mi□ □ormula □roposal form.
2. Asphalt binder. Ta□e at least four 1 qt samples. □ach sample must be in a cylindrical□shaped can with an open top and friction lid. If the asphalt binder is modified or rubberi□ed, the asphalt binder must be sampled with the components blended in the proportions to be used.
□. RA□. Samples must be at least □0 lb from each fractionated stoc□pile used or 100 lb from the belt.
□. □lant□produced □MA. The □MA samples must be at least 2□0 lb.

□or aggregate, RA□, and □MA, split the samples into at least □ parts and label their containers.

Submit □ parts and □eep 1 part.

After acceptance of the □M□ submittal, the □ngineer verifies each proposed □M□ within 20 days of receiving all verification samples.

□or □M□ verification, the □ngineer tests the following for compliance with the specifications:

1. Aggregate quality
2. Aggregate gradation
□. □oids in mineral aggregate on laboratory□produced □MA
□. □MA quality characteristics for Department acceptance

To verify the □MA for air voids, voids in mineral aggregate, and dust proportion, the □ngineer uses an average of □ briquettes. The □ngineer tests plant□produced material.

If the □ngineer verifies the □M□, the □ngineer furnishes you a □ot Mi□Asphalt □erification form.

If the □ngineer□s test results on plant□produced samples do not show compliance with the specifications, the □ngineer notifies you. Ad□ust your □M□ based on your testing unless the □ngineer authori□es reverification without ad□ustments. □M□ ad□ustments may include a change in:

1. Asphalt binder content T□ up to □0.20 percent from the O□□ value submitted on the □ontractor □ot Mi□Asphalt Design Data form
2. Aggregate gradation T□ within the T□ limits specified in the aggregate gradation table

□ou may ad□ust the □M□ only once due to a failed verification test.

□or each □MA type and aggregate si□e specified, the □ngineer verifies up to 2 proposed □M□ submittals including a □M□ ad□usted after verification failure. If you submit more than 2 □M□s for each type of □MA and aggregate si□e, the □ngineer deducts □□,000 from payments for each verification e□ceeding this limit. This deduction does not apply to verifications initiated by the □ngineer or if a □M□ e□pires while □MA production is stopped longer than □0 days.

A verified □M□ is valid for 12 months.

**39-2.01A(4)(c) Job Mix Formula Authorization**

□ou may start □MA production if:

1. □ngineer□s review of the □M□ shows compliance with the specifications
2. Department has verified the □M□ within 12 months before □MA production
□. □ngineer authori□es the verified □M□

**39-2.01A(4)(d) Job Mix Formula Renewal**

For a JMF renewal and upon request, in the Engineer’s presence and from the same production run, take samples of:

1. Aggregates. □oarse, fine, and supplemental fine aggregates must be ta□en from the combined cold□ feed belt or the hot bins. If lime treatment is required, samples must be ta□en from individual stoc□piles before lime treatment. Samples must be at least 120 lb for each coarse aggregate, □0 lb for each fine aggregate, and 10 lb for each type of supplemental fines. □or hot□bin samples, the Department combines these aggregate samples to verify the T□ submitted on a □ontractor □ob Mi□ □ormula □roposal form.
2. Asphalt binder. Ta□e at least four 1 qt samples. □ach sample must be in a cylindrical□shaped can with an open top and friction lid. If the asphalt binder is modified or rubberi□ed, the asphalt binder must be sampled with the components blended in the proportions to be used.
□. RA□. Samples must be at least □0 lb from each fractionated stoc□pile.
□. □lant□produced □MA. The □MA samples must be at least 2□0 lb.

□otify the □ngineer at least 2 business days before sampling materials. □or aggregate, RA□, and □MA, split samples into at least □ parts. Submit □ parts and use 1 part for your testing.

Allow the □ngineer □ business days from a complete □M□ reverification submittal for document review of the aggregate qualities, mi□design, and □M□.

The most recent aggregate quality test results within the past 12 months may be used for verification of □M□ renewal or upon request, the □ngineer may perform aggregate quality tests for verification of □M□ renewal.

The □ngineer verifies the □M□ for renewal under section □□□2.01A□□□b□e□cept:

1. □ngineer □eeps the samples until you provide test results for your part on a □ontractor □ob Mi□ □ormula Renewal form.
2. Department tests samples of materials obtained from the □MA production unit after you submit test results that comply with the mi□design specifications.
□. After completion of the □M□ verification renewal document review, the □ngineer verifies each proposed □M□ within 20 days of receiving the verification renewal samples and the complete □ontractor □ob Mi□ □ormula Renewal form.
□. □ou may not ad□ust the □M□ due to a failed verification.
□. □or each □MA type and aggregate gradation specified, the □ngineer verifies at no cost to you 1 proposed □M□ renewal within a 12□month period.

If the □ngineer verifies the □M□ renewal, the □ngineer furnishes you a □ot Mi□Asphalt □erification form. The □ot Mi□Asphalt □erification form is valid for 12 months.

### 39-2.01A(4)(e) Job Mix Formula Modification

The □ngineer verifies the modified □M□ after the modified □M□ □MA is placed and verification samples are ta□en within the first □□0 tons. The □ngineer tests verification samples for compliance with:

1. □amburg wheel trac□mi□design specifications
2. Air void content
□. □oids in mineral aggregate on plant□produced □MA mi□design specifications
□. Dust proportion mi□design specifications

The □ngineer may test for moisture susceptibility for compliance with the mi□design specifications.

If the modified □M□ is verified, the □ngineer revises your □ot Mi□Asphalt □erification form to include the new asphalt binder source, new liquid antistrip producer, or new liquid antistrip dosage. □our revised form will have the same e□piration date as the original form.

If a modified □M□ is not verified, stop production and any □MA placed using the modified □M□ is re□ected.

The □ngineer deducts □2,000 from payments for each □M□ modification.

### 39-2.01A(4)(f) Certifications

#### 39-2.01A(4)(f)(i) General

Laboratories testing aggregate and □MA qualities used to prepare the mi□design and □M□ must be qualified under AAS□TO Materials Reference Laboratory program and the □altrans Independent Assurance □rogram.

#### 39-2.01A(4)(f)(ii) Hot Mix Asphalt Plants

□efore production, the □MA plant must have a current qualification under the □altrans Material □lant □uality □rogram.

**39-2.01A(4)(f)(iii)–39-2.01A(4)(f)(v) Reserved**

**39-2.01A(4)(g) Reserved**

**39-2.01A(4)(h) Quality Control**

**39-2.01A(4)(h)(i) General**

□□ test results must comply with the specifications for Department acceptance.

□repare □briquettes for air voids content and voids in mineral aggregate determination. Report the average of □tests.

□□cept for smoothness, if 2 consecutive □□ test results or any □□□ test results for 1 day□s production do not comply with the materials specifications:

1. Stop □MA production
2. □otify the □ngineer
3. Ta□e corrective action
4. Demonstrate compliance with the specifications before resuming production and placement

□or □□ tests performed under AAS□TO T 2□, results are considered 1 □□ test regardless of number of sieves out of compliance.

Do not resume production and placement until the □ngineer authori□es your corrective action proposal.

□ou are not entitled to compensation for the suspension of wor□ resulting from noncompliance with quality control requirements, including those identified in the □□ □lan.

**39-2.01A(4)(h)(ii) Reserved**

**39-2.01A(4)(h)(iii) Aggregates**

**39-2.01A(4)(h)(iii)(A) General**

Reserved

**39-2.01A(4)(h)(iii)(B) Aggregate Lime Treatments**

If lime treatment is required, sample coarse and fine aggregates from individual stoc□piles before lime treatment. □ombine aggregate in the □M□ proportions. Test the aggregates under the test methods and frequencies shown in the following table:

**Aggregate Quality Control During Lime Treatment**

| □uality characteristic | Test method | Minimum sampling and testing frequency |
|---|---|---|
| Sand equivalent[a, b] | AAS□TO T 1□□ | 1 per □□0 tons of untreated aggregate |
| □ercent of crushed particles | AAS□TO T □□□ | 1 per 10,000 tons or 2 per pro□ect whichever is greater |
| Los Angeles Rattler | AAS□TO T □□ | |
| □ine aggregate angularity | AAS□TO T □0□, Method A | |
| □lat and elongated particles | ASTM D□□□1 | |
| □ine durability inde□ | AAS□TO T 210 | |

[a]Report test results as the average of □tests from a single sample.
[b]□se of a sand reading indicator is required as shown in AAS□TO T 1□□, □igure 1. Sections □.□, "Manual Sha□er," □.1.2, "Alternate Method □o. 2," 8.4.2, “Manual Shaker Method, and □.□.□, "□and Method," do not apply. □repare the stoc□ solution as specified in section □.□.1, "Stoc□ solution with formaldehyde," e□cept omit the addition of formaldehyde.

□or lime slurry aggregate treatment, determine the aggregate moisture content at least once every 2 hours of treatment. □alculate moisture content under AAS□TO T 2□□ and report it as a percent of dry aggregate weight. □se the moisture content calculations as a set point for the proportioning process controller.

The device controlling lime and aggregate proportioning must produce a treatment data log. The log must consist of a series of data sets captured at 10□minute intervals throughout daily treatment. The data must be a treatment activity register and not a summation. The material represented by a data set is the quantity produced □ minutes before and □ minutes after the capture time. □ollected data must be stored by the controller for the duration of the □ontract.

If □ consecutive sets of recorded treatment data indicate a deviation of more than 0.2 percent above or below the lime ratio in the authori□ed □M□, stop treatment and ta□e corrective action.

If a set of recorded treatment data indicates a deviation of more than 0.□ percent above or below the lime ratio in the authori□ed □M□, stop treatment and do not use the material represented by that set of data in □MA.

If 20 percent or more of the total daily treatment indicates a deviation of more than 0.2 percent above or below the lime ratio in the authori□ed □M□, stop treatment and do not use that day□s treated aggregate in □MA.

The □ngineer may order you to stop aggregate treatment activities for any of following:

1. □ou fail to submit treatment data log.
2. □ou fail to submit aggregate □ □ data for marinated aggregate.
□. □ou submit incomplete, untimely, or incorrectly formatted data.
□. □ou do not ta□e corrective actions.
□. □ou ta□e late or unsuccessful corrective actions.
□. □ou do not stop treatment when proportioning tolerances are e□ceeded.
□. □ou use malfunctioning or failed proportioning devices.

If you stop treatment for noncompliance, notify the □ngineer of any corrective actions ta□en and conduct a successful 20□minute test run before resuming treatment.

**39-2.01A(4)(h)(iv) Liquid Antistrip Treatment**

□or continuous mi□ing or batch□plant mi□ing, sample asphalt binder before adding liquid antistrip. □or continuous mi□ing, sample the combined asphalt binder and liquid antistrip after the static mi□er.

**39-2.01A(4)(h)(v) Production Start-up Evaluation**

□ou and the □ngineer evaluate □MA production and placement at production start□up.

Within the first □□0 tons produced on the 1st day of □MA production, in the □ngineer□s presence, and from the same production run, ta□e samples of:

1. Aggregates. Samples must be at least 120 lb for each coarse aggregate, □0 lb for each fine aggregate, and 10 lb for each type of supplemental fines. □or hot□bin samples, the Department combines these aggregate samples.
2. Asphalt binder. Ta□e at least four 1 qt samples. □ach sample must be in a cylindrical□shaped can with an open top and friction lid. If the asphalt binder is modified or rubberi□ed, the asphalt binder must be sampled with the components blended in the proportions to be used.
□. RA□. Samples must be at least □0 lb..
□. □MA. The □MA samples must be at least 2□0 lb.

Sample aggregates from the combined cold□feed belt or hot bin. Ta□e RA□ samples from the RA□ system.

□or aggregates, RA□, and □MA, split the samples into at least □ parts and label their containers. Submit □ parts and □eep 1 part.

□ou and the □ngineer must test the samples and report test results, e□cept for AAS□TO T □2□ □Modified□ and AAS□TO T 2□□ test results, within □ business days of sampling. □or AAS□TO T □2□ □Modified□and AAS□TO T 2□□ test results, report test results within 1□ days of sampling. If you proceed before receipt of the test results, the □ngineer may consider the □MA placed to be represented by these test results.

**39-2.01A(4)(h)(vi) RESERVED**

**39-2.01A(4)(h)(vii) RESERVED**

**39-2.01A(4)(h)(viii) Density Cores**

□□cept for □MA pavement placed using method compaction, ta□e □□or □□inch diameter density cores at least once every □ business days. Ta□e 1 density core for every 2□0 tons of □MA from random locations the □ngineer selects. Ta□e density cores in the □ngineer□s presence, and bac□fill and compact holes with authori□ed material. □efore submitting a density core, mar□ it with the density core□s location and place it in a protective container.

If a density core is damaged, replace it with a density core ta□en within 1 foot longitudinally from the original density core location. Relocate any density core located within 1 foot of a rumble strip to 1 foot transversely away from the rumble strip.

□or a tapered notched wedge □oint, ta□e □□or □□inch diameter density cores □ inches from the upper vertical notch of the completed longitudinal □oint for every □,000 feet at locations selected by the □ngineer. Ta□e cores after the ad□acent lane is placed and before opening the pavement to traffic. Ta□e cores in the presence of the □ngineer, and bac□fill and compact holes with authori□ed material. □efore submitting a density core, mar□ it with the core□s location, and place it in a protective container.

**39-2.01A(4)(h)(ix) Pavement Smoothness**

□or □MA pavement within □ feet from and parallel to the construction □oint formed between curbs, gutters, or e□isting pavement, test pavement smoothness using a 12□foot straightedge.

**39-2.01A(4)(h)(x) Reserved**

**39-2.01A(4)(i) Department Acceptance**

**39-2.01A(4)(i)(i) General**

The Department tests treated aggregate for acceptance before lime treatment e□cept for gradation.

The □ngineer ta□es □MA samples for AAS□TO T 2□□ and AAS□TO T □2□ □Modified□from any of the following locations:

1. □lant
2. Truc□
□. Windrow

The □ngineer ta□es □MA samples for all other tests from any of the following locations:

1. □lant
2. Truc□
□. Windrow
□. Mat behind the paver

To obtain wor□ability of the □MA sample for splitting, the □ngineer reheats each sample of □MA mi□ture not more than 2 cycles. □ach reheat cycle is performed by placing the loose mi□ture in a mechanical forced□draft oven for 2 hours or less after the sample reaches 1□0 degrees □.

The □ngineer splits samples and provides you with a part if you request this.

□o single aggregate or □MA test result may represent more than □□0 tons or one day□s production, whichever is less, e□cept AAS□TO T 2□□ and AAS□TO T □2□ □Modified□.

□□cept for smoothness, if 2 consecutive Department acceptance test results or any □Department acceptance test results for 1 day□s production do not comply with the specifications:

1. Stop □MA production
2. Ta□e corrective action
□. Demonstrate compliance with the specifications before resuming production and placement

□or Department acceptance tests performed under AAS□TO T 2□, results are considered 1 Department acceptance test regardless of the number of sieves out of compliance.

The □ngineer accepts □MA based on:

1. Authori□ed □M□
2. Authori□ed □□ plan
□. Asphalt binder compliance
□. Asphalt emulsion compliance
□. □isual inspection
□. □avement smoothness

**39-2.01A(4)(i)(ii) In-Place Density**

□□cept for □MA pavement placed using method compaction, the □ngineer tests the density core you ta□e from each 2□0 tons of □MA. The □ngineer determines the percent of theoretical ma□imum density for each density core by determining the density core□s density and dividing by the theoretical ma□imum density.

Density cores must be ta□en from the final layer, cored through the entire pavement thic□ness shown. Where O□□□ is required, ta□e the density cores before placing O□□□.

If the percent of theoretical ma□imum density does not comply with the specifications, the □ngineer may accept the □MA and ta□e a payment deduction as shown in the following table:

**Reduced Payment Factors for Percent of Maximum Theoretical Density**

| □MA percent of ma□imum theoretical density | Reduced payment factor | □MA percent of ma□imum theoretical density | Reduced payment factor |
|---|---|---|---|
| □1.0 | 0.0000 | □□.0 | 0.0000 |
| □0.□ | 0.012□ | □□.1 | 0.012□ |
| □0.□ | 0.02□0 | □□.2 | 0.02□0 |
| □0.□ | 0.0□□□ | □□.□ | 0.0□□□ |
| □0.□ | 0.0□00 | □□.□ | 0.0□00 |
| □0.□ | 0.0□2□ | □□.□ | 0.0□2□ |
| □0.□ | 0.0□□0 | □□.□ | 0.0□□0 |
| □0.□ | 0.0□□□ | □□.□ | 0.0□□□ |
| □0.2 | 0.1000 | □□.□ | 0.1000 |
| □0.1 | 0.112□ | □□.□ | 0.112□ |
| □0.0 | 0.12□0 | □□.0 | 0.12□0 |
| □□.□ | 0.1□□□ | □□.1 | 0.1□□□ |
| □□.□ | 0.1□00 | □□.2 | 0.1□00 |
| □□.□ | 0.1□2□ | □□.□ | 0.1□2□ |
| □□.□ | 0.1□□0 | □□.□ | 0.1□□0 |
| □□.□ | 0.1□□□ | □□.□ | 0.1□□□ |
| □□.□ | 0.2000 | □□.□ | 0.2000 |
| □□.□ | 0.212□ | □□.□ | 0.212□ |
| □□.2 | 0.22□0 | □□.□ | 0.22□0 |
| □□.1 | 0.2□□□ | □□.□ | 0.2□□□ |
| □□.0 | 0.2□00 | □□.0 | 0.2□00 |
| □□□.0 | Remove and replace | □□□.0 | Remove and replace |

□or acceptance of a completed tapered notched wedge □oint, the □ngineer determines density from cores you ta□e every □,000 feet.

**39-2.01A(4)(i)(iii) Pavement Smoothness**

□or areas that require pavement smoothness determined using an inertial profiler, the pavement surface must:

1. □ave no areas of locali□ed roughness with an International Roughness Inde□ greater than 1□0 in□mi
2. □omply with the Mean Roughness Inde□ requirements shown in the following table for a 0.1 mile section:

**HMA Pavement Smoothness Acceptance Criteria**

| □MA thic□ness | Mean Roughness Inde□ requirement |
|---|---|
| □ 0.20 foot | □0 in□mi or less |
| ≤ 0.20 foot | □□ in□mi or less |

□ote: These requirements do not apply to the O□ □□ surface. Smoothness requirements for O□ □□ are specified in section □□□ 2.0□A□□□c□iii□.

The final surface of □MA must comply with the Mean Roughness Inde□ requirements before placing O□ □□. □orrect pavement to the Mean Roughness Inde□ specifications. Areas of locali□ed roughness greater than 1□0 in□mi must be corrected regardless of the Mean Roughness Inde□ values of a 0.1□mile section.

### 39-2.01A(4)(i)(iv) Dispute Resolution

□ou and the □ngineer must wor□ together to avoid potential conflicts and to resolve disputes regarding test result discrepancies. □otify the □ngineer within □ business days of receiving a test result if you dispute the test result.

If you or the □ngineer dispute the other□s test results, submit your test results and copies of paperwor□ including wor□sheets used to determine the disputed test results. An independent third party performs referee testing. □efore the third party participates in a dispute resolution, it must be qualified under AASHTO Materials Reference Laboratory program, and the Caltrans' Independent Assurance Program. The independent third party must have no prior direct involvement with this □ontract. □y mutual agreement, the independent third party is chosen from:

1. □altrans laboratory in a district or region not in the district or region the pro□ect is located
2. Transportation Laboratory
□. Laboratory not currently employed by you or your □MA producer

If the Department□s portion of the split □ □ samples or acceptance samples are not available, the independent third party uses any available material representing the disputed □MA for evaluation.

□or a dispute involving □M□ verification, the independent third party performs referee testing as specified in the □th paragraph of section □□□2.01A□□□□b□.

If the independent third party determines the Department□s test results are valid, the □ngineer deducts the independent third party□s testing costs from payments. If the independent third party determines your test results are valid, the Department pays the independent third party□s testing costs.

### 39-2.01B Materials

### 39-2.01B(1) General

Reserved

### 39-2.01B(2) Mix Design

### 39-2.01B(2)(a) General

The □MA mi□ design must comply with the Superpave □MA mi□ design as described in MS□2 Asphalt Mi□ Design Methods by the Asphalt Institute.

The □ontractor □ot Mi□ Asphalt Design Data form must show documentation on aggregate quality.

### 39-2.01B(2)(b) Hot Mix Asphalt Treatments

If the proposed □M□ indicates that the aggregate is being treated with dry lime or lime slurry with marination, or the □MA with liquid antistrip, then testing the untreated aggregate under AAS□TO T 2□□ and AAS□TO T □2□ is not required.

If □MA treatment is required or being used by the □ontractor, determine the plasticity inde□ of the aggregate blend under □alifornia Test 20□.

Do not use an aggregate blend with a plasticity inde□ greater than 10.

If the plasticity inde□ is from □ to 10, treat the aggregate blend with dry lime with marination or lime slurry with marination.

If the plasticity inde□ is less than □, treat the aggregate blend with dry lime or lime slurry with marination, or treat the □MA with liquid antistrip.

### 39-2.01B(2)(c) Warm Mix Asphalt Technology

□or □MA with WMA additive technology, produce □MA mi□ samples for your mi□ design using your methodology for inclusion of WMA admi□ture in laboratory□produced □MA. □ure the samples in a forced□ air draft oven at 2□□ degrees □ for □ hours □ 10 minutes.

□or WMA water in□ection foam technology, the use of foamed asphalt for mi□design is not required.

**39-2.01B(3) Asphalt Binder**

Asphalt binder must comply with section □2.

□or a leveling course, the grade of asphalt binder for the □MA must be □□ □□□10 or □□ □□□1□.

**39-2.01B(4) Aggregates**

**39-2.01B(4)(a) General**

Aggregates must be clean and free from deleterious substances.

The aggregates for a leveling course must comply with the grading specifications for Type A □MA in section □□□2.02□□□□□b□.

**39-2.01B(4)(b) Aggregate Gradations**

Aggregate gradation must be determined before the addition of asphalt binder and must include supplemental fine aggregates. Test for aggregate gradation under AAS□TO T 2□. Do not wash the coarse aggregate. Wash the fine aggregate only. □se a mechanical sieve sha□er. Aggregate sha□ing time must not e□ceed 10 minutes for each coarse and fine aggregate portion.

□hoose a T□ within the T□ limits shown in the tables titles “Aggregate Gradation for Type A HMA (Percentage Passing)”.

□radations are based on nominal ma□imum aggregate si□e.

**39-2.01B(4)(c) Aggregate Lime Treatments**

**39-2.01B(4)(c)(i) General**

If aggregate lime treatment is required as specified in section □□□2.01□□2□□b□, the virgin aggregate must comply with the aggregate quality specifications.

Lime for treating aggregate must comply with section 2□□2.02.

Water for lime treatment of aggregate with lime slurry must comply with section 2□□1.02□.

□otify the □ngineer at least 2□ hours before the start of aggregate treatment.

Do not treat RA□.

The lime ratio is the pounds of dry lime per 100 lb of dry virgin aggregate e□pressed as a percentage. Water content of slurry or untreated aggregate must not affect the lime ratio.

□oarse and fine aggregate fractions must have the lime ratio ranges shown in the following table:

| Aggregate fractions | Lime ratio percent |
|---|---|
| □oarse | 0.□–1.0 |
| □ine | 1.□–2.0 |
| □ombined | 0.□–1.□ |

The lime ratio for fine and coarse aggregate must be within □0.2 percent of the lime ratio in the accepted □M□. The lime ratio must be within □0.2 percent of the authori□ed lime ratio when you combine the individual aggregate si□es in the □M□ proportions. The lime ratio must be determined before the addition of RA□.

If marination is required, marinate treated aggregate in stoc□piles from 2□ hours to □0 days before using in □MA. Do not use aggregate marinated longer than □0 days.

Treated aggregate must not have lime balls or clods.

**39-2.01B(4)(c)(ii) Dry Lime**

If marination is required:

1. Treat and marinate coarse and fine aggregates separately
2. Treat the aggregate and stoc□pile for marination only once
□. Treat the aggregate separately from □MA production

□roportion dry lime by weight with an automatic continuous proportioning system.

If you use a batch□type proportioning system for □MA production, control proportioning in compliance with the specifications for continuous mi□ing plants. □se a separate dry lime aggregate treatment system for □MA batch mi□ing including:

1. □ugmill mi□er
2. □ontroller
□. Weigh belt for the lime
□. Weigh belt for the aggregate

If a continuous mi□ing plant for □MA production without lime□marinated aggregates is used, use a controller that measures the blended aggregate weight after any additional water is added to the mi□ture. The controller must determine the quantity of lime added to the aggregate from the aggregate weigh belt input in connection with the manually input total aggregate moisture, the manually input target lime content, and the lime proportioning system output. □se a continuous aggregate weigh belt and pugmill mi□er for lime treatment in addition to the weigh belt for the aggregate proportioning to asphalt binder in the □MA plant. If you use a water meter for moisture control for lime treatment, the meter must comply with Caltrans' *MPQP* manual.

When mi□ing dry lime with aggregate, the aggregate moisture content must ensure complete lime coating. The aggregate moisture content must not cause aggregate to be lost between the point of weighing the combined aggregate continuous stream and the dryer. Add water to the aggregate for mi□ing and coating before dry lime addition. Immediately before mi□ing lime with aggregate, water must not visibly separate from the aggregate.

Mi□ aggregate, water, and dry lime with a continuous pugmill mi□er with twin shafts. Immediately before mi□ing lime with aggregate, water must not visibly separate from the aggregate. Store dry lime in a uniform and free□flowing condition. Introduce dry lime to the pugmill in a continuous process. The introduction must occur after the aggregate cold feed and before the point of proportioning across a weigh belt and the aggregate dryer. □revent loss of dry lime.

The pugmill must be equipped with paddles arranged to provide sufficient mi□ing action and mi□ture movement. The pugmill must produce a homogeneous mi□ture of uniformly coated aggregates at mi□er discharge.

If the aggregate treatment process is stopped longer than 1 hour, clean the equipment of partially treated aggregate and lime.

Aggregate must be completely treated before introduction into the mi□ing drum.

**39-2.01B(4)(c)(iii) Lime Slurry**

□or lime slurry aggregate treatment, treat aggregate separate from □MA production. Stoc□pile and marinate the aggregate.

□roportion lime and water with a continuous or batch mi□ing system.

Add lime to the aggregate as slurry consisting of mi□ed dry lime and water at a ratio of 1 part lime to from 2 to □ parts water by weight. The slurry must completely coat the aggregate.

Immediately before mi□ing lime slurry with the aggregate, water must not visibly separate from the aggregate.

□roportion lime slurry and aggregate by weight in a continuous process.

**39-2.01B(5) Liquid Antistrip Treatment**

Liquid antistrip must be from 0.2□ to 1.0 percent by weight of asphalt binder. Do not use liquid antistrip as a substitute for asphalt binder.

Liquid antistrip total amine value must be □2□ minimum when tested under ASTM D20□□.

□se only 1 liquid antistrip type or brand at a time. Do not mi□ liquid antistrip types or brands.

Store and mi□ liquid antistrip under the manufacturer's instructions.

**39-2.01B(6)–39-2.01B(7) Reserved**

**39-2.01B(8) Hot Mix Asphalt Production**

**39-2.01B(8)(a) General**

Do not start □MA production before verification and authori□ation of □M□.

The HMA plant must have a current qualification under Caltrans' Material □lant □uality □rogram.

Weighing and metering devices used for the production of □MA modified with additives must comply with Caltrans' *MPQP*. If a loss□in□weight meter is used for dry □MA additive, the meter must have an automatic and integral material delivery control system for the refill cycle.

□alibrate the loss□in□weight meter by:

1. Including at least 1 complete system refill cycle during each calibration test run
2. Operating the device in a normal run mode for 10 minutes immediately before starting the calibration process
□. Isolating the scale system within the loss□in□weight feeder from surrounding vibration
□. □hec□ing the scale system within the loss□in□weight feeder for accuracy before and after the calibration process and daily during mi□ production
□. □sing a minimum 1□ minute or minimum 2□0 lb test run si□e for a dry ingredient delivery rate of less than 1 ton per hour.
□. Complying with the limits of Table B, "Conveyor Scale Testing Extremes," in Caltrans' *MPQP*

□roportion aggregate by hot or cold□feed control.

Aggregate temperature must not be more than □□□ degrees □ when mi□ed with the asphalt binder.

Asphalt binder temperature must be from 2□□ to □□□ degrees □ when mi□ed with aggregate.

Mi□ □MA ingredients into a homogeneous mi□ture of coated aggregates.

□MA must be produced at the temperatures shown in the following table:

**HMA Production Temperatures**

| □MA compaction | Temperature □□□ |
|---|---|
| □MA | |
| Density based<br>Method | ≤ □2□<br>□0□–□2□ |
| □MA with WMA technology | |
| Density based<br>Method | 2□0–□2□<br>2□0–□2□ |

If you stop production for longer than □0 days, a production start□up evaluation is required.

**39-2.01B(8)(b) Liquid Antistrip**

If □ consecutive sets of recorded production data show that the actual delivered liquid antistrip weight is more than □1 percent of the authori□ed mi□ design liquid antistrip weight, stop production and ta□e corrective action.

If a set of recorded production data shows that the actual delivered liquid antistrip weight is more than 2 percent of the authorized mix design liquid antistrip weight, stop production. If the liquid antistrip weight exceeds 1.2 percent of the asphalt binder weight, do not use the HMA represented by that data.

The continuous mixing plant controller proportioning the HMA must produce a production data log. The log must consist of a series of data sets captured at 10-minute intervals throughout daily production. The data must be a production activity register and not a summation. The material represented by the data is the quantity produced  minutes before and  minutes after the capture time. For the duration of the Contract, the collected data must be stored by the plant controller or a computer's memory at the plant.

The Engineer orders proportioning activities stopped for any of the following reasons:

1. You fail to submit data
2. You submit incomplete, untimely, or incorrectly formatted data
3. You fail to take corrective actions
4. You take late or unsuccessful corrective actions
5. You fail to stop production when proportioning tolerances are exceeded
6. You use malfunctioning or failed proportioning devices

If you stop production, notify the Engineer of any corrective actions taken before resuming.

**39-2.01B(8)(c) Warm Mix Asphalt Technology**

Proportion all ingredients by weight. The HMA plant process controller must be the sole source of ingredient proportioning control and be fully interfaced with all scales and meters used in the production process. The addition of the HMA additive must be controlled by the plant process controller.

Liquid ingredient additive, including a normally dry ingredient made liquid, must be proportioned with a mass flow meter at continuous mixing plants. Use a mass flow meter or a container scale to proportion liquid additives at batch mixing plants.

Continuous mixing plants using HMA additives must comply with the following:

1. Dry ingredient additives for continuous production must be proportioned with a conveyor scale or a loss-in-weight meter.
2. HMA plant process controller and ingredient measuring systems must be capable of varying all ingredient feed rates proportionate with the dry aggregate delivery at all production rates and rate changes.
3. Liquid HMA additive must enter the production stream with the binder. Dry HMA additive must enter the production stream at or before the mixing area.
4. If dry HMA additives are used at continuous mixing HMA plants, baghouse dust systems must return all captured material to the mix. This requirement is waived for lime-treated aggregates.
5. HMA additive must be proportioned to within 0.5 percent of the target additive rate.

Batch mixing plants using HMA additives must comply with the following:

1. Metered HMA additive must be placed in an intermediate holding vessel before being added to the stream of asphalt binder as it enters the pugmill.
2. If a container scale is used, weigh additive before combining with asphalt binder. Keep the container scale separate from other ingredient proportioning. The container scale capacity must be no more than twice the volume of the maximum additive batch size. The container scale's graduations must be smaller than the proportioning tolerance or 0.001 times the container scale capacity.
3. Dry HMA additive proportioning devices must be separate from metering devices for the aggregates and asphalt binder. Proportion dry HMA additive directly into the pugmill, or place in an intermediate holding vessel to be added to the pugmill at the appropriate time in the batch cycle. Dry ingredients for batch production must be proportioned with a hopper scale.
4. Zero tolerance for the HMA additive batch scale is 0.5 percent of the target additive weight. The indicated HMA additive batch scale weight may vary from the preselected weight setting by up to 1.0 percent of the target additive weight.

### 39-2.01B(9) Geosynthetic Pavement Interlayer

□ot □sed

### 39-2.01B(10) Tack Coat

Tac□coat must comply with the specifications for asphaltic emulsion or asphalt binder. □hoose the type and grade of emulsion or binder.

### 39-2.01B(11) Miscellaneous Areas and Dikes

□ot □sed

### 39-2.01C(2) Spreading and Compacting Equipment

### 39-2.01C(2)(a) General

□aving equipment for spreading must be:

1. Self□propelled
2. Mechanical
□. □quipped with a screed or stri□e□off assembly that can distribute □MA the full width of a traffic lane
□. □quipped with a full□width compacting device
□. □quipped with automatic screed controls and sensing devices that control the thic□ness, longitudinal grade, and transverse screed slope

Install and maintain grade and slope references.

The screed must be heated and produce a uniform □MA surface te□ture without tearing, shoving, or gouging.

The paver must not leave mar□s such as ridges and indentations unless you can eliminate them by rolling.

Rollers must be equipped with a system that prevents □MA from stic□ing to the wheels. □ou may use a parting agent that does not damage the □MA or impede the bonding of layers.

In areas inaccessible to spreading and compacting equipment:

1. Spread the □MA by any means to obtain the specified lines, grades, and cross sections
2. □se a pneumatic tamper, plate compactor, or equivalent to achieve thorough compaction

### 39-2.01C(2)(b) Material Transfer Vehicle

If a material transfer vehicle is specified, the material transfer vehicle must have sufficient capacity to prevent stopping the paver and must be capable of:

1. □ither receiving □MA directly from truc□s or using a windrow pic□up head to load it from a windrow deposited on the roadway surface
2. Remi□ing the □MA with augers before transferring into the paver□s receiving hopper or feed system
□. Transferring □MA directly into the paver□s receiving hopper or feed system

### 39-2.01C(2)(c) Method Compaction Equipment

□or method compaction, each paver spreading □MA must be followed by at least one of each of the following □types of rollers:

1. □rea□down roller must be a vibratory roller specifically designed to compact □MA. The roller must be capable of at least 2,□00 vibrations per minute and must be equipped with amplitude and frequency controls. The roller□s gross static weight must be at least □.□ tons.
2. Intermediate roller must be an oscillating□type pneumatic□tired roller at least □ feet wide. □neumatic tires must be of equal si□e, diameter, type, and ply. The tires must be inflated to □0 psi minimum and maintained so that the air pressure does not vary more than □ psi.

□. □inishing roller must be a steel□tired, 2□a□le tandem roller. The roller□s gross static weight must be at least □.□ tons.

□ach roller must have a separate operator. Rollers must be self□propelled and reversible.

**39-2.01C(2)(d)–39-2.01C(2)(f) Reserved**

**39-2.01C(3) Surface Preparation**

**39-2.01C(3)(a) General**

□efore placing □MA, remove loose paving particles, dirt, and other e□traneous material by any means including flushing and sweeping.

**39-2.01C(3)(b) Subgrade**

□repare subgrade to receive □MA under the sections for the material involved. Subgrade must be free of loose and e□traneous material.

**39-2.01C(3)(c) Reserved**

**39-2.01C(3)(d) Reserved**

**39-2.01C(3)(e) Reserved**

**39-2.01C(3)(f) Tack Coat**

Apply a tac□coat:

1. To e□isting pavement including planed surfaces
2. □etween □MA layers
□. To vertical surfaces of:
   □.1. □urbs
   □.2. □utters
   □.□. □onstruction □oints

□quipment for the application of tac□coat must comply with section □□□1.0□□.

□efore placing □MA, apply a tac□coat in 1 application at the minimum residual rate shown in the following table for the condition of the underlying surface:

**Tack Coat Application Rates for HMA**

| □MA over: | Minimum residual rates □gal□sq yd□ | | |
|---|---|---|---|
| | □SS1□□SS1h, SS1□SS1h and □S1h□□□S1h asphaltic emulsion | □RS1□□RS2, RS1□RS2 and □S1□□□S1 asphaltic emulsion | Asphalt binder and □MRS2□□M□RS2 and □MRS2h□□M□RS2h asphaltic emulsion |
| □ew □MA □between layers□ | 0.02 | 0.0□ | 0.02 |
| □oncrete pavement and e□isting asphalt concrete surfacing | 0.0□ | 0.0□ | 0.0□ |
| □laned pavement | 0.0□ | 0.0□ | 0.0□ |

If a stress absorbing membrane interlayer as specified in section □□□2.0□ is applied, the tac□coat application rates for new □MA apply.

□otify the □ngineer if you dilute asphaltic emulsion with water. The weight ratio of added water to asphaltic emulsion must not e□ceed 1 to 1.

Measure added water either by weight or volume under section □□1.02 or use water meters from water districts, cities, or counties. If you measure water by volume, apply a conversion factor to determine the correct weight.

With each dilution, submit:

1. Weight ratio of water to bituminous material in the original asphaltic emulsion
2. Weight of asphaltic emulsion before diluting
3. Weight of added water
4. Final dilution weight ratio of water to asphaltic emulsion

Apply a tack coat to vertical surfaces with a residual rate that will thoroughly coat the vertical face without running off.

If authorized, you may:

1. Change tack coat rates
2. Omit tack coat between layers of new HMA during the same work shift if:
   2.1. No dust, dirt, or extraneous material is present
   2.2. Surface is at least 100 degrees F

Immediately in advance of placing HMA, apply additional tack coat to damaged areas or where loose or extraneous material is removed.

Close areas receiving tack coat to traffic. Do not allow the tracking of tack coat onto pavement surfaces beyond the job site.

If you use an asphalt binder for tack coat, the asphalt binder temperature must be from 250 to 300 degrees F when applied.

**39-2.01C(3)(g) Geosynthetic Pavement Interlayer**

Not Used

**39-2.01C(4) Longitudinal Joints**

**39-2.01C(4)(a) General**

Longitudinal joints in the top layer must match lane lines. Alternate the longitudinal joint offsets in the lower layers at least 0.5 foot from each side of the lane line. Other longitudinal joint placement patterns are allowed if authorized.

A vertical longitudinal joint of more than 0.15 foot is not allowed at any time between adjacent lanes open to traffic.

For an HMA thickness of 0.15 foot or less, the distance between the ends of the adjacent surfaced lanes at the end of each day's work must not be greater than can be completed in the following day of normal paving.

For an HMA thickness greater than 0.15 foot, you must place HMA on adjacent traveled way lanes or shoulder such that at the end of each work shift the distance between the ends of HMA layers on adjacent lanes is from 5 to 10 feet. Place additional HMA along the transverse edge at each lane's end and along the exposed longitudinal edges between adjacent lanes. Rake and compact the additional HMA to form temporary conforms. You may place kraft paper or other authorized release agent under the conform tapers to facilitate the taper removal when paving activities resume.

If placing HMA against the edge of existing pavement, saw cut or grind the pavement straight and vertical along the joint and remove extraneous material.

**39-2.01C(4)(b) Tapered Notched Wedge**

Not Used

**39-2.01C(5) Pavement Edge Treatments**

Not Used

**39-2.01C(6) Widening Existing Pavement**

□ot □sed

**Add to Section 39-2.01C(7):**

□ew paving shall tie smoothly into □utler Avenue edge of pavement as shown in *Project Plan..*

□and ra□e, if necessary, and compact the additional □MA to form a smooth conform taper.

□eather down the □MA to □ero thic□ness at the appro□imate rate of 20 feet per 0.0□□foot thic□ness at all match lines across the travel lanes including the beginning and end of construction and at all intersections unless otherwise shown or described in the □ro□ect Details and as directed by the □ngineer.

**39-2.01C(8) Leveling**

Section □□2.01□□□applies if a bid item for hot mi□asphalt □leveling□is shown on the □id Item List.

□ill and level irregularities and ruts with □MA before spreading □MA over the base, e□isting surfaces, or bridge dec□s. □ou may use mechanical equipment other than a paver for these areas. The equipment must produce uniform smoothness and te□ture. □MA used to change an e□isting surface□s cross slope or profile is not paid for as hot mi□asphalt □leveling□.

**39-2.01C(9) Miscellaneous Areas and Dikes**

□repare the area to receive □MA for miscellaneous areas and di□es, including e□cavation and bac□fill as needed.

Spread the □MA in miscellaneous areas in 1 layer and compact to the specified lines and grades.

In median areas ad□acent to slotted median drains, each layer of □MA must not e□ceed 0.20 foot ma□imum compacted thic□ness.

The finished surface must be:

1. Te□tured uniformly
2. □ompacted firmly
□. Without depressions, humps, and irregularities

**39-2.01C(10)–39-2.01C(14) Reserved**

**39-2.01C(15) Compaction**

**39-2.01C(15)(a) General**

Rolling must leave the completed surface compacted and smooth without tearing, crac□ing, or shoving.

If a vibratory roller is used as a finish roller, turn the vibrator off.

Do not open new □MA pavement to traffic until its mid depth temperature is below 1□0 degrees □.

If the surface to be paved is both in sunlight and shade, pavement surface temperatures are ta□en in the shade.

**39-2.01C(15)(b) Method Compaction**

□se method compaction for all conditions.

□MA compaction coverage is the number of passes needed to cover the paving width. A pass is 1 roller□s movement parallel to the paving in either direction. Overlapping passes are part of the coverage being made and are not a subsequent coverage. Do not start a coverage until completing the prior coverage.

Method compaction must consist of performing:

1. □rea□down compaction of each layer with □ coverages using a vibratory roller. The speed of the vibratory roller in miles per hour must not e□ceed the vibrations per minute divided by 1,000. If the □MA layer thic□ness is less than 0.0□ foot, turn the vibrator off.
2. Intermediate compaction of each layer of □MA with □ coverages using a pneumatic□tired roller at a speed not to e□ceed □ mph.
□. □inish compaction of □MA with 1 coverage using a steel□tired roller.

Start rolling at the lower edge and progress toward the highest part.

The □ngineer may order fewer coverages if the layer thic□ness of □MA is less than 0.1□ foot.

The compacted lift thic□ness must not e□ceed 0.2□ foot.

**39-2.01C(15)(c)–39-2.01C(15)(e) Reserved**

**39-2.01C(16) Smoothness Corrections**

If the pavement surface does not comply with section □□2.01A□□□i□iii□, grind the pavement to within specified tolerances, remove and replace the pavement, or place an overlay of □MA. Do not start corrective wor□ until your method is authori□ed.

Do not use equipment with carbide cutting teeth to grind the pavement unless authori□ed.

Smoothness corrections must leave at least □□ percent of the specified □MA thic□ness. If ordered, core the pavement at the locations selected by the □ngineer. □oring, including traffic control, is change order wor□. Remove and replace deficient pavement areas where the overlay thic□ness is less than □□ percent of the thic□ness specified.

□orrected □MA pavement areas must be uniform rectangles, half the lane width, with edges:

1. □arallel to and along the nearest □MA pavement edge or lane line
2. □erpendicular to the pavement centerline

On ground areas not to be overlaid with O□ □□, apply a fog seal under section □□□□.02.

Where corrections are made within areas requiring testing with inertial profiler, reprofile the entire lane length with the inertial profiler.

Where corrections are made within areas requiring testing with a 12□foot straightedge, retest the corrected area with the straightedge.

**39-2.01C(17) Data Cores**

Section □□2.01□□1□□applies if a bid item for data core is shown on the □id Item List.

Ta□e data cores of the completed □MA pavement, underlying base, and subbase material. □otify the □ngineer □ business days before coring.

□rotect data cores and surrounding pavement from damage.

Ta□e □□inch or □□inch diameter data cores:

1. At the beginning, end, and every 1□2 mile within the paving limits of each route on the pro□ect
2. After all paving is complete
□. □rom the center of the specified lane

On a 2□lane roadway, ta□e data cores from either lane. On a □□lane roadway, ta□e data cores from the outermost lane in each direction. On a roadway with more than □ lanes, ta□e data cores from the innermost lane and the outermost lane in each direction.

□ach core must include the stabili□ed materials encountered. □ou may choose not to recover unstabili□ed material but you must identify the material. □nstabili□ed material includes any of the following:

1. □ranular material
2. □rumbled or crac□ed stabili□ed material
□. Sandy or clayey soil

Where data core samples are ta□en, bac□fill and compact the holes with an authori□ed material.

After data core summary and photograph submittal, dispose of cores.

**39-2.01D Payment**

□ayment for tac□coat is considered to be included in the bid item for □ot Mi□Asphalt □Type A.□

The Department does not ad□ust the unit price for an increase or decrease in the tac□coat quantity.

The payment quantity for □MA of the type shown on the □id Item List is measured based on the combined mi□ture weight. If recorded batch weights are printed automatically, the bid item for □MA is measured by using the printed batch weights, provided:

1. Total aggregate and supplemental fine aggregate weight per batch is printed. If supplemental fine aggregate is weighed cumulatively with the aggregate, the total aggregate batch weight must include the supplemental fine aggregate weight.
2. Total virgin asphalt binder weight per batch is printed.
□. □ach truc□load□s □ero tolerance weight is printed before weighing the first batch and after weighing the last batch.
□. Time, date, mi□number, load number and truc□identification is correlated with a load slip.
□. □opy of the recorded batch weights is certified by a licensed weigh master and submitted.

The payment quantity for place hot mi□asphalt □miscellaneous areas□is the area measured for the in□ place compacted area. □ayment for the □MA used for miscellaneous areas is not included in the payment for place hot mi□asphalt □miscellaneous areas□.

The □ngineer does not ad□ust the unit price for an increase or decrease in the prepaving grinding day quantity.

**39-2.02 TYPE A HOT MIX ASPHALT**

**39-2.02A General**

**39-2.02A(1) Summary**

Section □□□2.02 includes specifications for producing and placing Type A hot mi□asphalt.

□ou may produce Type A □MA using an authori□ed WMA technology.

**39-2.02A(2) Definitions**

Reserved

**39-2.02A(3) Submittals**

**39-2.02A(3)(a) General**

Reserved

**39-2.02A(3)(b) Job Mix Formula**

The □M□ must be based on the superpave □MA mi□design as described in *MS-2 Asphalt Mix Design Methods* by the Asphalt Institute.

**39-2.02A(3)(c) Reclaimed Asphalt Pavement**

Submit □□ test results for RA□ gradation with the combined aggregate gradation within 2 business days of ta□ing RA□ samples during Type A □MA production.

**39-2.02A(3)(d)–39-2.02A(3)(f) Reserved**

**39-2.02A(4) Quality Assurance**

**39-2.02A(4)(a) General**

Reserved

**39-2.02A(4)(b) Quality Control**

**39-2.02A(4)(b)(i) General**

Reserved

**39-2.02A(4)(b)(ii) Aggregates**

Test the quality characteristics of aggregates under the test methods and frequencies shown in the following table:

**Aggregate Testing Frequencies**

| □uality characteristic | Test method | Minimum testing frequency |
|---|---|---|
| □radation[a] | AAS□TO T 2□ | 1 per □□0 tons and any remaining part |
| Sand equivalent[b, c] | AAS□TO T 1□□ | |
| Moisture content[d] | AAS□TO T 2□□ | |
| □rushed particles | AAS□TO T □□□ | 1 per 10,000 tons or 2 per pro□ect whichever is greater |
| Los Angeles Rattler | AAS□TO T □□ | |
| □lat and elongated particles | ASTM D□□□1 | |
| □ine aggregate angularity | AAS□TO T □0□ Method A | |
| □oarse durability inde□ | AAS□TO T 210 | 1 per □,000 or 1 per paving day, whichever is greater |
| □ine durability inde□ | AAS□TO T 210 | |

[a]If RA□ is used, test the combined aggregate gradation under □alifornia Test □□□.
[b]Reported value must be the average of □ tests from a single sample.
[c]□se of a sand reading indicator is required as shown in AAS□TO T 1□□, □igure 1. Sections □.□, "Manual Sha□er," □.1.2, "Alternate Method □o. 2," and □.□.□, "□and Method," do not apply. □repare the stoc□ solution as specified in section □.□.1, "Stoc□ solution with formaldehyde," e□cept omit the addition of formaldehyde.
[d]Test at continuous mi□ing plants only. If RA□ is used, test the RA□ moisture content at continuous mi□ing plant and batch mi□ing plant.

□or lime treated aggregate, test aggregate before treatment and test for gradation and moisture content during □MA production.

**39-2.02A(4)(b)(iii) Reclaimed Asphalt Pavement**

Sample and test processed RA□ at a minimum frequency of 1 sample per 1,000 tons with a minimum of □ samples per fractionated stoc□pile. If the fractionated stoc□pile has not been augmented, the □RA□ samples ta□en and tested for mi□design can be part of this minimum sample requirement. If a processed RA□ stoc□pile is augmented, sample and test processed RA□ quality characteristics at a minimum frequency of 1 sample per □00 tons of augmented RA□.

The combined RA□ sample when tested under AAS□TO T 1□□ must be within □2.00 percent of the average asphalt binder content reported on page □ of your □ontractor □ot Mi□Asphalt Design Data form. If a new processed RA□ stoc□pile is required, the average binder content of the new processed RA□ stoc□pile must be within □2.00 percent of the average binder reported on page □ of your □ontractor □ot Mi□Asphalt Design Data form.

The combined RA□ sample when tested under AAS□TO T 20□ must be within □0.0□ of the average ma□imum specific gravity reported on page □ of your □ontractor □ot Mi□Asphalt Design Data form.

During Type A □MA production, sample RA□ twice daily and perform □□ testing for:

1. Aggregate gradation at least once a day under □alifornia Test □□□
2. Moisture content at least twice a day

**39-2.02A(4)(b)(iv)–39-2.02A(4)(b)(viii) Reserved**

**39-2.02A(4)(b)(ix) Type A Hot Mix Asphalt Production**

Test the quality characteristics of Type A □MA under the test methods and frequencies shown in the following table:

**Type A HMA Production Testing Frequencies**

| □uality characteristic | Test method | Minimum testing frequency |
|---|---|---|
| Asphalt binder content | AAS□TO T □0□, Method A | 1 per □□0 tons and any remaining part |
| □MA moisture content | AAS□TO T □2□ | 1 per 2,□00 tons but not less than 1 per paving day |
| Air voids content | AAS□TO T 2□□ | 1 per □,000 tons or 2 every □ paving days, whichever is greater |
| □oids in mineral aggregate | MS□2MS□2 Asphalt Mi□ture □olumetrics | 1 per 10,000 tons or 2 per pro□ect whichever is greater |
| Dust proportion | MS□2MS□2 Asphalt Mi□ture □olumetrics | |
| Density of core | □alifornia Test □□□ | 2 per paving day |
| □uclear gauge density | □alifornia Test □□□ | □ per 2□0 tons or □ per paving day, whichever is greater |
| □amburg wheel trac□ | AAS□TO T □2□ □Modified□ | 1 per 10,000 tons or 1 per pro□ect, whichever is greater |
| Moisture susceptibility | AAS□TO T 2□□ | |

**39-2.02A(4)(c)–39-2.02A(4)(d) Reserved**

**39-2.02A(4)(e) Department Acceptance**

The Department accepts Type A □MA based on compliance with:

1. Aggregate quality requirements shown in the following table:

**Aggregate Quality**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Aggregate gradation[a] | AAS□TO T 2□ | □M□ □ Tolerance |
| □ercent of crushed particles<br>□oarse aggregate □min, □ □<br>One□fractured face<br>Two□fractured faces<br>□ine aggregate □min, □ □<br>□□assing □o. □ sieve<br>and retained on □o. □ sieve.□<br>One□fractured face | AAS□TO T □□□ | <br><br>□□<br>□0<br><br><br><br>□0 |
| Los Angeles Rattler □ma□, □ □<br>Loss at 100 Rev.<br>Loss at □00 Rev. | AAS□TO T □□ | <br>12<br>□0 |
| Sand equivalent □min.□[b, c] | AAS□TO T 1□□ | □□ |
| □lat and elongated particles □ma□, □ by weight at □:1□ | ASTM D□□□1 | 10 |
| □ine aggregate angularity □min, □ □[d] | AAS□TO T □0□, Method A | □□ |
| □oarse durability inde□ □$D_c$, min□ | AAS□TO T 210 | □□ |
| □ine durability inde□ □$D_f$, min□ | AAS□TO T 210 | □0 |

[a]The □ngineer determines combined aggregate gradations containing RA□ under □alifornia Test □□□.
[b]Reported value must be the average of □ tests from a single sample.
[c]□se of a sand reading indicator is required as shown in AAS□TO T 1□□, □igure 1. Sections □.□, "Manual Sha□er," □.1.2, "Alternate Method □o. 2," and □.□.□, "□and Method," do not apply. □repare the stoc□solution as specified in section □.□.1, "Stoc□solution with formaldehyde," e□cept omit the addition of formaldehyde.
[d]The □ngineer waives this specification if □MA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing roc□or gravel.

2. If RA□ is used, RA□ quality requirements shown in the following table:

**Reclaimed Asphalt Pavement Quality**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □inder content □□ within the average value reported□ | AAS□TO T 1□□ | □2.00 |
| Specific gravity □within the average value reported□ | AAS□TO T 20□ | □0.0□ |

□. In place Type A □MA quality requirements shown in the following table:

**Type A HMA Acceptance In Place**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Asphalt binder content □□ □ | AAS□TO T □0□ Method A | □M□ □0.□0, □0.□0 |
| □MA moisture content □ma□, □ □ | AAS□TO T □2□ | 1.00 |
| Air voids content at □$_{design}$ □□ □[a, b] | AAS□TO T 2□□ | □.0 □ 1.□<br>□□.0 □ 1.□ for 1 □inch aggregate□ |
| □oids in mineral aggregate on laboratory□ produced □MA □min, □ □[d]<br>□radation:<br>□o. □<br>□□□inch<br>1 2 □inch<br>□□□inch<br>1 □inch<br>with □MAS □ 1 □inch<br>with □MAS □ □□□inch | MS□2MS□2 Asphalt Mi□ture □olumetrics | <br><br><br>1□.□–1□.□<br>1□.□–1□.□<br>1□.□–1□.□<br>1□.□–1□.□<br><br>1□.□–1□.□<br>1□.□–1□.□ |
| □oids in mineral aggregate on plant□produced □MA □min, □ □[a]<br>□radation:<br>□o. □<br>□□□inch<br>1 2 □inch<br>□□□inch<br>1 □inch<br>with □MAS □ 1 □inch<br>with □MAS □ □□□inch | MS□2MS□2 Asphalt Mi□ture □olumetrics[c] | <br><br><br>1□.□–1□.□<br>1□.□–1□.□<br>1□.□–1□.□<br>12.□–1□.□<br><br>12.□–1□.□<br>1□.□–1□.□ |
| Dust proportion | MS□2MS□2 Asphalt Mi□ture □olumetrics | 0.□–1.□[g] |
| Density of core □□ of ma□ theoretical density□[e, f] | □alifornia Test □□□ | □1.0–□□.0 |
| □amburg wheel trac□ □min number of passes at 0.□□inch rut depth□<br>□inder grade:<br>□□ □□<br>□□ □□<br>□□ □0<br>□□ □□ or higher | AAS□TO T □2□ □Modified□ | <br><br>10,000<br>1□,000<br>20,000<br>2□,000 |
| □amburg wheel trac□ □min number of passes at inflection point□<br>□inder grade:<br>□□ □□<br>□□ □□<br>□□ □0<br>□□ □□ or higher | AAS□TO T □2□ □Modified□ | <br><br>10,000<br>10,000<br>12,□00<br>1□,000 |
| Moisture susceptibility □min, psi, dry strength□ | AAS□TO T 2□□ | 100 |
| Moisture susceptibility □min, psi, wet strength□ | AAS□TO T 2□□ | □0 |

[a] □repare □ briquettes. Report the average of □ tests.
[b] The □ngineer determines the bul□ specific gravity of each lab□compacted briquette under AAS□TO T 2□□, Method A, and theoretical ma□imum specific gravity under AAS□TO T 20□, Method A.
[c] Determine bul□ specific gravity under AAS□TO T 2□□, Method A.
[d] The □ngineer determines the laboratory□prepared Type A □MA value for only mi□design verification.
[e] The □ngineer determines percent of theoretical ma□imum density under □alifornia Test □□□ e□cept the □ngineer uses:

1. AAS□TO T 2□□ to determine in□place density of each density core
2. AAS□TO T 20□, Method A to determine theoretical ma□imum density instead of calculating test ma□imum density

[f] The □ngineer determines theoretical ma□imum density under AAS□TO T 20□, Method A, at the frequency specified in □alifornia Test □□□, part □, section D.
[g] □or lime□treated aggregates, the dust proportion requirement is 0.□–1.□.

**39-2.02B Materials**

**39-2.02B(1) General**

Reserved

### 39-2.02B(2) Type A Hot Mix Asphalt Mix Design

The mi□ design for Type A □MA must comply with the requirements shown in the following table:

**Type A HMA Mix Design Requirements**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Air voids content □□ □ | AAS□TO T 2□□[a] | □$_{initial}$ □ □.0<br>□$_{design}$ □ □.0<br>□□$_{design}$ □ □.0 for 1□inch aggregate□<br>□$_{ma}$□ □ 2.0 |
| □yration compaction □no. of gyrations□ | AAS□TO T □12 | □$_{initial}$ □ □<br>□$_{design}$ □ □□.0<br>□$_{ma}$□ □ 1□0 |
| □oids in mineral aggregate □min, □ □[b] | MS□2 Asphalt Mi□ture □olumetrics | |
| □radation: | | |
| □o. □ | | 1□.□–1□.□ |
| □□□□inch | | 1□.□–1□.□ |
| 1□2□inch | | 1□.□–1□.□ |
| □□□□inch | | 1□.□–1□.□ |
| 1□inch | | |
| with □MAS □ 1□inch | | 1□.□–1□.□ |
| with □MAS □ □□□□inch | | 1□.□–1□.□ |
| Dust proportion | MS□2 Asphalt Mi□ture □olumetrics | 0.□–1.□ |
| □amburg wheel trac□ □min number of passes at 0.□□inch rut depth□ | AAS□TO T □2□ □Modified□[c] | |
| □inder grade: | | |
| □□ □□ | | 10,000 |
| □□ □□ | | 1□,000 |
| □□ □0 | | 20,000 |
| □□ □□ or higher | | 2□,000 |
| □amburg wheel trac□ □min number of passes at the inflection point□ | AAS□TO T □2□ □Modified□[c] | |
| □inder grade: | | |
| □□ □□ | | 10,000 |
| □□ □□ | | 10,000 |
| □□ □0 | | 12,□00 |
| □□ □□ or higher | | 1□,000 |
| Moisture susceptibility, dry strength □min, psi□ | AAS□TO T 2□□[c] | 100 |
| Moisture susceptibility, wet strength □min, psi□ | AAS□TO T 2□□[c, d] | □0 |

[a]□alculate the air voids content of each specimen using AAS□TO T 2□□, Method A, to determine bul□ specific gravity. □se AAS□TO T 20□, Method A, to determine theoretical ma□imum specific gravity. □se a digital manometer and pycnometer when performing AAS□TO T 20□.
[b]Measure bul□ specific gravity using AAS□TO T 2□□, Method A.
[c]Test plant□produced Type A □MA.
[d]□ree□e thaw required.

□or Type A □MA mi□tures using RA□, the ma□imum allowed binder replacement is 2□.0 percent in the upper 0.2 foot e□clusive of O□ □□ and □0.0 percent below. The binder replacement is calculated as a percentage of the approved □M□ target asphalt binder content.

□or Type A □MA with a binder replacement percent less than or equal to 2□ percent of your specified O□□, you may request that the performance graded asphalt binder grade with upper and lower temperature classifications be reduced by □ degrees □ from the specified grade.

□or Type A □MA with a binder replacement greater than 2□ percent of your specified O□□ and less than or equal to □0 percent of O□□, you must use a performance graded asphalt binder grade with upper and lower temperature classifications reduced by □ degrees □ from the specified grade.

**39-2.02B(3) Asphalt Binder**

The grade of asphalt binder for Type A □MA must be □□ □□□10.

**39-2.02B(4) Aggregates**

**39-2.02B(4)(a) General**

□efore the addition of asphalt binder and lime treatment, the aggregates must comply with the requirements shown in the following table:

**Aggregate Quality**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □ercent of crushed particles: | AAS□TO T □□□ | |
| □oarse aggregate □min, □ □ | | |
| One□fractured face | | □□ |
| Two□fractured faces | | □0 |
| □ine aggregate □min, □ □ | | |
| □□assing □o. □ sieve and retained on □o. □ sieve.□ | | |
| One□fractured face | | □0 |
| Los Angeles Rattler □ma□, □ □ | AAS□TO T □□ | |
| Loss at 100 Rev. | | 12 |
| Loss at □00 Rev. | | □0 |
| Sand equivalent □min□[a] | AAS□TO T 1□□ | □□ |
| □lat and elongated particles □ma□, □ by weight at □:1□ | ASTM D□□□1 | 10 |
| □ine aggregate angularity □min, □ □[b] | AAS□TO T □0□, Method A | □□ |

[a]The reported value must be the average of □ tests from a single sample. □se of a sand reading indicator is required as shown in AAS□TO T 1□□, □igure 1. Sections □.□, "Manual Sha□er," □.1.2, "Alternate Method □o. 2," and □.□.□, "□and Method," do not apply. □repare the stoc□ solution as specified in section □.□.1, "Stoc□ solution with formaldehyde," e□cept omit the addition of formaldehyde.

[b]The □ngineer waives this specification if the Type A □MA contains 10 percent or less of nonmanufactured sand by weight of total aggregate, e□cept if your □M□ fails verification. Manufactured sand is fine aggregate produced by crushing roc□ or gravel.

**39-2.02B(4)(b) Aggregate Gradations**

The aggregate gradations for Type A □MA must comply with the requirements shown in the following table:

**Aggregate Gradation Requirements**

| Type A □MA pavement thic□ness shown | □radation |
|---|---|
| 0.10 foot | □□□ inch |
| □reater than 0.10 to less than 0.20 foot | 1□2 inch |
| 0.20 to less than 0.2□ foot | □□□ inch |
| 0.2□ foot or greater | □□□ inch or 1 inch |

Aggregate gradation must be within the T□ limits for the specified sieve si□e shown in the following tables:

**Aggregate Gradations for Type A HMA**
**(Percentage Passing)**

**1 inch**

| Sieve si□e | Target value limit | Allowable tolerance |
|---|---|---|
| 1" | 100 | □□ |
| □□□" | □□–□□ | T□ □ □ |
| 1□2" | □2–□□ | T□ □ □ |
| □□□" | □□–□0 | T□ □ □ |
| □o. □ | □□–□2 | T□ □ □ |
| □o. □ | 22–□0 | T□ □ □ |
| □o. □0 | □–2□ | T□ □ □ |
| □o. □0 | □–1□ | T□ □ □ |
| □o. 200 | □.0–□.0 | T□ □2.0 |

**3/4 inch**

| Sieve si□e | Target value limit | Allowable tolerance |
|---|---|---|
| 1" | 100 | □□ |
| □□□" | □0–□□ | T□ □ □ |
| 1□2" | □0–□0 | T□ □ □ |
| □o. □ | □2–□□ | T□ □ □ |
| □o. □ | 2□–□□ | T□ □ □ |
| □o. □0 | 10–2□ | T□ □ □ |
| □o. 200 | 2.0–□.0 | T□ □2.0 |

**1/2 inch**

| Sieve si□e | Target value limit | Allowable tolerance |
|---|---|---|
| □□□" | 100 | □□ |
| 1□2" | □□–□□ | T□ □ □ |
| □□□" | □2–□□ | T□ □ □ |
| □o. □ | □2–□□ | T□ □ □ |
| □o. □ | □□–□□ | T□ □ □ |
| □o. □0 | 1□–□0 | T□ □ □ |
| □o. 200 | 2.0–□.0 | T□ □2.0 |

**3/8 inch**

| Sieve si□e | Target value limit | Allowable tolerance |
|---|---|---|
| 1□2" | 100 | □□ |
| □□□" | □□–□□ | T□ □ □ |
| □o. □ | □□–□□ | T□ □ □ |
| □o. □ | □0–□0 | T□ □ □ |
| □o. □0 | 1□–□□ | T□ □ □ |
| □o. 200 | 2.0–□.0 | T□ □2.0 |

**No. 4**

| Sieve si□e | Target value limit | Allowable tolerance |
|---|---|---|
| □□□" | 100 | □□ |
| □o. □ | □□–□□ | T□ □ □ |
| □o. □ | □0–□0 | T□ □ □ |
| □o. □0 | □□–□□ | T□ □ □ |
| □o. 200 | 2.0–12.0 | T□ □ □.0 |

**39-2.02B(5) Reclaimed Asphalt Pavement**

□ou may substitute RA□ for part of the virgin aggregate in a quantity up to 1□ percent of the aggregate blend.

□rovide enough space at your plant for complying with all RA□ handling requirements. □rovide a clean, graded base, well drained area for stoc□piles.

If RA□ is from multiple sources, blend the RA□ thoroughly and completely before fractionating.

□or RA□ substitution greater than 1□ percent of the aggregate blend, fractionate RA□ stoc□piles into 2 si□es, a coarse fraction RA□ retained on □□□□inch sieve and a fine fraction RA□ passing □□□□inch sieve. □or RA□ substitution of 1□ percent of the aggregate blend or less, fractionation is not required.

The RA□ fractionation must comply with the requirements shown in the following table:

**RAP Stockpile Fractionation Gradation Requirements**

| Si□e | Test method | Requirement |
|---|---|---|
| □oarse □□ passing the 1□inch sieve□ | □alifornia Test 202[a] | 100 |
| □ine □□ passing the □□□□inch sieve□ | □alifornia Test 202[a] | □□–100 |

[a]Ma□imum mechanical sha□ing time is 10 minutes.

□ou may use the coarse fractionated stoc□pile, the fine fractionated stoc□pile, or a combination of the coarse and fine fractionated stoc□piles.

Isolate the processed RA□ stoc□piles from other materials. Store processed RA□ in conical or longitudinal stoc□piles. □rocessed RA□ must not be agglomerated or be allowed to congeal in large stoc□piles.

**39-2.02B(6)–39-2.02B(10) Reserved**

**39-2.02B(11) Type A Hot Mix Asphalt Production**

If RA□ is used, the asphalt plant must automatically ad□ust the virgin asphalt binder to account for RA□ percentage and RA□ binder.

During production, you may ad□ust hot□or cold□feed proportion controls for virgin aggregate and RA□. RA□ must be within □□ of RA□ percentage described in your □ontractor □ob Mi□ □ormula □roposal form without e□ceeding 2□ percent.

**39-2.02C Construction**

Where the pavement thic□ness shown is greater than 0.□0 foot, you may place Type A □MA in multiple lifts not less than 0.1□ foot each. If placing Type A □MA in multiple lifts:

1. Aggregate gradation must comply with the requirements shown in the following table:

**Aggregate Gradation Requirements**

| Type A □MA lift thic□ness | □radation |
|---|---|
| 0.1□ to less than 0.20 foot | 1□2 inch |
| 0.20 foot to less than 0.2□ foot | □□ inch |
| 0.2□ foot or greater | □□ inch or 1 inch |

2. Apply a tac□coat before placing a subsequent lift
□. The □ngineer evaluates each □MA lift individually for compliance

If the ambient air temperature is below □0 degrees □, cover the loads in truc□s with tarpaulins. If the time for □MA discharge to truc□ at the □MA plant until transfer to paver□s hopper is □0 minutes or greater and if the ambient air temperature is below □0 degrees □, cover the loads in truc□s with tarpaulins, unless the time from discharging to the truc□ until transfer to the paver□s hopper or the pavement surface is less than

□0 minutes. The tarpaulins must completely cover the e□posed load until you transfer the mi□ture to the paver□s hopper or the pavement surface.

Spread Type A □MA at the ambient air and surface temperatures shown in the following table:

**Minimum Ambient Air and Surface Temperatures**

| Lift thic□ness □feet□ | Ambient air □°□□ | | Surface □°□□ | |
|---|---|---|---|---|
| | □nmodified asphalt binder | Modified asphalt binder | □nmodified asphalt binder | Modified asphalt binder |
| Type A □MA and Type A □MA produced with WMA water in□ection technology | | | | |
| <0.1□ | □□ | □0 | □0 | □□ |
| ≥0.1□ | □□ | □□ | □0 | □0 |
| Type A □MA produced with WMA additive technology | | | | |
| <0.1□ | □□ | □□ | □0 | □□ |
| ≥0.1□ | □0 | □0 | □0 | □0 |

□or Type A □MA and Type A □MA produced with WMA water in□ection technology placed under method compaction, if the asphalt binder is:

1. □nmodified, complete:
   1.1. 1st coverage of brea□down compaction before the surface temperature drops below 2□0 degrees □
   1.2. □rea□down and intermediate compaction before the surface temperature drops below 1□0 degrees □
   1.□. □inish compaction before the surface temperature drops below 1□0 degrees □
2. Modified, complete:
   2.1. 1st coverage of brea□down compaction before the surface temperature drops below 2□0 degrees □
   2.2. □rea□down and intermediate compaction before the surface temperature drops below 1□0 degrees □
   2.□. □inish compaction before the surface temperature drops below 1□0 degrees □

□or Type A □MA produced with WMA additive technology placed under method compaction, if the asphalt binder is:

1. □nmodified, complete:
   1.1 1st coverage of brea□down compaction before the surface temperature drops below 2□0 degrees □
   1.2. □rea□down and intermediate compaction before the surface temperature drops below 1□0 degrees □
   1.□. □inish compaction before the surface temperature drops below 1□0 degrees □
   1.□ □ou may continue static rolling below 1□0 degrees □ to remove roller mar□s.
2. Modified, complete:
   2.1. 1st coverage of brea□down compaction before the surface temperature drops below 2□0 degrees □
   2.2. □rea□down and intermediate compaction before the surface temperature drops below 1□0 degrees □
   2.□. □inish compaction before the surface temperature drops below 1□0 degrees □
   2.□. □ou may continue static rolling below 1□0 degrees □ to remove roller mar□s.

□ou may cool Type A □MA with water when rolling activities are complete if authori□ed.

**39-2.02D Payment**

□ot □sed

**39-2.07 MINOR HOT MIX ASPHALT**

□ot □sed

**39-2.08–39-2.10 RESERVED**

### 39-3 EXISTING ASPHALT CONCRETE

**39-3.01 GENERAL**

**39-3.01A General**

Section □□□□.01 includes general specifications for performing wor□ on e□isting asphalt concrete facilities.

Wor□ performed on e□isting asphalt concrete facilities must comply with section 1□.

**39-3.01B Materials**

□ot □sed

**39-3.01C Construction**

□efore removing a portion of an asphalt concrete facility, ma□e a 2□inch deep saw cut to a true line along the limits of the removal area.

**39-3.01D Payment**

□ot □sed

# DIVISION VIII MISCELLANEOUS CONSTRUCTION

## 77 LOCAL INFRASTRUCTURE

**77-1.01 GENERAL**

Section □2□1 includes general specifications for constructing hitching posts.

**77-1.02 MATERIALS**

□ollard: □alvani□ed steel pipe shall be Schedule □0 with outside diameter of □.□ inch, see Standard Details in construction plan.

□itching Rail: □alvani□ed steel pipe shall be Schedule □0 with outside diameter of 2□□□□ inch or 2□□□□ inch, see Standard Details in construction plan.

□oncrete shall be minor concrete.

**77-1.03 CONSTRUCTION**

Construct bollards and Hitching Rail of the types and at locations as shown on the plans or as designated on the ground. These works shall consist of furnishing and installing bollards and hitching rail, including excavation, embankment, backfill, and any associated hardware materials.

**77-1.04 PAYMENT**

The accepted quantities will be paid at the contract price per unit of measurement for the pay items listed in the bid schedule. Payment will be full compensation for the works prescribed in this section, including but not limited to, furnishing all materials, labor to provide a fully functional Hitching rail.

# DIVISION IX TRAFFIC CONTROL DEVICES

## 82 SIGNS AND MARKERS

**Replace Section 82-1.01A with:**

**82-1.01A Summary**

Section 82-1 includes general specifications for fabricating and installing sign panels and markers and constructing roadside and trail signs.

This work consists of furnishing and installing signs and posts, including excavation of foundation, concrete foundation, backfill, and appurtenant materials and hardware.

Signs and markers must comply with the *California MUTCD*, *California Sign Specifications,* and the AASHTO publication *Standard Highway Signs and Markings*. For the *California Sign Specifications*, go to the Caltrans Traffic Operations website. Sings shall also comply with American with Disability Act.

**Replace Item 1 of the 2nd paragraph of section 82-2.02A with:**

1. Phrase *Property of The County of Fresno*

**Add to section 82-2.02B:**

Signs must be 0.080 inch thick aluminum alloy and street name signs must be 0.125 inch thick alloy faced on both sides.

**Add to section 82-2.02C:**

Reflective sheeting on all signs shall be 3M Diamond Grade DG3 Series 4000 or equal, and must meet ASTM Type IX specifications.

**Add to section 82-2.02D:**

All signs must have the 3M 1160 graffiti resistant clear overlay film or equal.

**Replace Section 82-2.04 with:**

**82-2.04 PAYMENT**

Not Used

**Add to section 82-3.02A:**

All new roadside, trail or any other sign shown in plans signs must be square post 14 gauge steel.

**Add to section 82-3.02B:**

All post for any signs shown in the plans must be 2”X2”X10’ square by 14 gauge steel, with 7/16 inch holes punched one inch on center on all four sides for the entire length of the post.

Welded Anchor (2 ¼”X2 ¼”X30”) and sleeve (2 ½”X2 ½”X18”) shell be used as a base to anchor post in the ground. Hole size and placement must be the same as the metal post.

All mounting hardware shall be either galvanized or stainless steel. Banding shall be 3/4 inch wide stainless steel with flare leg sign brackets. Hose clamps are not permitted. All signs shall be mounted using 3/8” aluminum drive rivets. Nuts and bolts are not permitted.

**Replace Section 82-3.02D with:**

**82-3.02D Laminated Wood Box Posts**

Furnish a laminated wood box post with an attached metal cap at the top of each post.

**Replace the last line of section 82-3.04 with:**

Full compensation for furnishing and installation of sign panels, posts is included in the bid item price per each Roadside Sign One Post and Roadside Sign Two Post. One or more sign panels furnished and

installed on a single post will be counted as □1 □one Roadside Sign □One □ost. One or more sign panels furnished and installed on two posts will be counted as □1 □one Roadside Sign □Two □ost.

□ull compensation for furnishing and installation of sign panels, posts, foundation is included in the bid item price per each for “Trail Sign” and “ADA Parking Sign”.

# DIVISION XI MATERIALS

## 90 CONCRETE

**Replace Section 90-1.01D(3) with:**

### 90-1.01D(3) Shrinkage

If shrin□age limitations are specified, test the concrete under AAS□TO T 1□0, modified as follows:

1. □repare specimens that have a □ by □inch cross section.
2. Remove each specimen from the mold 2□ □1 hours after mi□ing the concrete and place the specimen in lime water at □□ □ □ degrees □ until □ days age.
□. Ta□e a comparator reading at □ days age and record it as the initial reading.
□. Store the specimens in a humidity□controlled room maintained at □□ □ □ degrees □ and □0 □ □ percent relative humidity for the remainder of the test.
□. Ta□e subsequent readings at □, 1□, 21, and 2□ days drying.

□erform AAS□TO T 1□0 testing at a laboratory that is accredited to perform AAS□TO T 1□0 or that maintains a current rating of □ or better for the □ement and □oncrete Reference Laboratory concrete proficiency sample program.

Shrin□age test data authori□ed by □altrans no more than □ years before the 1st day of the □ontract is authori□ed for the entire □ontract. The test data must be for concrete with similar proportions and using the same materials and material sources to be used on the □ontract. □oncrete is considered to have similar proportions if no more than 2 mi□ design elements are varied and the variation is within the tolerances shown in the following table:

| Mi□ design element | Tolerance □□□ |
|---|---|
| Water to cementitious material ratio | 0.0□ |
| Total water content □□ □ | □ |
| □oarse aggregate content □□ □ | 10 |
| □ine aggregate content □□ □ | 10 |
| S□M content □□ □ | □ |
| Admi□ture as originally dosed[a] □□ □ | 2□ |

[a]Admi□tures must be the same brand.

**Replace Section 90-2.02E With:**

### 90-2.02E Production

Sections □0□1.02□, □0□1.02□ □1□, □0□1.02□ □2□, □0□1.02□ □□□, and □0□1.02□ □□□ do not apply to minor concrete.

Store, proportion, mi□, transport, and discharge the cementitious material, water, aggregate, and admi□tures in compliance with recogni□ed standards of good practice that result in thoroughly and uniformly mi□ed concrete suitable for the intended use. Recogni□ed standards of good practice are outlined in various industry publications, such as those issued by A□I, AAS□TO, or by □altrans.

□se a quantity of water that produces concrete with a consistency that complies with section □0□1.02□ □□□. Do not add water during hauling or after arrival at the delivery point unless allowed by the □ngineer.

Discharge ready□mi□ed concrete from the transport vehicle while the concrete is still plastic and before stiffening occurs. Ta□e whatever action is necessary to eliminate quic□ stiffening, e□cept do not add water.

□onditions contributing to quic□ stiffening are:

1. □lapsed time of 1.5 hours in agitating hauling equipment or 1 hour in non□agitating hauling equipment
2. More than 250 revolutions of the drum or blades after introduction of the cementitious material to the aggregates
3. □oncrete temperature over 90 degrees F

The mi□ing time in a stationary mi□er must be at least 50 seconds and no more than 5 minutes.

The minimum required revolutions at mi□ing speed for transit□mi□ed concrete must be at least that recommended by the mi□er manufacturer and must be increased as needed to produce thoroughly and uniformly mi□ed concrete.

If you add a high□range water□reducing admi□ture to the concrete at the □ob site, the total revolutions must not e□ceed 300.

**Replace Section 90-4.02 With:**

**90-4.02 MATERIALS**

□ou may use Type III portland cement in PC concrete.

The specifications for S□M content in section 90-1.02B(3) do not apply to PC concrete.

□or PC concrete, the S□M content must comply with one of the following:

1. Any combination of portland cement and S□M satisfying the following equation:

   □quation 1:

   $[(?5 \times UF) + (\ 12 \times FA) + (\ 10 \times FB) + (\ \ \times SL)]/\bar{C} \geq X$

   where:
   *UF* = silica fume, meta□aolin, or UFF A, including the quantity in blended cement, lb□cu yd
   *FA* = natural po□□olan or fly ash complying with AAS□TO M 295, □lass F or N, with a □aO content of up to 10 percent, including the quantity in blended cement, lb□cu yd
   *FB* = natural po□□olan or fly ash complying with AAS□TO M 295, □lass F or N, with a □aO content of greater than 10 percent and up to 15 percent, including the quantity in blended cement, lb□cu yd
   *SL* = GGBF S, including the quantity in blended cement, lb□cu yd
   *TC* = total quantity of cementitious material, lb□cu yd
   *X* □ 0.0 for innocuous aggregate, 3.0 for all other aggregate

2. 15 percent □lass F fly ash with at least 48 o□ of Li□$O_3$ solution added per 100 lb of portland cement. The □aO content of the fly ash must not e□ceed 1□ percent.
3. Any combination of S□M and portland cement for which the e□pansion of cementitious material and aggregate does not e□ceed 0.10 percent when tested under ASTM C1567. Submit test data with each mi□ design. Test data authori□ed by □altrans no more than □ years before the 1st day of the □ontract is authori□ed for the entire □ontract. The test data must be for the same concrete mi□ and must use the same materials and material sources to be used on the □ontract.

If municipally supplied potable water is used for PC concrete, the testing specified in section 90-1.02D is waived unless requested.

□ortland cement based repair material must be on the Authori□ed Material List for precast □ortland cement based repair material.

# 92 ASPHALT BINDERS

**Replace 92-1.01D(2) With:**

**92-1.01D(2) Certification**

Asphalt binder suppliers must comply with the □altrans □ertification □rogram for Suppliers of Asphalt. □or a copy of the certification program, go to the M□TS website.

**Replace Section 92-1.02B With**

**92-1.02B Performance Grade Asphalt Binders**

□□ asphalt binder must comply with the requirements shown in the following table:

**PG Asphalt Binders**

| □uality characteristic | Test method | Requirement | | | | |
|---|---|---|---|---|---|---|
| | | □□ □□22[a] | □□ □□10 | □□ □□1□ | □□ □□2□ | □□ □0□10 |
| Original □inder | | | | | | |
| □lash point □min, □□ | AAS□TO T □□ | 2□0 | 2□0 | 2□0 | 2□0 | 2□0 |
| Solubility[b] □min, □ | AAS□TO T □□ | □□ | □□ | □□ | □□ | □□ |
| □iscosity at 1□□ □□[c] (max, Pa•s) | AAS□TO T □1□ | □.0 | □.0 | □.0 | □.0 | □.0 |
| Dynamic shear Test temperature at 10 rad□s □□□ □ □□sin□delta□□min, □□a□ □□sin□delta□□ma□, □□a□ | AAS□TO T □1□ | □□ 1.00 2.00 | □□ 1.00 2.00 | □□ 1.00 2.00 | □□ 1.00 2.00 | □0 1.00 2.00 |
| RT□O[f] test[e] mass loss □ma□, □ | AAS□TO T 2□0 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| RT□O[f] Test Aged □inder | | | | | | |
| Dynamic shear Test temperature at 10 rad□s □□□ □ □□sin□delta□□min, □□a□ | AAS□TO T □1□ | □□ 2.20 | □□ 2.20 | □□ 2.20 | □□ 2.20 | □0 2.20 |
| Ductility at 2□ □□ □min, cm□ | AAS□TO T □1 | □□ | □□ | □□ | □□ | □□ |
| □A□[g] Test temperature □□□ □ | AAS□TO R 2□ | 100 | 100 | 100 | 100 | 110 |
| RT□O[f] Test and □A□[g] Aged □inder | | | | | | |
| Dynamic shear, Test temperature at 10 rad□s □□□ □ □□sin□delta□□ma□, □□a□ | AAS□TO T □1□ | 22[d] □000 | □1[d] □000 | 2□[d] □000 | 22[d] □000 | □□[d] □000 |
| □reep stiffness, Test temperature, □□ S□value □ma□, M□a□ M□value □min□ | AAS□TO T □1□ | □12 □00 0.□00 | 0 □00 0.□00 | □□ □00 0.□00 | □1□ □00 0.□00 | 0 □00 0.□00 |

[a] □se as asphalt rubber base stoc□ for high mountain and high desert area.
[b] The □ngineer waives solubility requirements if the supplier is an authori□ed material source as defined by the □altrans *Certification Program for Suppliers of Asphalt*.
[c] The □ngineer waives this specification if the supplier provides written certification the asphalt binder can be adequately pumped and mi□ed at temperatures meeting applicable safety standards.
[d] Test the sample at □ □□ higher if it fails at the specified test temperature. □ □sin□delta□ remains □000 □□a ma□imum.
[e] The residue from mass change determination may be used for other tests.
[f] RT□O means rolling thin film oven.
[g] □A□ means □ressure Aging □essel.

□□ modified asphalt binder must comply with the requirements shown in the following table:

**PG Modified Asphalt Binders**

| □uality characteristic | Test method | Requirement | | |
|---|---|---|---|---|
| | | □□ □□□□□ M | □□ □□□2□ M | □□ □□□22 M |
| Original □inder | | | | |
| □lash point □min, □□□ | AAS□TO T □□ | 2□0 | 2□0 | 2□0 |
| Solubility □min, □ □ | AAS□TO T □□[a] | □□.□ | □□.□ | □□.□[b] |
| □iscosity at 1□□ □□[c] (max, Pa•s) | AAS□TO T □1□ | □.0 | □.0 | □.0 |
| Dynamic shear, Test temperature at 10 rad□s □□□ □ □□sin□delta□□min, □□a□ | AAS□TO T □1□ | □□ 1.00 | □□ 1.00 | □□ 1.00 |
| RT□O[g] test[d], Mass loss □ma□, □ □ | AAS□TO T 2□0 | 1.00 | 1.00 | 1.00 |
| RT□O[g] Test Aged □inder | | | | |
| Dynamic shear, Test temperature at 10 rad□s □□□ □ □□sin□delta□□min, □□a□ | AAS□TO T □1□ | □□ 2.20 | □□ 2.20 | □□ 2.20 |
| Dynamic shear, Test temperature at 10 rad□s, □□ Delta □ma□, degree□ | AAS□TO T □1□ | □0[e] | □0[e] | □0[e] |
| □lastic recovery[f], Test temperature □□□ □ Recovery □min, □ □ | AAS□TO T □01 | 2□ □□ | 2□ □□ | 2□ □□ |
| □A□[h], Temperature □□□ □ | AAS□TO R 2□ | 100 | 100 | 110 |
| RT□O[g] Test and □A□[h] Aged □inder | | | | |
| Dynamic shear, Test temperature at 10 rad□s □□□ □ □□sin□delta□□ma□, □□a□ | AAS□TO T □1□ | 1□ □000 | 22 □000 | □1 □000 |
| □reep stiffness, Test temperature □□□ □ S□value □ma□, Mpa□ M□value □min□ | AAS□TO T □1□ | □2□ □00 0.□00 | □1□ □00 0.□00 | □12 □00 0.□00 |

[a]The Department allows ASTM D□□□□ or ASTM D□□□□ instead of AAS□TO T □□. □articles recovered from ASTM D□□□□ or ASTM D□□□□ or AAS□TO T □□ must be less than 2□0 µm.
[b]Report only for spray application.
[c]The □ngineer waives the viscosity requirements if the supplier provides written certification the asphalt binder can be adequately pumped and mi□ed at temperatures meeting applicable safety standards.
[d]The residue from mass change determination may be used for other tests.
[e]Test temperature is the temperature at which □ □sin□delta□is 2.2 □□a. A graph of log □ □sin□delta□plotted against temperature may be used to determine the test temperature when □ □sin□delta□is 2.2 □□a. A graph of □delta□versus temperature may be used to determine delta at the temperature when □ □sin□delta□is 2.2 □□a. The graph must have at least 2 points that envelope □ □sin□delta□of 2.2 □□a, and the test temperature must not be more than □ degree □ apart. The □ngineer also accepts direct measurement of delta at the temperature when □ □sin□delta□is 2.2 □□a.
[f]Tests without a force ductility clamp may be performed.
[g]RT□O means rolling thin film oven.
[h]□A□ means □ressure Aging □essel.

Do not modify □□ modified asphalt binder using polyphosphoric acid.

□rumb rubber must be from automobile and truc□tires and must be free from contaminants including fabric, metal, minerals, and other nonrubber substances.

□□ modified asphalt binder modified with crumb rubber must be homogeneous and must not contain visible particles of crumb rubber.

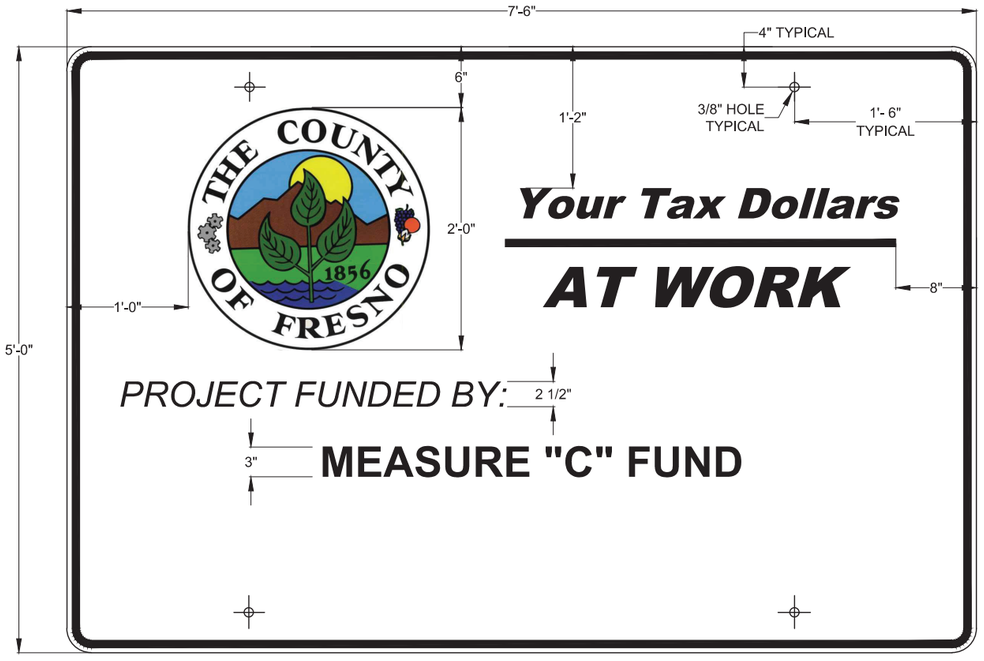
The supplier of □□ modified asphalt binder modified with crumb rubber must:

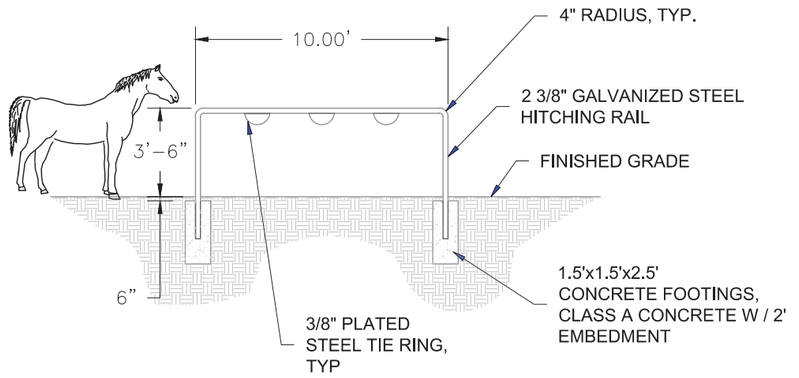
1. Report the quantity of crumb rubber by weight of asphalt binder
2. □ertify a minimum of 10 percent of crumb rubber by weight of asphalt binder

**https://sam.gov, under CA20210018**

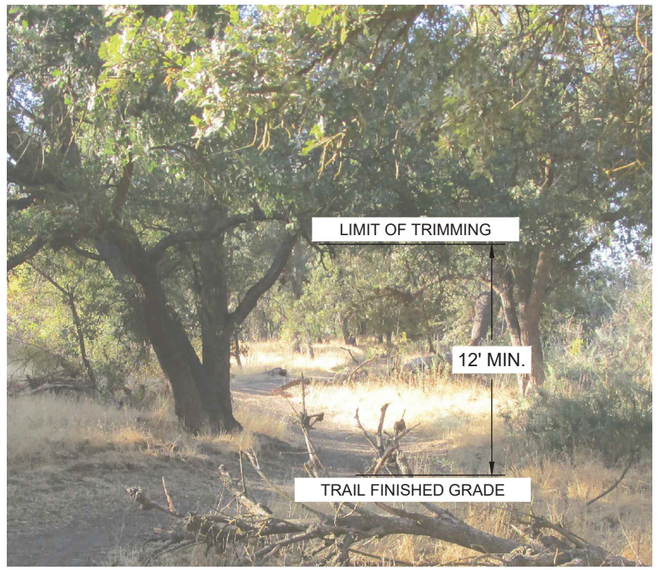
# Project Details

**Contract Number 21-04-C**




1 HITCH POST DETAIL
SCALE: N.T.S.




3 TYPICAL TREE TRIMMING DETAIL
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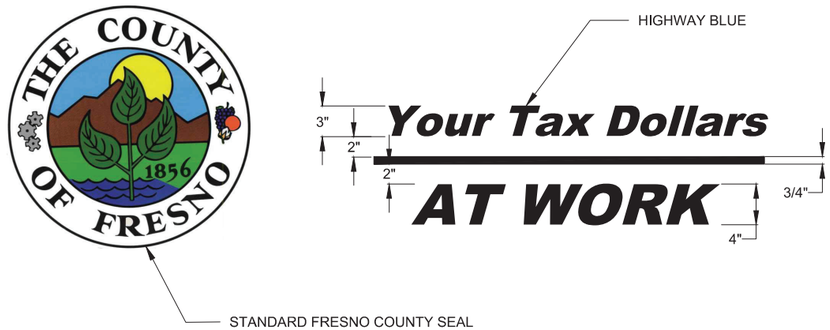


NOTES

1. THE SIGN LEGEND SHALL BE BLACK ON A WHITE BACKGROUND (NON-REFLECTIVE)
2. THE SIGN BORDER SHALL BE BLUE (NON-REFLECTIVE)
3. PROJECT FUNDING SIGNS SHALL CONFORM TO SECTION 82 OF THE 2015 CALTRANS STANDARD SPECIFICATIONS
4. THE DEPARTMENT'S DESIGN DIVISION WILL PROVIDE AN ADHESIVE BACKED COPY OF THE COUNTY SEAL TO BE LOCATED AS SHOWN ABOVE.

2 CONSTRUCTION FUNDING SIGN
SCALE: N.T.S.

| | DATE | RECORD DRAWING | | SCALE | | | PROJECT | | DEPARTMENT OF PUBLIC WORKS AND PLANNING |
|---|---|---|---|---|---|---|---|---|---|
| DESIGNED: R. O-J/D.K. | 08/16 | RESIDENT ENGINEER | DATE | NOT TO SCALE | DESIGN ENGINEER | 07/29/21 DATE | FANCHER CREEK TRAIL IMPROVEMENTS | | STANDARD DETAILS |
| DRAWN: J.D. | 07/21 | | | | | | | | |
| CHECKED: N/A | N/A | | | | | | ROAD NO. N/A | BRIDGE NO. N/A | DRAWING NO. 11292 SHEET NO. 20 TOTAL 20 |

REGISTERED PROFESSIONAL ENGINEER MOHAMMAD HASSAN AYTAMI No. 67156 Exp.09/30/22 CIVIL STATE OF CALIFORNIA

FOR RIGHT OF WAY DATA AND ACCURATE ACCESS DETERMINATION, SEE DOCUMENTS IN THE DEPARTMENT OF PUBLIC WORKS AND PLANNING.

# Fancher Creek Trail Tree Assessment

Prepared For:

County of Fresno
2220 Tulare St., 6th Floor
Fresno, CA 93721

Prepared By:

John K. Pape
Registered Consulting Arborist #585
Certified Arborist #WE-3517A

PO Box 8672, Fresno, CA 93747
Office (559) 426-6181
Email: john@papeconsult.com

February 19, 2019

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# SUMMARY

John Pape Consulting was retained to prepare a comprehensive tree inventory and assessment for the trees located along the future development of Fancher Creek Trail from Kings Canyon Road south, then east to Clovis Avenue. The report summarizes a basic tree inventory, tree condition assessment, and recommendations for tree pruning, removal, and preservation during construction.

# INTRODUCTION

## Assignment

At the request of Dale Siemer with the County of Fresno, I was asked to provide the following scope of services and written report, which includes:

1. Preparation of an update to the existing 2015 Tree inventory report, including:
    - Tree health and condition
    - Removal recommendations
    - Recommendations for care and preservations of trees to remain
    - Assess the ability of remaining trees to survive, based on proximity to excavation required for proposed trail, and make recommendations as needed
2. Provide recommendation for pruning trees. This would be in general standardized Arboricultural terms regarding the needs of each tree.
3. Periodic inspection of pruning contractor's work performance.

## Limits of the Assignment

This report and observations are based on my site visits in December 2018, and January, and February 2019. The evaluation of health and structural condition of the trees was made using a ***basic assessment*** [1] process and ground inspection.

## Purpose and Use of the Report

The purpose of this report is to identify the trees located within the proposed Fancher Creek Trail, assess the current health, and provide recommendations to care for and preserve the trees. This report will be used by County of Fresno, to assist in future construction of the Fancher Creek Trail.

[1] **All bold and italicized words are defined in glossary**

# OBSERVATIONS

## Site Description

The Fancher Creek Trail property is located on the south of Kings Canyon Rd and runs parallel and adjacent to the Fresno Irrigation District (FID) canal ending at the railroad track at Clovis Avenue. The land is boardered by residential backyards and the FID canal. Mature trees of different species are located throughout the property. The property is not maintained on a regular basis and some areas are in a natural habitat. Field data collection occurred on December 10, 12, 19, 26 & 28, 2018 and January 4, 9, 17 & 18, and February 2, 2019. Report preparation updating inventory, health and condition, and removal recommendations, as well as further recommendations in regard to pruning and care of the trees was done on February 6, 9, 16, 17, 18 and 19, 2019.

## Tree Identification & Inventory

The Tree Inventories Best management Practices were used to create a Tree Information Standard (Bond and Buchanan, pg. 12). All of the trees were identified as to species, and previous numbering checked. In many cases the number tags which had been installed previously were damaged by squirrels, or missing. The previous tree inventory included identifying each tree with a specific number attached to the north side of the tree using a round metal tree tag. The location was previously documented and confirmed against the site maps provided by customer.

# DISCUSSION

## Tree Health and Condition

The health of each tree was determined by recording its defects, condition, and estimated survival, **see Appendix A**. A defect is an imperfection, weakness, or lack of something necessary. In trees, defects are injuries, growth patterns, decay, or other conditions that reduce the tree's structural strength – per ***International Society of Arboriculture***, Tree Risk Assessment Best Management Practices. (Smiley, Matheny, & Lilly, pg. 48)

The Condition ratings used for the purpose of this report are; **Good**, **Fair**, **Poor,** and **Very Poor**. The rating was determined by a combination of the defects, structural indicators, and pest or disease presence. This gives a fair sense of a tree's condition. (Bond and Buchanan, pg. 14) Such ratings are only a good representation of the tree's health at the time of the inspection and can change positively if the tree receives needed water, treatment, etc. or negatively with added stresses.

**Tree survival, based on proximity to excavation required for proposed trail**

Survival is extremely hard to calculate. Please recognize that my estimate of survival is just an estimate. No person can know for sure how much longer a tree will live. Some of these trees could have their survival significantly increased if they were well cared for. Some of these trees could have their survival significantly decreased if various negative influences acted upon them. The survival rating I gave these trees is base only on their condition at the time I did my inspection.

Because of those factors, I decided it wise to create a rating of likely survival based on their proximity to the future trail, and their present condition. I used a likelihood of survival scale with three alternatives: (**See Appendix A**)

- **H = High** = odds of damage or accelerated death due to trail are not likely a problem.
- **M = Moderate** = there will be some negative affects due to the installation of the trail, but not likely to create a rapid decline or severe danger.
- **L = Low** = the trail installation process is strongly likely to affect the tree negatively, put it into decline or kill it.

The most important aspect of attempting to insure survival of the trees is to make absolutely sure the demolition and installation crews understand the factors they can control and avoid, which will help or hurt the trees the most.

To estimate a trees survival I specifically included in my reckoning:

- The apparent life stage of the tree at inspection
  - Juvenile
  - Mature
  - Declining
- The Condition as I observed it (Good, Fair, Poor), including
  - Live Canopy Estimate, live growth as a percentage of overall canopy
  - Defects
- The specific environment of the tree
  - Slope/level
  - Deep/shallow soil
  - Drought
  - Dominance/codominance/subdominance/suppressed
- The proximity of the tree to future trail as indicated on plans provided by the County of Fresno

# RECOMMENDATIONS

The following recommendations are intended to help with the pre-construction phase of this project. These recommendations include tree maintenance practices (pruning or removal), defects, tree pruning and/or treatment recommendation, priority for recommendations (now, 1 year, 2 – 4 years), and tree protection zones.

## Tree Maintenance

**Pruning/Removal Recommendations**

Pruning recommendations should be chosen to meet the major architectural issues in a tree through ***structural pruning***. Each of the following recommendations can be applied to the entire canopy or only one portion. It is important to note that a single pruning method is not always appropriate for the entire tree (Gilman, Kempf, Matheny, and Clark, 2013). All work should be supervised by an **International Society of Arboriculture (ISA) Certified Arborist** and done according to ***ANSI A300 Standards*** for Tree Pruning.

The basic maintenance values are identified for each numbered tree and defined by the American National Standard for Tree Care Operations – Pruning (A300, Part 1-2001), see **Appendix B**.

- Clean - Remove dead, dying, broken, or diseased wood (Size of branches - 1 inch and larger).
- Raise - Remove low branches and raise tree skirt to 8 - 10 feet and/or required for the proposed equestrian trail.
- Remove - Tree should be removed due to high risk and/or long-term management strategy.

**Defects**

The defects assessment reviewed the potential load on the tree, its parts, and the general health. A complete walk around each tree was performed looking at the site, ***buttress roots***, trunk, and branches, unless noted. The tool used to inspect the tree for decay was a mallet to sound the trunk. I recorded my observations of the site conditions, defects, and outward signs of possible internal defects and health issues. Trees are identified by number and shown in **Appendix C.**

**Watering Recommendations**

In our area, the health of most of the trees on this site would be aided by extra water during the summer months. It is imperative to understand that the water can only be applied to the ***tree protection zone*** (***TPZ)*** of these trees approximately one time per month, so as to allow the soil to dry out in between watering. This will greatly reduce the ability of ***pathogens*** to get a foothold on these trees (United States of Department Agriculture).

## Tree Protection Zone and Critical Root Zone

As indicated on the site plan, most of the trees located along the Fancher Creek Trail, will be affected by the construction and slated near the **Tree Protection Zone (TPZ).** If there is over-excavation and soil compaction required for the foundation of the trail, it is very likely to have a deleterious effect on a tree. I strongly suggest minimizing any over-excavation and compaction within the TPZ of a tree, as the least difficult solution. For the upcoming trail project I defined the TPZ to be applied to each tree as the number of feet equaling 1.25 times the diameter of the tree in inches. The only excavation or compaction I deem appropriate in this situation is the limited 6" deep excavation and compaction required for the walkway itself, and excavation for irrigation as described below under the appropriate subheadings.

The following is an example of a Tree Protection Plan for your understanding of what the expectations would be to preserve a tree during construction. The outline of recommended topics to be reviewed during planning and prior to construction is provided by Fite, Kelpy and Smiley, E. Thomas, Best Management Practices, Managing Trees During Construction. International Society of Arboriculture (ISA), 2008.

**TPZ/CRZ**

A Tree Protection Zone (TPZ) is an arborist-defined area surrounding the trunk intended to protect roots and soil to ensure future tree health and stability. A tree's **Critical Root Zone (CRZ)** is the area around the trunk where roots essential for tree health and stability are located. After careful examination of the canopy, trunk and root zone of these trees, I have chosen to use the trunk diameter method of calculating the TPZ, which I consider sufficient in most situations on this site to protect the existing trees' CRZ, trunk, and major branches from construction related damage. This method uses a factor of 6 to 18 multiplied by the (DBH) Diameter at Breast Height of a tree, approximately 4.5 feet above the ground. I have chosen to use a factor of 15. (Fite and Smiley)

The DBH is measured in inches and the TPZ is measured in feet. I am using a factor of 15 which is 1.25 feet per inch of trunk diameter measured at 4.5 feet above ground level. This then is the radius in feet from the trunk, which is the minimum area that should be protected from any construction actions or side effects. Example: A tree with a DBH of 14 inches x 15 (factor) = 210 inches or a TPZ radius of 17.5 feet.

**Trenching & Excavation**

All building foundations, utility routes (above and below ground) as well as irrigation lines should be identified on the building plans. If they are in the TPZ, relocating them is preferred. If relocation is not an option, use of alternatives to standard trenching or excavation should

be attempted. Some examples of methods of foundation installation to protect trees are changing construction methods to bridge over tree roots, such as suspended pavement or bridging beams. (Fite and Smiley) The trenching for irrigation at this site should be as far away as possible from the trees. I recommend, for the most part, to place the main line trench along the east side of the parkway as near as possible to the east property line, except where completely impossible. In the process of trenching, if roots larger than 1 inch diameter are encountered when approaching or within the TPZ of a tree, trenching should be continued by hand, and the Landscape Architect or Certified Arborist on the job should be called for inspection and recommendations.

**TPZ Fencing**

Tree Protection Fencing may need to be installed around the perimeter of the TPZ, depending on the expected intensity of construction. Fencing should be sturdy and highly visible to discourage entrance and disturbance of the area within the TPZ. Plastic construction fencing is easily moved or destroyed by construction activities and therefore is not recommended unless it is hung from a heavy wire attached between sturdy posts. The fencing should ideally be 4 to 6 feet tall or higher and solidly anchored into the ground. TPZ fencing should be clearly marked with signs stating that the area within is a Tree Protection Zone and that no one is allowed to disturb this area. (Fite and Smiley) The TPZ fencing for this particular job can be set up on a temporary basis in areas deemed necessary by the Landscape Architect or Certified Arborist on the job.

**Trunk Protection**

When trees are close enough to construction activities that the trunk or buttress roots may be mechanically damaged, those parts should be protected. This can be done by installing 2-inch thick wood planks, such as 2x4s or 2x6s around the trunk, preferably on a closed-cell foam pad. Straps or wire are used to bind the planks in place. No fasteners should be driven into the tree. (Fite and Smiley)

**Root Pruning**

When larger roots are obviously present in an area to be excavated, wherever possible, supersonic air-powered excavation, pressurized water or hand equipment should be used to determine exact location of important roots to be selectively cut. (Fite and Smiley)

Roots with a diameter of 1 inche or more should be cut cleanly with a cut perpendicular to the root's direction of travel, prior to excavation. The root should not be pruned by tearing with trenching or excavation equipment, leaving ragged cuts and frayed ends. Such ragged and frayed ends are more likely to be infected by pathogenic microorganisms. (Fite and Smiley)

**Compaction**

Extra care should be taken in all circumstances of construction within the root zone of trees to minimize compaction of the soil in any areas not specifically required for the trail walkway, and to not allow any mechanical damage to tree trunks. The only areas of compaction should be immediately underneath the area of the walkway, and should be to the smallest percentage possible, while maintaining the integrity and safety of the walkway. Compaction in the root zone is a huge problem to tree health, especially with the native trees and Cork Oaks. Construction equipment being parked or driven over root zones will definitely cause compaction quickly. If traffic must absolutely occur within a tree's TPZ, applying 6 to 12 inches of course wood chip mulch over the area can disperse the vehicular load, minimizing soil compaction and mechanical damage. (Fite and Smiley)

**Grade Changes**

Grade changes are the subtraction or addition of soil on site, often referred to as 'cuts' and 'fills'. These changes can be devastating to trees, especially native trees and Cork Oaks. Even when the degree of change does not appear to be severe, it may be very damaging. It may take years for the tree to replace a damaged root system or grow into fill soil. During that time, stress and dieback are likely. All cuts and fills should be made as far away from existing trees as possible. (Fite and Smiley) For the trail walkway, I am recommending a maximum cut into the mineral soil layer below the duff and organic debris of 6 inches depth. I recommend trail walkway cuts be a minimum radius away from all existing trees of 6 feet, and for the Oak trees the cut should be kept a minimum distance of 8 feet. If areas of tree-dangerous grading changes are part of future construction, recommendations for appropriate retaining walls, tree islands or soil aeration systems specific to each situation should be made by an ISA Certified Arborist.

**Planting & Irrigation**

It is a good idea to leave the areas within the TPZ of each tree unplanted and unirrigated. If planting is required, plant species that can live under native trees in native conditions that are fire-inhibiting and drought tolerant should be used. The soil within the TPZ of a native tree or Cork Oak should never be maintained in a moist or wet condition during the months of April through October. This greatly increases the chances that a native Oak will succumb to root and root crown pathogenic microorganisms, usually fungi, such as Phytophthora. In this particular case and this particular time, in the midst of a drought, the health of most of the trees on this site would be aided by extra water during the summer months. It is imperative to understand that the water can only be applied to the TPZ of these trees approximately one time per month, so as to allow the soil to dry out in between watering. This will greatly reduce the ability of pathogens to get a foothold on native trees and Cork Oaks. (Fite and Smiley)

# ATTACHMENTS

# GLOSSARY

*ANSI A300 Standards* – standards present performance standards for the care and management of trees, shrubs and other woody plants.

*Basic Assessment* – detailed visual inspection of a tree and surrounding site that may include the use of simple tools. It requires the risk assessor walk completely around the tree trunk looking at the site, above ground roots, trunk, and branches.

*Buttress Roots* – roots at the trunk base that help support the tree and equalize mechanical stress.

*Canopy* - Aboveground portion of a plant community or crop, formed by plant crowns.
*Critical Root Zone (CRZ)* –area around the trunk where roots essential for tree health and stability are located.

*Diameter at Breast Height (DBH)* – Diameter of the trunk at breast height (54 inches above the ground).

*Growth Rings* - A layer of wood formed in a plant during a single period of growth. Growth rings are visible as concentric circles of varying width when a tree is cut crosswise. They represent layers of cells produced by vascular cambium

*ISA Certified Arborist* - Certified Arborists are individuals who have achieved a level of knowledge in the art and science of tree care through experience and by passing a comprehensive examination developed by some of the nation's leading experts on tree care. Certified Arborists must also continue their education to maintain their certification and adhere to a Code of Ethics.

*Pathogen* - any disease-producing agent, especially a virus, bacterium, or other microorganism.

*Structural Pruning* – Pruning that influences the orientation, spacing, growth rate, strength of attachment, and ultimate size of branches and stems, resulting in a strong tree.

*Tree Protection Zone (TPZ)* – The area surrounding a tree defined by a specified distance, in which excavation and other construction related activities should be avoided.

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## APPENDIX A: TREE HEALTH & CONDITION / REMOVE GONE REMOVE FOR TRAIL

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (O=ok, M=missing, D=damaged) |
|---|---|---|---|---|
| 301 | Red Box "*Eucalyptus polyanthemos*" | Good | M | M |
| 302 | Cork Oak "*Quercus suber*" | Good | M | D |
| 303 | American Elm "*Ulmus americana*" | Fair | H | O |
| 304 | American Elm "Ulmus americana" Codominant Trunk | Fair | H | O |
| 305 | American Elm "*Ulmus americana*" | Fair | H | D |
| 306 | American Elm "*Ulmus americana*" | Fair | H | D |
| 307 | American Elm "*Ulmus americana*" | Fair | H | O |
| 308 | Desert Fan Palm "*Washingtonia filifera*" | Good | H | M |
| 309 | American Elm "*Ulmus americana*" | Fair | H | O |
| 310 | Camphor "*Cinnamomum camphora*" multi-trunk | Fair | H | D |
| 311 | Chinese Photinia "*Photinia serratifolia*" multi-trunk | Fair | H | M |
| 312 | Coast Live Oak "*Quercus agrifolia*" multi-trunk | Good | N/A | D |
| 313 | English Walnut "*Juglans regia*" | Poor | N/A | D |
| 314 | Coast Live Oak "*Quercus agrifolia*" | Good | N/A | D |
| 315 | Pecan "*Carya illinoinensis*" | Fair | N/A | D |
| 316 | Pecan "*Carya illinoinensis*" | Poor | N/A | M |
| 317 | Pecan "*Carya illinoinensis*" | Fair | N/A | M |
| 318 | Pecan "*Carya illinoinensis*" | Good | H | D |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 319 | Black Walnut "*Juglans californica*" | Very Poor | N/A | D |
| 320 | Coast Live Oak "*Quercus agrifolia*" multi-trunk | Good | M | M |
| 321 | Pecan "*Carya illinoinensis*" | Fair | N/A | M |
| 322 | Cork Oak "*Quercus suber*" | Good | M | M |
| 323 | Almond "*Prunus dulcis*" multi-trunk | Dead | N/A | M |
| 324 | Red Box "*Eucalyptus polyanthemos*" | Good | H | M |
| 325 | Cootamundra Wattle *"Acacia baileyana"* | Very Poor | M | M |
| 326 | *Cork Oak "Quercus suber"* | Removed | N/A | N/A |
| 327 | Almond "*Prunus dulcis*" multi-trunk | Dead | N/A | D |
| 328 | Pecan "*Carya illinoinensis*" | Dead | N/A | D |
| 329 | Almond "Prunus dulcis" multi-trunk | Dead | N/A | D |
| 330 | Red Box "*Eucalyptus polyanthemos*" | Good | M | O |
| 331 | Privet *"Ligustrum lucidum"* | Good | H | O |
| 332 | Privet *"Ligustrum lucidum"* Multi-trunk | Good | H | M |
| 333 | Fig "*Ficus carica*" | Fair | H | O |
| 334 | Water Gum "*Eucalytpus rudis*" | Good | M | O |
| 335 | Coast Live Oak "*Quercus agrifolia*" | Good | M | O |
| 336 | Coast Live Oak "*Quercus agrifolia*" | Good | M | D |
| 337 | Water Gum "*Eucalytpus rudis*" | Good | M | O |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 338 | Red Box "*Eucalyptus polyanthemos*" | Good | M | O |
| 339 | Carob "*Ceratonia siliqua*" | Fair | M | M |
| 340 | Water Gum "Eucalytpus rudis" | Good | M | M |
| 341 | Almond "Prunus dulcis" | Poor | N/A | O |
| 342 | Cork Oak "Quercus suber" | Good | M | M |
| 343 | California Pepper "Schinus molle" | Poor | N/A | D |
| 344 | Citrus sp. | Removed | N/A | N/A |
| 345 | Red Box "*Eucalyptus polyanthemos*" | Good | H | M |
| 346 | Citrus sp. | Fair | N/A | O |
| 347 | Desert Fan Palm "*Washingtonia filifera*" | Good | H | O |
| 348 | Red Box "*Eucalyptus polyanthemos*" | Good | H | M |
| 349 | Locust "*Robinia sp.*" Multi-trunk | Removed | N/A | N/A |
| 350 | Cork Oak "*Quercus suber*" | Good | M | M |
| 351 | Blackwood Acacia "*Acacia melanoxylon*" Multi-trunk | Fair | M | O |
| 352 | Privet "*Ligustrum lucidum*" Multi-trunk | Fair | H | O |
| 353 | Cork Oak "*Quercus suber*" | Poor | M | M |
| 354 | Silk tree "*Albizia julibrissin*" | Fair | 4 | M |
| 355 | Cork Oak "*Quercus suber*" | Fair | M | M |
| 356 | Privet "*Ligustrum lucidum*" | Fair | 3 | M |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 357 | Red Box "*Eucalyptus polyanthemos*" | Good | 4 | D |
| 358 | Almond "*Prunus dulcis*" | Poor | 2 | O |
| 359 | Coast Live Oak "*Quercus agrifolia*" | Good | H | O |
| 360 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Very Poor | M | O |
| 361 | Red Box "*Eucalyptus polyanthemos*" | Fair | M | O |
| 362 | Cork Oak "*Quercus suber*" | Good | M | M |
| 363 | Water Gum "*Eucalytpus rudis*" | Good | M | O |
| 364 | Coast Live Oak "*Quercus agrifolia*" | Good | M | O |
| 365 | Goodding's Black Willow "*Salix gooddingii*" | Poor | H | O |
| 366 | Cootamundra Wattle *"Acacia baileyana"* | Fair | L | M |
| 367 | Cootamundra Wattle *"Acacia baileyana"* | Poor | N/A | O |
| 368 | Cootamundra Wattle *"Acacia baileyana"* | Poor | N/A | M |
| 369 | Cootamundra Wattle *"Acacia baileyana"* | Poor | N/A | M |
| 370 | Cootamundra Wattle *"Acacia baileyana"* | Fair | N/A | M |
| 371 | Red Box "*Eucalyptus polyanthemos*" | Poor | H | O |
| 372 | Cork Oak "*Quercus suber*" | Good | H | M |
| 373 | Cork Oak "*Quercus suber*" | Good | H | M |
| 374 | Cork Oak "*Quercus suber*" | Fair | M | D |
| 375 | Camphor "*Cinnamomum camphora*" multi-trunk | Fair | M | O |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 376 | Cottonwood *"Populus fremontii"* | Fair | M | D |
| 377 | Chinese Photinia "*Photinia serratifolia*" multi-trunk | Good | H | O |
| 378 | Southern Live Oak "*Quercus virginiana*" | Good | N/A | O |
| 379 | Cottonwood "*Populus fremontii*" | Very Poor | N/A | D |
| 380 | Black Locust "*Robinia pseudoacacia*" | Poor | N/A | O |
| 381 | Black Locust "*Robinia pseudoacacia*" | Poor | N/A | O |
| 382 | Privet *"Ligustrum lucidum"* | Poor | N/A | O |
| 383 | Privet *"Ligustrum lucidum"* | Fair | N/A | O |
| 384 | Almond "Prunus dulcis" | Fair | M | M |
| 385 | Camphor "*Cinnamomum camphora*" multi-trunk | Fair | H | O |
| 386 | Mulberry "*Morus alba*" Multi-trunk | Fair | H | O |
| 387 | Mulberry "*Morus alba*" | Fair | H | O |
| 388 | Almond "Prunus dulcis" multi-trunk | Fair | H | O |
| 389 | Cork Oak "Quercus suber" | Poor | L | O |
| 390 | Cork Oak "Quercus suber" | Fair | M | O |
| 391 | Almond "*Prunus dulcis*" multi-trunk | Removed | N/A | N/A |
| 392 | Camphor "*Cinnamomum camphora*" multi-trunk | Fair | H | O |
| 393 | Cootamundra Wattle *"Acacia baileyana"* | Fair | H | O |
| 394 | Cootamundra Wattle *"Acacia baileyana"* | Dead | N/A | O |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 395 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Fair | H | O |
| 396 | Cork Oak "*Quercus suber*" | Fair | M | M |
| 397 | Almond "*Prunus dulcis*" multi-trunk | Fair | M | M |
| 398 | Almond "*Prunus dulcis*" multi-trunk | Fair | H | O |
| 399 | Privet *"Ligustrum lucidum"* | Fair | H | O |
| 400 | There is no tree #400 recorded | | | |
| 401 | Water Gum "*Eucalytpus rudis*" | Poor | M | O |
| 402 | Privet *"Ligustrum lucidum"* Multi-trunk | Good | H | O |
| 403 | Mulberry "*Morus alba*" Multi-trunk | Poor | N/A | O |
| 404 | Water Gum "Eucalytpus rudis" | Poor | N/A | O |
| 405 | Cottonwood "*Populus fremontii*" | Poor | N/A | O |
| 406 | Cottonwood "*Populus fremontii*" | Poor | N/A | O |
| 407 | Cottonwood "*Populus fremontii*" | Poor | N/A | O |
| 408 | Cottonwood "*Populus fremontii*" | Poor | N/A | O |
| 409 | Camphor "*Cinnamomum camphora*" multi-trunk | Fair | H | O |
| 410 | Cottonwood "*Populus fremontii*" | Dead | N/A | O |
| 411 | Black Locust "*Robinia pseudoacacia*" | Dead | N/A | O |
| 412 | Black Locust "*Robinia pseudoacacia*" | Fair | H | O |
| 413 | Camphor "*Cinnamomum camphora*" multi-trunk | Fair | M | O |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 414 | Camphor "*Cinnamomum camphora*" multi-trunk | Fair | M | M |
| 415 | Black Locust "*Robinia pseudoacacia*" | Poor | M | M |
| 416 | Cork Oak "*Quercus suber*" Multi-trunk | Failed | N/A | N/A |
| 417 | Privet *"Ligustrum lucidum"* | Good | H | O |
| 418 | Privet *"Ligustrum lucidum"* Multi-trunk | Fair | H | D |
| 419 | Privet *"Ligustrum lucidum"* | Poor | N/A | O |
| 420 | Cork Oak "*Quercus suber*" | Poor | N/A | M |
| 421 | Cork Oak "*Quercus suber*" | Dead | N/A | O |
| 422 | Privet *"Ligustrum lucidum"* | Fair | H | O |
| 423 | Cork Oak "Quercus suber" | Fair | M | O |
| 424 | Plum "*Prunus sp.*" | Poor | N/A | O |
| 425 | Red Box *"Eucalyptus polyanthemos"* | Poor | N/A | O |
| 426 | Cork Oak "*Quercus suber*" Multi-trunk | Fair | M | M |
| 427 | Cork Oak "*Quercus suber*" | Fair | M | M |
| 428 | English Walnut "*Juglans regia*" | Fair | M | O |
| 429 | Cork Oak "*Quercus suber*" Multi-trunk | Fair | M | D |
| 430 | Almond *"Prunus dulcis"* multi-trunk | Poor | N/A | D |
| 431 | Cottonwood *"Populus fremontii"* | Poor | N/A | O |
| 432 | Coast Live Oak "*Quercus agrifolia*" | Fair | M | M |
| | | | | |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 433 | Privet *"Ligustrum lucidum"* | Poor | N/A | O |
| 434 | Almond "*Prunus dulcis*" | Poor | N/A | O |
| 435 | Cottonwood *"Populus fremontii"* | Poor | N/A | D |
| 436 | Cork Oak "*Quercus suber*" | Fair | M | M |
| 437 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Fair | M | O |
| 438 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Fair | M | O |
| 439 | Almond *"Prunus dulcis"* multi-trunk failed | Dead | N/A | M |
| 440 | Coast Live Oak "*Quercus agrifolia*" | Fair | M | M |
| 441 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Dead | N/A | M |
| 442 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Very Poor | N/A | M |
| 443 | Coast Live Oak "*Quercus agrifolia*" | Good | H | M |
| 444 | Cork Oak "*Quercus suber*" | Poor | N/A | M |
| 445 | Cork Oak "*Quercus suber*" | Good | M | M |
| 446 | Almond *"Prunus dulcis"* | Fair | L | O |
| 447 | Almond "*Prunus dulcis*" | Poor | N/A | O |
| 448 | Cork Oak "*Quercus suber*" | Fair | M | M |
| 449 | Cork Oak "*Quercus suber*" | Fair | 4 | D |
| 450 | Almond *"Prunus dulcis"* multi-trunk | Poor | N/A | O |
| | | | | |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 451 | Carolina Cherry "*Prunus caroliniana*" | Poor | N/A | O |
| 452 | Cork Oak "*Quercus suber*" | Good | 4 | M |
| 453 | Privet *"Ligustrum lucidum"* | Removed | N/A | N/A |
| 454 | Almond *"Prunus dulcis"* | Fair | M | M |
| 455 | Cork Oak "*Quercus suber*" Multi-trunk | Poor | N/A | O |
| 456 | Almond "*Prunus dulcis*" multi-trunk | Poor | N/A | O |
| 457 | Cork Oak "*Quercus suber*" | Fair | H | M |
| 458 | Cork Oak "*Quercus suber*" | Removed | N/A | N/A |
| 459 | Coast Live Oak "*Quercus agrifolia*" | Fair | H | D |
| 460 | Coast Live Oak "*Quercus agrifolia*" | Fair | M | D |
| 461 | Plum "*Prunus sp.*" | Poor | N/A | D |
| 462 | Cork Oak "*Quercus suber*" | Fair | L | M |
| 463 | Cork Oak "*Quercus suber*" | Fair | L | O |
| 464 | Red Box "*Eucalyptus polyanthemos*" | Good | M | M |
| 465 | Cork Oak "*Quercus suber*" | Fair | L | D |
| 466 | Coast Live Oak "*Quercus agrifolia*" | Good | M | D |
| 467 | Red Box "*Eucalyptus polyanthemos*" | Good | M | M |
| 468 | Coast Live Oak "*Quercus agrifolia*" | Fair | N/A | D |
| 469 | Silver Maple "Acer saccharinum" | Very Poor | N/A | D |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 470 | Coast Live Oak "*Quercus agrifolia*" | Fair | H | D |
| 471 | Cork Oak "*Quercus suber*" | Fair | H | O |
| 472 | Lemonade Berry "*Rhus integrifolia*" | Poor | L | O |
| 473 | Coast Live Oak "*Quercus agrifolia*" | Fair | 3 | D |
| 474 | Chinaberry "*Melia azedarach*" | Poor | N/A | D |
| 475 | Valley Oak "*Quercus lobata*" | Fair | H | O |
| 476 | Valley Oak "*Quercus lobata*" | Fair | H | M |
| 477 | Privet *"Ligustrum lucidum"* | Dead | N/A | O |
| 478 | Cottonwood "*Populus fremontii*" | Very Poor | N/A | M |
| 479 | Persimmon "*Diospyros species*" | Fair | N/A | O |
| 480 | Cottonwood "*Populus fremontii*" | Removed | N/A | N/A |
| 481 | Cork Oak "*Quercus suber*" | Good | H | M |
| 482 | Cork Oak "*Quercus suber*" Multi-trunk | Good | H | M |
| 483 | Cottonwood "*Populus fremontii*" | Very Poor | N/A | M |
| 484 | Privet *"Ligustrum lucidum"* | Fair | L | O |
| 485 | California Pepper "*Schinus molle*" | Poor | N/A | O |
| 486 | Almond *"Prunus dulcis"* | Dead | N/A | M |
| 487 | Cork Oak "*Quercus suber*" | Good | H | M |
| 488 | Catalina Cherry *"Prunus lyonii"* | Fair | M | D |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 489 | Catalina Cherry *"Prunus lyonii"* | Fair | H | M |
| 490 | Privet *"Ligustrum lucidum"* | Poor | N/A | D |
| 491 | She Oak *"Casuarina cunninghamiana"* | Fair | H | D |
| 492 | Cork Oak "*Quercus suber*" | Fair | H | M |
| 493 | Phoenix Date Palm ""*Phoenix dactylifera"* | Good | H | M |
| 494 | Cork Oak "*Quercus suber*" | Fair | M | M |
| 495 | Cork Oak "*Quercus suber*" | Fair | H | M |
| 496 | Almond "*Prunus dulcis*" multi-trunk | Fair | M | O |
| 497 | Almond "*Prunus dulcis*" multi-trunk | Poor | L | D |
| 498 | Cork Oak "*Quercus suber*" Multi-trunk | Fair | H | O |
| 499 | Pecan "*Carya illinoinensis*" | Fair | H | M |
| 500 | She Oak *"Casuarina cunninghamiana"* | Fair | H | D |
| 501 | Mulberry "*Morus alba*" Multi-trunk | Removed | N/A | N/A |
| 502 | She Oak *"Casuarina cunninghamiana"* | Good | H | M |
| 503 | She Oak *"Casuarina cunninghamiana"* | Good | H | M |
| 504 | Olive "*Olea europaea"* Multi-trunk | Fair | L | D |
| 505 | Stone Pine "*Pinus pinea"* | Fair | H | O |
| 506 | Western Hackberry *"Celtis occidentalis"* | Very Poor | N/A | M |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 507 | Olive "*Olea europaea*" Multi-trunk | Fair | L | D |
| 508 | Stone Pine "*Pinus pinea*" | Good | H | D |
| 509 | Olive "*Olea europaea*" Multi-trunk | Good | H | M |
| 510 | She Oak *"Casuarina cunninghamiana"* | Fair | H | D |
| 511 | Olive "*Olea europaea*" | Fair | H | D |
| 512 | Almond *"Prunus dulcis"* multi-trunk | Removed | N/A | N/A |
| 513 | Olive "*Olea europaea*" | Good | N/A | O |
| 514 | Almond *"Prunus dulcis"* multi-trunk | Poor | L | O |
| 515 | Almond "*Prunus dulcis*" | Fair | M | O |
| 516 | She Oak *"Casuarina cunninghamiana"* | Fair | N/A | M |
| 517 | Almond "*Prunus dulcis*" | Poor | L | O |
| 518 | Almond "*Prunus dulcis*" | Fair | N/A | O |
| 519 | Almond "*Prunus dulcis*" | Poor | N/A | O |
| 520 | She Oak *"Casuarina cunninghamiana"* | Good | H | M |
| 521 | Almond *"Prunus dulcis"* multi-trunk | Fair | H | M |
| 522 | Almond *"Prunus dulcis"* multi-trunk | Poor | M | O |
| 523 | Almond "Prunus dulcis" multi-trunk | Fair | H | O |
| 524 | Almond *"Prunus dulcis"* multi-trunk | Fair | H | O |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 525 | Deodar Cedar "*Cedrus deodara*" | Good | 3 | M |
| 526 | Privet *"Ligustrum lucidum"* | Removed | N/A | N/A |
| 527 | Privet *"Ligustrum lucidum"* | Removed | N/A | N/A |
| 528 | Almond "*Prunus dulcis*" | Poor | L | O |
| 529 | Deodar Cedar "*Cedrus deodara*" | Fair | H | O |
| 530 | Deodar Cedar "*Cedrus deodara*" | Poor | M | O |
| 531 | She Oak *"Casuarina cunninghamiana"* | Good | H | O |
| 532 | Deodar Cedar "*Cedrus deodara*" | Fair | H | O |
| 533 | Deodar Cedar "*Cedrus deodara*" | Poor | L | O |
| 534 | Deodar Cedar "*Cedrus deodara*" | Good | H | O |
| 535 | Silk Oak "*Grevillea robusta*" | Fair | M | M |
| 536 | She Oak *"Casuarina cunninghamiana"* | Good | H | O |
| 537 | Almond "*Prunus dulcis*" multi-trunk | Very Poor | N/A | O |
| 538 | Almond "*Prunus dulcis*" multi-trunk | Fair | M | O |
| 539 | Almond "*Prunus dulcis*" multi-trunk | Removed | N/A | N/A |
| 540 | Chinese Pistache "*Pistacia chinensis*" | Good | H | O |
| 541 | Chinese Pistache "*Pistacia chinensis*" | Good | H | O |
| 542 | Almond "*Prunus dulcis*" | Poor | M | D |
| 543 | Deodar Cedar "*Cedrus deodara*" | Removed | N/A | N/A |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 544 | Deodar Cedar "*Cedrus deodara*" | Good | H | O |
| 545 | Mulberry "*Morus alba*" Multi-trunk | Fair | H | O |
| 546 | Deodar Cedar "*Cedrus deodara*" | Good | H | O |
| 547 | She Oak *"Casuarina cunninghamiana"* | Very Poor | N/A | M |
| 548 | Privet *"Ligustrum lucidum"* | Removed | N/A | N/A |
| 549 | Privet *"Ligustrum lucidum"* | Removed | N/A | N/A |
| 550 | She Oak *"Casuarina cunninghamiana"* | Good | H | O |
| 551 | She Oak *"Casuarina cunninghamiana"* | Poor | M | O |
| 552 | Deodar Cedar "*Cedrus deodara*" | Fair | M | O |
| 553 | Deodar Cedar "*Cedrus deodara*" | Poor | M | O |
| 554 | Almond "*Prunus dulcis*" multi-trunk | Poor | L | O |
| 555 | She Oak *"Casuarina cunninghamiana"* | Good | M | O |
| 556 | She Oak *"Casuarina cunninghamiana"* | Good | M | M |
| 557 | She Oak *"Casuarina cunninghamiana"* | Good | H | M |
| 558 | Mulberry "*Morus alba*" | Good | N/A | M |
| 559 | Almond "*Prunus dulcis*" | Good | H | O |
| 560 | Almond "*Prunus dulcis*" multi-trunk | Good | H | O |
| 561 | Now is a *Washingtonia filifera* | Good | H | M |

| Tree # | Species | Condition (good, fair, poor) | Survival Rating | Tag (ok, missing, damaged) |
|---|---|---|---|---|
| 562 | Chinese Elm "*Ulmus parvifolia" Multi-trunk* | Good | H | D |
| 563 | Chinese Elm "*Ulmus parvifolia" Multi-trunk* | Good | H | D |
| 564 | Deodar Cedar "*Cedrus deodara*" | Fair | H | O |
| 565 | Deodar Cedar "*Cedrus deodara*" | Fair | H | O |
| 566 | She Oak *"Casuarina cunninghamiana"* | Fair | H | O |
| 567 | She Oak *"Casuarina cunninghamiana"* | Good | H | M |
| 568 | Deodar Cedar "*Cedrus deodara*" | Good | H | M |
| 569 | Deodar Cedar "*Cedrus deodara*" | Fair | H | M |
| 570 | She Oak *"Casuarina cunninghamiana"* | Very Poor | N/A | M |
| 571 | She Oak *"Casuarina cunninghamiana"* | Fair | H | O |
| 572 | Olive "*Olea europaea*" Multi-trunk | Good | N/A | O |

## APPENDIX B: TREE MAINTENANCE / REMOVE GONE REMOVE FOR TRAIL

**Pruning Key Words**

**Clean** - Remove dead, dying, broken, or diseased wood (Size of branches - 1 inch and larger).
**Raise** - Remove low braches and raise tree skirt to 8' – 10'and/or required for the proposed equestrian trail.

**Weight Reduction** - Reduce outside and/or height of tree by using Reduction cuts.

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 301 | Red Box "*Eucalyptus polyanthemos*" | Prune | Outside weight and large dead | Clean, Raise, Weight Reduction | 1 |
| 302 | Cork Oak "*Quercus suber*" | Prune | Outside weight and large dead | Clean, Raise, Weight Reduction | 1 |
| 303 | American Elm "*Ulmus americana*" | Prune | Large dead | Raise, Clean | 1 |
| 304 | American Elm "*Ulmus americana*" Codominant Trunk | Prune | Codominant trunk, large dead, signs of slime flux disease in trunk and branches | Weight Reduction, Clean, Clear Wires | Now |
| 305 | American Elm "*Ulmus americana*" | Prune | Large dead | Weight Reduction, Clean, Clear Wires | Now |
| 306 | American Elm "*Ulmus americana*" | Prune | Large dead, slime flux | Clean, Raise, Weight Reduction | 1 |
| 307 | American Elm "*Ulmus americana*" | Prune | Large dead | Clean, Raise, Weight Reduction | 1 |
| 308 | Desert Fan Palm "*Washingtonia filifera*" | Prune | Dead fronds | Remove dead fronds | 1 |
| 309 | American Elm "*Ulmus americana*" | Prune | Outside weight, large dead, and signs of slime flux disease in trunk and branches | Weight Reduction, Clean | Now |
| 310 | Camphor "*Cinnamomum camphora*" multi-trunk | Prune | Large dead | Clean, Raise, Weight Reduction | 1 |
| 311 | Chinese Photinia "*Photinia serratifolia*" multi-trunk | Prune | Large dead | Raise, Clean | 2 - 4 |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 312 | Coast Live Oak "*Quercus agrifolia*" multi-trunk | Remove | In Trail way | N/A | N/A |
| 313 | English Walnut "*Juglans regia*" | Remove | In Trail way | N/A | N/A |
| 314 | Coast Live Oak "*Quercus agrifolia*" | Remove | In Trail way | N/A | N/A |
| 315 | Pecan "*Carya illinoinensis*" | Remove | In Trail way | N/A | N/A |
| 316 | Pecan "*Carya illinoinensis*" | Remove | In Trail way | N/A | N/A |
| 317 | Pecan "*Carya illinoinensis*" | Remove | In Trail way | N/A | N/A |
| 318 | Pecan "*Carya illinoinensis*" | Prune | Hanging Large dead | Clean, Raise, Weight Reduction | Now |
| 319 | Black Walnut "*Juglans californica*" | Remove | 90% dead | N/A | Now |
| 320 | Coast Live Oak "*Quercus agrifolia*" multi-trunk | Prune | Small dead | Raise, Clean | 1 |
| 321 | Pecan "*Carya illinoinensis*" | Remove | In Trail way | N/A | N/A |
| 322 | Cork Oak "*Quercus suber*" | Prune | Ivy, large dead, outside weight | Clean, Raise, Weight Reduction | 1 |
| 323 | Almond "*Prunus dulcis*" multi-trunk | Remove | Dead | N/A | Now |
| 324 | Red Box "*Eucalyptus polyanthemos*" | Prune | Outside weight, large dead | Clean, Raise, Weight Reduction | Now |
| 325 | Cootamundra Wattle *"Acacia baileyana"* | Prune | Large dead | Raise, Clean | Now |
| 326 | *Cork Oak "Quercus suber"* | Gone | N/A | N/A | N/A |
| 327 | Almond "*Prunus dulcis*" multi-trunk | Remove | Dead | N/A | Now |
| 328 | Pecan "*Carya illinoinensis*" | Remove | Dead | N/A | Now |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 329 | Almond "*Prunus dulcis*" multi-trunk | Remove | Dead | N/A | Now |
| 330 | Red Box "Eucalyptus polyanthemos" | Prune | Outside weight, large dead | Clean, Raise, Weight Reduction | Now |
| 331 | Privet "*Ligustrum lucidum*" | Prune | Small dead | Clean | 2 - 4 |
| 332 | Privet "*Ligustrum lucidum*" Multi-trunk | Prune | Small dead | Clean | 2 - 4 |
| 333 | Fig "*Ficus carica*" | Prune | Leaning on wires | Get off of wires | Now |
| 334 | Water Gum "*Eucalytpus rudis*" | Prune | Outside weight, dead wood, leaning | Weight Reduction, Clean | Now |
| 335 | Coast Live Oak "*Quercus agrifolia*" | Prune | Large dead, outside weight | Raise, Clean, Weight Reduction | 1 |
| 336 | Coast Live Oak "*Quercus agrifolia*" | Prune | Small dead | Raise, Clean | 1 |
| 337 | Water Gum "*Eucalytpus rudis*" | Prune | Codominant trunk, outside weight | Weight Reduction, Clean | Now |
| 338 | Red Box "Eucalyptus polyanthemos" | Prune | Outside weight, large dead | Clean, Raise, Weight Reduction | Now |
| 339 | Carob "*Ceratonia siliqua*" | Prune | Outside weight, large dead | Clean, Raise, Weight Reduction | 1 |
| 340 | Water Gum "*Eucalytpus rudis*" | Prune | Outside weight | Weight Reduction, Clean | 1 |
| 341 | Almond "*Prunus dulcis*" | Remove | In Trail way | N/A | N/A |
| 342 | Cork Oak "*Quercus suber*" | Prune | Outside weight, large dead | Clean, Raise, Weight Reduction | 1 |
| 343 | California Pepper "*Schinus molle*" | Remove | Signs of decay at trunk with signs of fungal conks on trunk, **high hazard** | N/A | Now |
| 344 | Citrus sp. | Gone | N/A | N/A | N/A |
| 345 | Red Box "Eucalyptus polyanthemos" | Prune | Outside weight, large dead | Clean, Raise, Weight Reduction | Now |
| 346 | Citrus sp. | Remove | In Trail way | N/A | N/A |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 347 | Desert Fan Palm "*Washingtonia filifera*" | Prune | A few old fronds | Clean | 1 |
| 348 | Red Box "Eucalyptus polyanthemos" | Prune | Outside weight, large dead, branches failing | Clean, Raise, Weight Reduction | Now |
| 349 | Locust "*Robinia sp.*" Multi-trunk | Gone | N/A | N/A | N/A |
| 350 | Cork Oak "*Quercus suber*" | Prune | Outside weight, large dead | Clean, Raise, Weight Reduction | Now |
| 351 | Blackwood Acacia *"Acacia Melanoxylon"* Multi-trunk | Prune | Weak branches, small dead | Weight Reduction, clean, remove branch on west side | Now |
| 352 | Privet *"Ligustrum lucidum"* Multi-trunk | Prune | Large dead | Clean | 1 |
| 353 | Cork Oak "*Quercus suber*" | Prune | Leans to south | Clean, Raise, Weight Reduction | 1 |
| 354 | Silk tree "*Albizia julibrissin*" | Remove | In Trail way | N/A | N/A |
| 355 | Cork Oak "*Quercus suber*" | Prune | Outside weight, large dead | Clean, Raise, Weight Reduction | Now |
| 356 | Privet *"Ligustrum lucidum"* | Remove | In Trail way | N/A | N/A |
| 357 | Red Box "Eucalyptus polyanthemos" | Remove | In Trail way | N/A | N/A |
| 358 | Almond "*Prunus dulcis*" | Remove | In Trail way | N/A | N/A |
| 359 | Coast Live Oak "*Quercus agrifolia*" | Prune | Leans to north | Weight Reduction | Now |
| 360 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Prune | 60% dead *needs water and fertilizer | Clean | Now |
| 361 | Red Box "Eucalyptus polyanthemos" | Prune | Outside weight, large dead, large failures | Clean, Raise, Weight Reduction | Now |
| 362 | Cork Oak "*Quercus suber*" | Prune | Outside weight, large dead, large failures | Clean, Raise, Weight Reduction | Now |
| 363 | Water Gum "*Eucalytpus rudis*" | Prune | Outside weight, signs of Lerp Psyllid insect | Clean, Raise, Weight Reduction | Now |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 364 | Coast Live Oak "*Quercus agrifolia*" | Prune | Small dead | Clean | 2 - 4 |
| 365 | Goodding's Black Willow "*Salix gooddingii*" | Prune | Decay in trunk | Weight Reduction, Clean | 1 |
| 366 | Cootamundra Wattle *"Acacia baileyana"* | Prune | Leans to northwest | Weight Reduction | 1 |
| 367 | Cootamundra Wattle *"Acacia baileyana"* | Remove | Leaning and poor structure | N/A | Now |
| 368 | Cootamundra Wattle *"Acacia baileyana"* | Remove | Leaning and poor structure | N/A | Now |
| 369 | Cootamundra Wattle *"Acacia baileyana"* | Remove | Leaning and poor structure | N/A | Now |
| 370 | Cootamundra Wattle *"Acacia baileyana"* | Remove | In Trail way | N/A | N/A |
| 371 | Red Box "Eucalyptus polyanthemos" | Prune | Large limb loss, outside weight | Weight Reduction, Clean, Raise | Now |
| 372 | Cork Oak "*Quercus suber*" | Prune | Outside weight | Weight Reduction, Raise | 1 |
| 373 | Cork Oak "*Quercus suber*" | Prune | Irregular growth on limbs, but not appear to affect health of tree | Clean, Raise, Weight Reduction | 1 |
| 374 | Cork Oak "*Quercus suber*" | Prune | Small dead | Clean, Raise | 2 - 4 |
| 375 | Camphor "*Cinnamomum camphora*" multi-trunk | Prune | Large dead on outside of canopy | Clean | 1 |
| 376 | *Cottonwood "Populus fremontii"* | Prune | Mistletoe and lean to west | Weight Reduction, Crown Reduction for safety purposes, clean | 1 |
| 377 | Chinese Photinia "*Photinia serratifolia*" multi-trunk | Prune | | Raise | 2 - 4 |
| 378 | Southern Live Oak "*Quercus virginiana*" | Remove | Planted under power lines and on property line | N/A | Now |
| 379 | Cottonwood "*Populus fremontii*" | Remove | Heart rot and signs of decay on trunk, hazard | N/A | Now |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 380 | Black Locust "*Robinia pseudoacacia*" | Remove | 70% dead | N/A | Now |
| 381 | Black Locust "*Robinia pseudoacacia*" | Remove | 70% dead, codominant trunk, signs of decay | N/A | Now |
| 382 | Privet *"Ligustrum lucidum"* | Remove | 70% dead, severe sunscald, signs of decay at trunk | N/A | Now |
| 383 | Privet *"Ligustrum lucidum"* | Remove | In Trail way | N/A | N/A |
| 384 | Peach "*Prunus persica*" | Prune | Large dead, outside weight | Clean, Weight Reduction | 1 |
| 385 | Camphor "*Cinnamomum camphora*" multi-trunk | Prune | Large dead, outside weight | Clean, Weight Reduction | 1 |
| 386 | Mulberry "*Morus alba*" Multi-trunk | Prune | Large dead | Weight Reduction, Clean, Raise | 1 |
| 387 | Mulberry "*Morus alba*" | Prune | Signs of trunk decay, large dead, included bark at trunk | Weight Reduction, Clean, Raise | 1 |
| 388 | Almond *"Prunus dulcis"* multi-trunk | Prune | Small dead | Clean | 2 - 4 |
| 389 | Cork Oak "*Quercus suber*" | Prune | Small dead, signs of vascular disease | Clean | 2 - 4 |
| 390 | Cork Oak "*Quercus suber*" | Prune | Small dead | Clean | 2 - 4 |
| 391 | Almond *"Prunus dulcis"* multi-trunk | Gone | N/A | N/A | N/A |
| 392 | Camphor "*Cinnamomum camphora*" multi-trunk | Prune | Large dead on outside of canopy | Clean | 1 |
| 393 | Cootamundra Wattle *"Acacia baileyana"* | Prune | Decay in trunk | Clean, Raise | 1 |
| 394 | Cootamundra Wattle *"Acacia baileyana"* | Remove | Dead | N/A | Now |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 395 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Prune | Small dead | Clean | 2 - 4 |
| 396 | Cork Oak "*Quercus suber*" | Prune | Oustide weight, small dead, mulch at base will kill the tree | Weight Reduction, Clean, Raise, Remove Mulch | 1 |
| 397 | Almond "*Prunus dulcis*" multi-trunk | Prune | Broken branch, large dead | Clean | 1 |
| 398 | Almond "*Prunus dulcis"* multi-trunk | Prune | Large dead | Clean | 1 |
| 399 | Privet *"Ligustrum lucidum"* | Prune | Lean to east | Clean, Weight Reduction, Balance | Now |
| 400 | There is no tree #400 recorded | | | | |
| 401 | Water Gum "*Eucalytpus rudis*" | Prune | Inside dead | Clean | 1 |
| 402 | Privet *"Ligustrum lucidum"* Multi-trunk | Prune | Small dead | Clean | 2 - 4 |
| 403 | Mulberry "*Morus alba*" Multi-trunk | Remove | Decay at base of tree due to past multi-trunk failure, hazard | N/A | Now |
| 404 | Water Gum "*Eucalytpus rudis*" | Remove | 50% dead, vines throughout tree, damage on west side of trunk, hazard | N/A | Now |
| 405 | Cottonwood "*Populus fremontii*" | Remove | Large dead, mistletoe, hazard | N/A | Now |
| 406 | Cottonwood "*Populus fremontii*" | Remove | Large dead, signs of heart rot and decay, hazard | N/A | Now |
| 407 | Cottonwood "*Populus fremontii*" | Remove | Large dead, signs of decay in upper canopy, hazard | N/A | Now |
| 408 | Cottonwood "*Populus fremontii*" | Remove | 95% dead, hazard | N/A | Now |
| 409 | Camphor "*Cinnamomum camphora*" multi-trunk | Prune | Close proximity to Tree #410, large dead | Weight Reduction, Clean | 1 |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 410 | Cottonwood "*Populus fremontii*" | Remove | Close proximity to Tree #409, large dead, hazard | N/A | Now |
| 411 | Black Locust "*Robinia pseudoacacia*" | Remove | Leaning on tree #413, trunk failure, hazard | N/A | Now |
| 412 | Black Locust "*Robinia pseudoacacia*" | Prune | Large dead, Mistletoe | Clean, Remove Mistletoe | 1 |
| 413 | Camphor "*Cinnamomum camphora*" multi-trunk | Prune | Large dead | Clean | 1 |
| 414 | Camphor "*Cinnamomum camphora*" multi-trunk | Prune | Large dead | Clean | 1 |
| 415 | Black Locust "*Robinia pseudoacacia*" | Prune | Lean to southwest, mistletoe | Weight Reduction, Clean | 1 |
| 416 | Cork Oak "*Quercus suber*" Multi-trunk | Gone | N/A | N/A | N/A |
| 417 | Privet *"Ligustrum lucidum"* | Prune | Small dead | Clean | 2 - 4 |
| 418 | Privet *"Ligustrum lucidum"* Multi-trunk | Prune | Dead wood | Clean | 1 |
| 419 | Privet *"Ligustrum lucidum"* | Remove | Severe lean to west, hazard | N/A | Now |
| 420 | Cork Oak "*Quercus suber*" | Remove | Severe lean to southwest, hazard | N/A | Now |
| 421 | Cork Oak "*Quercus suber*" | Remove | Severe lean to west, signs of vascular disease, hazard | N/A | Now |
| 422 | Privet *"Ligustrum lucidum"* | Prune | Codominant trunk | Clean | 1 |
| 423 | Cork Oak "*Quercus suber*" | Prune | Severe lean to west | Clean, Weight Reduction | 1 |
| 424 | Plum "*Prunus sp.*" | Remove | Severe lean to southwest | N/A | Now |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 425 | Red Box "*Eucalyptus polyanthemos*" | Remove | Signs of decay and heart rot | N/A | Now |
| 426 | Cork Oak "*Quercus suber*" Multi-trunk | Prune | Outside weight, small dead | Clean, Weight Reduction, Raise | Now |
| 427 | Cork Oak "*Quercus suber*" | Prune | Outside weight, small dead | Clean, Weight Reduction, Raise | 1 |
| 428 | English Walnut "*Juglans regia*" | Prune | Small dead | Clean | 1 |
| 429 | Cork Oak "*Quercus suber*" Multi-trunk | Prune | Small dead | Clean, Raise | 1 |
| 430 | Almond "*Prunus dulcis*" multi-trunk | Remove | Close proximity to tree #431 | N/A | Now |
| 431 | Cottonwood "*Populus fremontii*" | Remove | Large dead, mistletoe, hazard | N/A | Now |
| 432 | Coast Live Oak "*Quercus agrifolia*" | Prune | Small dead | Weight Reduction, Clean | 1 |
| 433 | Privet "*Ligustrum lucidum*" | Remove | Close proximity to tree #435 | N/A | Now |
| 434 | Almond "*Prunus dulcis*" | Remove | Close proximity to tree #435 | N/A | Now |
| 435 | Cottonwood "*Populus fremontii*" | Prune | Large dead, signs of decay, hazard | N/A | Now |
| 436 | Cork Oak "*Quercus suber*" | Prune | Small dead | Weight Reduction, Clean | 1 |
| 437 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Prune | Small dead | Clean, Raise | 2 - 4 |
| 438 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Prune | Small dead, crowded by tree #439 | Clean, Raise | 2 - 4 |
| 439 | Almond "*Prunus dulcis*" multi-trunk | Remove | Dead | N/A | Now |
| 440 | Coast Live Oak "*Quercus agrifolia*" | Prune | Severe lean to southeast | Clean, weight Reduction | 1 |
| 441 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Remove | Dead | N/A | Now |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 442 | Strawberry Tree "*Arbutus unedo*" Multi-trunk | Remove | Large dead, severe lean to west | N/A | Now |
| 443 | Coast Live Oak "*Quercus agrifolia*" | Prune | Small dead | Clean | 1 |
| 444 | Cork Oak "*Quercus suber*" | Remove | Severe lean to east, crowded out by tree #443 | N/A | Now |
| 445 | Cork Oak "*Quercus suber*" | Prune | Small dead | Clean | 2 - 4 |
| 446 | Almond *"Prunus dulcis"* | Prune | Large dead | Clean | 1 |
| 447 | Almond "*Prunus dulcis*" | Remove | Tree is crowding out #445 | N/A | Now |
| 448 | Cork Oak "*Quercus suber*" | Prune | Small dead, outside weight | Clean, Weight Reduction | 1 |
| 449 | Cork Oak "*Quercus suber*" | Remove | In Trail way | N/A | N/A |
| 450 | Almond *"Prunus dulcis"* multi-trunk | Remove | Severe lean to northwest | N/A | Now |
| 451 | Carolina Cherry "*Prunus caroliniana"* | Remove | 90% dead | N/A | Now |
| 452 | Cork Oak "*Quercus suber*" | Remove | In Trail way | N/A | N/A |
| 453 | Privet *"Ligustrum lucidum"* | Gone | N/A | N/A | N/A |
| 454 | Almond *"Prunus dulcis"* | Prune | Large dead | Clean | 1 |
| 455 | Cork Oak "*Quercus suber*" Multi-trunk | Remove | Severe lean in three directions | N/A | Now |
| 456 | Almond *"Prunus dulcis"* multi-trunk | Remove | 80% dead | N/A | Now |
| 457 | Cork Oak "*Quercus suber*" | Prune | Lean to northwest | Weight Reduction | 1 |
| 458 | Cork Oak "*Quercus suber*" | Gone | N/A | N/A | N/A |
| 459 | Coast Live Oak "*Quercus agrifolia*" | Prune | Small dead, outside weight | Clean, Weight Reduction | 1 |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 460 | Coast Live Oak "*Quercus agrifolia*" | Prune | Lean to east | Weight Reduction | 1 |
| 461 | Plum "*Prunus sp.*" | Remove | Small dead, crowded out, poor health | N/A | Now |
| 462 | Cork Oak "*Quercus suber*" | Prune | Small dead | Clean | 2 - 4 |
| 463 | Cork Oak "*Quercus suber*" | Prune | Lean to east | Weight Reduction | 1 |
| 464 | Red Box "*Eucalyptus polyanthemos*" | Prune | Outside weight, large dead | Clean, Weight Reduction, Raise | Now |
| 465 | Cork Oak "*Quercus suber*" | Prune | Lean to east, small dead | Weight Reduction, Clean | 1 |
| 466 | Coast Live Oak "*Quercus agrifolia*" | Prune | Small dead, lean to east | Weight Reduction, Clean | Now |
| 467 | Red Box "*Eucalyptus polyanthemos*" | Prune | Oustide weight, small dead | Weight Reduction, Clean | 1 |
| 468 | Coast Live Oak "*Quercus agrifolia*" | Remove | Lean way from tree #467, crowded out | N/A | Now |
| 469 | Silver Maple "*Acer saccharinum*" | Remove | Large dead in upper canopy, Ivy throughout tree, hazard | N/A | Now |
| 470 | Coast Live Oak "*Quercus agrifolia*" | Prune | Dead wood | Clean | 2 - 4 |
| 471 | Cork Oak "*Quercus suber*" | Prune | Leans to south, Ivy | Weight Reduction, Remove Ivy | 1 |
| 472 | Lemonade Berry "*Rhus integrifolia*" | Prune | Over pruned | Leave alone to grow back, trim in 2 years | 2 - 4 |
| 473 | Coast Live Oak "*Quercus agrifolia*" | Prune | Small dead | Clean | 1 |
| 474 | Chinaberry "*Melia azedarach*" | Remove | Leans to west | N/A | Now |
| 475 | Valley Oak "*Quercus lobata*" | Prune | Large dead, Ivy, outside weight | Weight Reduction, Clean | Now |
| 476 | Valley Oak "*Quercus lobata*" | Prune | Large dead, Ivy, outside weight | Weight Reduction, Clean | Now |
| 477 | Privet "*Ligustrum lucidum*" | Remove | Large dead, Ivy | N/A | Now |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 478 | Cottonwood "*Populus fremontii*" | Remove | Large dead, Ivy, signs of upper decay, hazard | N/A | Now |
| 479 | Persimmon "*Diospyros species*" | Remove | In Trail way | N/A | N/A |
| 480 | Cottonwood "*Populus fremontii*" | Gone | N/A | N/A | N/A |
| 481 | Cork Oak "*Quercus suber*" | Prune | Small dead, outside weight | Weight Reduction, Clean | 1 |
| 482 | Cork Oak "*Quercus suber*" Multi-trunk | Prune | Small dead | Clean | 1 |
| 483 | Cottonwood "*Populus fremontii*" | Remove | Large dead, hazard | N/A | Now |
| 484 | Privet *"Ligustrum lucidum"* | Prune | Small dead | Clean | 2 - 4 |
| 485 | California Pepper "*Schinus molle*" | Remove | Large dead, signs of decay | N/A | Now |
| 486 | Almond *"Prunus dulcis"* | Remove | Dead | N/A | Now |
| 487 | Cork Oak "*Quercus suber*" | Prune | Lean to southwest | Weight Reduction, Clean | 1 |
| 488 | Catalina Cherry *"Prunus ilicifolia"* | Prune | Outside weight | Weight Reduction, Clean | 1 |
| 489 | Catalina Cherry *"Prunus ilicifolia"* | Prune | Outside weight | Weight Reduction, Clean | 1 |
| 490 | Privet *"Ligustrum lucidum"* | Remove | 80% dead | N/A | Now |
| 491 | She Oak *"Casuarina cunninghamiana"* | Prune | Outside weight | Weight Reduction | Now |
| 492 | Cork Oak "*Quercus suber*" | Prune | Crowded out by tree #493 | Weight Reduction | 1 |
| 493 | Phoenix Date Palm "*Phoenix dactylifera"* | Prune | Dead fronds | Raise to 3 o'clock and 9 o'clock positions | 1 |
| 494 | Cork Oak "*Quercus suber*" | Prune | Small dead | Clean, Raise | 1 |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 495 | Cork Oak "*Quercus suber*" | Prune | Signs of vascular disease, leans to west | Clean, Treat for Phytophthora | Now |
| 496 | Almond "*Prunus dulcis*" multi-trunk | Prune | Large dead | Clean | 1 |
| 497 | Almond "*Prunus dulcis*" multi-trunk | Prune | Small dead | Clean | 1 |
| 498 | Cork Oak "*Quercus suber*" Multi-trunk | Prune | Small dead | Clean | 2 - 4 |
| 499 | Pecan "*Carya illinoinensis*" | Prune | Small dead | Clean | 1 |
| 500 | She Oak "*Casuarina cunninghamiana*" | Prune | Large dead | Clean | 2 - 4 |
| 501 | Mulberry "*Morus alba*" Multi-trunk | Gone | N/A | N/A | N/A |
| 502 | She Oak "*Casuarina cunninghamiana*" | Recently Pruned | N/A | N/A | 1 |
| 503 | She Oak "*Casuarina cunninghamiana*" | Recently Pruned | N/A | N/A | 1 |
| 504 | Olive "*Olea europaea*" Multi-trunk | Prune | Small dead | Clean | 1 |
| 505 | Stone Pine "*Pinus pinea*" | Prune | Large dead | Clean | 1 |
| 506 | Western Hackberry *"Celtis occidentalis"* | Remove | 90% dead | N/A | Now |
| 507 | Olive "*Olea europaea*" Multi-trunk | Prune | Small dead | Clean | 2 - 4 |
| 508 | Stone Pine "*Pinus pinea*" | Prune | Small dead | Clean | 1 |
| 509 | Olive "*Olea europaea*" Multi-trunk | Prune | Crowded out by tree #508, small dead | Clean | 1 |
| 510 | She Oak "*Casuarina cunninghamiana*" | Prune | Large dead, codominant trunk | Clean | Now |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 511 | Olive "*Olea europaea*" | Prune | Small dead | Clean | 1 |
| 512 | Almond "*Prunus dulcis*" multi-trunk | Gone | N/A | N/A | N/A |
| 513 | Olive "*Olea europaea*" | Remove | In Trail way | N/A | N/A |
| 514 | Almond "*Prunus dulcis*" multi-trunk | Prune | Small dead | Clean | 1 |
| 515 | Almond "*Prunus dulcis*" | Prune | Signs of Beetle Borer insect, sap sucker bird damage | Clean | 1 |
| 516 | She Oak "*Casuarina cunninghamiana*" | Remove | In Trail way | N/A | N/A |
| 517 | Almond "*Prunus dulcis*" | Prune | Signs of Beetle Borer insect, sap sucker bird damage | Clean | 1 |
| 518 | Almond "*Prunus dulcis*" | Remove | In Trail way | N/A | N/A |
| 519 | Almond "*Prunus dulcis*" | Remove | In Trail way | N/A | N/A |
| 520 | She Oak "*Casuarina cunninghamiana*" | Prune | Small dead, | Clean | 2 - 4 |
| 521 | Almond "*Prunus dulcis*" multi-trunk | Prune | Small dead | Clean | 1 |
| 522 | Almond "*Prunus dulcis*" multi-trunk | Prune | Small dead | Clean | 1 |
| 523 | Almond "*Prunus dulcis*" multi-trunk | Prune | Small dead | Clean | 2 - 4 |
| 524 | Almond "*Prunus dulcis*" multi-trunk | Prune | Small dead | Clean | 2 - 4 |
| 525 | Deodar Cedar "*Cedrus deodara*" | Prune | Small dead | Clean | 1 |
| 526 | Privet "*Ligustrum lucidum*" | Gone | N/A | N/A | N/A |
| 527 | Privet "*Ligustrum lucidum*" | Gone | N/A | N/A | N/A |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 528 | Almond "*Prunus dulcis*" | Prune | Small & large dead | Clean | Now |
| 529 | Deodar Cedar "*Cedrus deodara*" | Prune | Small dead | Clean | 1 |
| 530 | Deodar Cedar "*Cedrus deodara*" | Prune | Small dead | Clean | 1 |
| 531 | She Oak *"Casuarina cunninghamiana"* | Recently Pruned | N/A | N/A | 1 |
| 532 | Deodar Cedar "*Cedrus deodara*" | Prune | Small dead | Clean | 2 - 4 |
| 533 | Deodar Cedar "*Cedrus deodara*" | Prune | Small dead | Clean | 1 |
| 534 | Deodar Cedar "*Cedrus deodara*" | Prune | Small dead | Clean | 2 - 4 |
| 535 | Silk Oak "*Grevillea robusta"* | Prune | Small dead, wood decay on north side | Clean | 2 - 4 |
| 536 | She Oak *"Casuarina cunninghamiana"* | Prune | Small dead | Clean | 2 - 4 |
| 537 | Almond *"Prunus dulcis"* multi-trunk | Remove | Signs of beetle borers, dead wood | N/A | Now |
| 538 | Almond "Prunus dulcis" multi-trunk | Prune | Small dead, outside weight | Clean, Weight Reduction | 2 - 4 |
| 539 | Almond *"Prunus dulcis"* multi-trunk | Gone | N/A | N/A | N/A |
| 540 | Chinese Pistache "*Pistacia chinensis*" | Prune | Young tree | Clean | 2 - 4 |
| 541 | Chinese Pistache "*Pistacia chinensis*" | Prune | Young tree | Clean | 2 - 4 |
| 542 | Almond "*Prunus dulcis*" | Prune | Small dead, borers & disease | Clean | 1 |
| 543 | Deodar Cedar "*Cedrus deodara*" | Gone | N/A | N/A | N/A |
| 544 | Deodar Cedar "*Cedrus deodara*" | Prune | Large dead | Clean | 1 |
| 545 | Mulberry "*Morus alba*" Multi-trunk | Prune | Poor trunk structure | Weight Reduction, Clean | 2 - 4 |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 546 | Deodar Cedar "*Cedrus deodara*" | Prune | Large dead | Clean | 1 |
| 547 | She Oak *"Casuarina cunninghamiana"* | Remove | 90% dead | N/A | Now |
| 548 | Privet *"Ligustrum lucidum"* | Gone | N/A | N/A | N/A |
| 549 | Privet *"Ligustrum lucidum"* | Gone | N/A | N/A | N/A |
| 550 | She Oak *"Casuarina cunninghamiana"* | Prune | Dead wood | Clean | 2 - 4 |
| 551 | She Oak *"Casuarina cunninghamiana"* | Prune | Large dead | Clean | 1 |
| 552 | Deodar Cedar "*Cedrus deodara*" | Prune | Large dead | Clean | 1 |
| 553 | Deodar Cedar "*Cedrus deodara*" | Prune | Large dead | Clean | 1 |
| 554 | Almond "*Prunus dulcis*" multi-trunk | Prune | Small dead | Clean | 2 - 4 |
| 555 | She Oak *"Casuarina cunninghamiana"* | Prune | Large dead | Clean | 2 - 4 |
| 556 | She Oak *"Casuarina cunninghamiana"* | Prune | Large dead | Clean | 2 - 4 |
| 557 | She Oak *"Casuarina cunninghamiana"* | Prune | Codominant trunk, large dead | Clean | 1 |
| 558 | Mulberry "*Morus alba*" | Remove | In Trail way | N/A | N/A |
| 559 | Almond "*Prunus dulcis*" | Prune | Signs of beetle borers, small dead | Clean | 2 - 4 |
| 560 | Almond "*Prunus dulcis*" multi-trunk | Prune | Small dead | Clean | 2 - 4 |
| 561 | Deodar Cedar "*Cedrus deodara*" | Prune | Small dead | Clean | 2 - 4 |
| 562 | Chinese Elm "*Ulmus parvifolia" Multi-trunk* | Prune | Young tree | Clean | 2 - 4 |

| Tree # | Species | Prune or Remove Tree | Defects | Tree Pruning Recommendations (See Key Words) | Priority Now, 1, 2 - 4 years |
|---|---|---|---|---|---|
| 563 | Chinese Elm "*Ulmus parvifolia" Multi-trunk* | Prune | Young tree | Clean | 2 - 4 |
| 564 | Deodar Cedar "*Cedrus deodara*" | Prune | Small dead | Clean | 2 - 4 |
| 565 | Deodar Cedar "*Cedrus deodara*" | Prune | Codominant trunk, large dead | Clean | 1 |
| 566 | She Oak *"Casuarina cunninghamiana"* | Prune | Outside weight | Weight Reduction, Clean | 1 |
| 567 | She Oak *"Casuarina cunninghamiana"* | Prune | Small dead | Clean | 2 - 4 |
| 568 | Deodar Cedar "*Cedrus deodara*" | Prune | Small dead | Clean | 2 - 4 |
| 569 | Deodar Cedar "*Cedrus deodara*" | Prune | Codominant trunk | Clean | 2 - 4 |
| 570 | She Oak *"Casuarina cunninghamiana"* | Remove | 90% dead | N/A | Now |
| 571 | She Oak *"Casuarina cunninghamiana"* | Prune | Large dead | Clean | 1 |
| 572 | Olive "*Olea europaea*" Multi-trunk | Remove | In Trail way | N/A | N/A |

## APPENDIX C: SITE PLAN L1.0 – L1.4 WITH RECORDED TREE NUMBERS

**SEE SEPARATE PDF LABELED** – *6/29/2015 FANCHER CREEK WITH TREE NUMBERS*

## APPENDIX D: ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided to the consultant is assumed to be correct. Title and ownership of all property considered are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised or evaluated as though free and clear, under responsible ownership and competent management.
2. It is assumed that any property is not in violation of any applicable codes, ordinances, statutes or other governmental regulations.
3. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible. The consultant can neither guarantee nor be responsible for the accuracy of information provided by others.
4. Various diagrams, sketches and photographs in this report are intended as visual aids and are not to scale, unless specifically stated as such on the drawing. These communication tools in no way substitute for, nor should be construed as, surveys, architectural or engineering drawings.
5. Loss or alteration of any part of this report invalidates the entire report.
6. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person to whom it is addressed, without the prior written or verbal consent of the consultant.
7. This report is confidential and to be distributed only to the individual or entity to whom it is addressed. Any or all of the contents of this report may be conveyed to another party only with the express prior written or verbal consent of the consultant. Such limitations apply to the original report, a copy, facsimile, scanned image or digital version thereof.
8. This report represents the opinion of the consultant. In no way is the consultant's fee contingent upon a stipulated result, the occurrence of subsequent event, nor upon any finding to be reported.
9. The consultant shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule, an agreement or a contract.
10. Information contained in this report reflects observations made only to those items described and only reflects the condition of those items at the time of the site visit. Furthermore, the inspection is limited to visual examination of items and elements at the site, unless expressly stated otherwise. There is no expressed or implied warranty or guarantee that problems or deficiencies of the plants or property inspected may not arise in the future.

## APPENDIX E: DISCLOSURE STATEMENT

Arborists are tree specialists who use their education, knowledge, training and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Treatment, pruning and removal of trees may involve considerations beyond the scope of the Arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, and other issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the Arborist. An Arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.

## APPENDIX F: CERTIFICATE OF PERFORMANCE

I, John Pape, Certify:

- That I have inspected the trees and/or property evaluated in this report. I have stated findings accurately, insofar as the limitations of the Assignment and within the extent and context identified by this report;
- That I have no current or prospective interest in the vegetation or any real estate that is the subject of this report, and have no personal interest or bias with respect to the parties involved;
- That the analysis, opinions and conclusions stated herein are original and are based on current scientific procedures and facts and according to commonly accepted arboricultural practices;
- That no significant professional assistance was provided, except as indicated by the inclusion of another professional report within this report;
- That compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party.

I am a Certified Arborist with the International Society of Arboriculture (ISA).

I have attained professional training in all areas of knowledge asserted through this report by completion of certification and by routinely attending pertinent professional conferences and by reading current research from professional journals, books and other media.

I have rendered professional services in a full time capacity in the field of horticulture and arboriculture for more than 45 years.

Signed: Date: February /19/2019

Name: John Pape

# SELF-DEALING TRANSACTION DISCLOSURE FORM

1. Company Board Member Information:

Name: _____ Date: _____

Job Title: _____

2. Company/Agency Name and Address:

_____

_____

_____

_____

3. Disclosure Please describe the nature of the self-dealing transaction you are a party to.

_____

_____

_____

_____

4. Explain why this self-dealing transaction is consistent with the requirements of Corporations Code 2. a.

_____

_____

_____

_____

_____

_____

_____

5. Authorized Signature

Signature: _____ Date: _____

# SELF-DEALING TRANSACTION DISCLOSURE FORM INSTRUCTIONS

In order to conduct business with the County of Fresno (hereinafter referred to as "County"), members of a contractor's board of directors (hereinafter referred to as "County Contractor"), must disclose any self-dealing transactions that they are a party to while providing goods, performing services, or both for the County. A self-dealing transaction is defined below:

*"A self-dealing transaction means a transaction to which the corporation is a party and which one or more of its directors has a material financial interest"*

The definition above will be utilized for purposes of completing the disclosure form.

1. Enter board member's name, job title (if applicable), and date this disclosure is being made.

2. Enter the board member's company/agency name and address.

3. Describe in detail the nature of the self-dealing transaction that is being disclosed to the County. At a minimum, include a description of the following:

   a. The name of the agency/company with which the corporation has the transaction; and

   b. The nature of the material financial interest in the Corporation's transaction that the board member has.

4. Describe in detail why the self-dealing transaction is appropriate based on applicable provisions of the Corporations Codes.

5. Form must be signed by the board member that is involved in the self-dealing transaction described in Sections 3 and 4.

# REVISED STANDARD SPECIFICATIONS DATED 09-02-16

## ORGANIZATION

Revised standard specifications are under headings that correspond with the main section headings of the *Standard Specifications*. A main section heading is a heading shown in the table of contents of the *Standard Specifications*. A date under a main section heading is the date of the latest revision to the section.

Each revision to the *Standard Specifications* begins with a revision clause that describes or introduces a revision to the *Standard Specifications*. For a revision clause that describes a revision, the date on the right above the clause is the publication date of the revision. For a revision clause that introduces a revision, the date on the right above a revised term, phrase, clause, paragraph, or section is the publication date of the revised term, phrase, clause, paragraph, or section. For a multiple paragraph or multiple section revision, the date on the right above a paragraph or section is the publication date of the paragraphs or sections that follow.

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

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## DIVISION I GENERAL PROVISIONS

### 1 GENERAL

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

0□□1 □□1 □

| | |
|---|---|
| A□□D | air pollution control district |
| A□MD | air quality management district |
| □ISS | cast□in□steel shell |
| □SL | crosshole sonic logging |
| □□L | gamma□gamma logging |

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

### 7 LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

0□□1 □□1 □

**Replace the paragraphs in section 7-1.02I(2) with:**

0□□0 □□1 □

□nder 2 □A □ode of Regs □1110□:

1. During the performance of this contract, the recipient, contractor, and its subcontractors shall not deny the contract□s benefits to any person on the basis of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, se□, gender, gender identity, gender e□pression, age, se□ual orientation, or military and veteran status, nor shall they discriminate unlawfully against any employee or applicant for employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, se□, gender, gender identity, gender

e□pression, age, se□ual orientation, or military and veteran status. □ontractor shall insure that the evaluation and treatment of employees and applicants for employment are free of such discrimination.

2. □ontractor shall comply with the provisions of the □air □mployment and □ousing Act □□ov. □ode, □ 12□00 et seq.□, the regulations promulgated thereunder □□al. □ode Regs., tit. 2, □ 11000 et seq.□, the provisions of Article □.□, □hapter 1, □art 1, Division □, Title 2 of the □overnment □ode □□ov. □ode, □□ 111□□□111□□.□□, and the regulations or standards adopted by the awarding state agency to implement such article.
□. □ontractor or recipient shall permit access by representatives of the Department of □air □mployment and □ousing and the awarding state agency upon reasonable notice at any time during the normal business hours, but in no case less than 2□ hours□notice, to such of its boo□s, records, accounts, and all other sources of information and its facilities as said Department or Agency shall require to ascertain compliance with this clause.
□. Recipient, contractor and its subcontractors shall give written notice of their obligations under this clause to labor organi□ations with which they have a collective bargaining or other agreement.
□. The contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform wor□ under the contract.

□nder 2 □A □ode of Regs □11122:

## STANDARD CALIFORNIA NONDISCRIMINATION CONSTRUCTION CONTRACT SPECIFICATIONS (GOV. CODE SECTION 12990)

These specifications are applicable to all state contractors and subcontractors having a construction contract or subcontract of □□,000 or more.

1. As used in the specifications:
   a. "Act" means the □air □mployment and □ousing Act.
   b. "Administrator" means Administrator, Office of □ompliance □rograms, □alifornia Department of □air □mployment and □ousing, or any person to whom the Administrator delegates authority;
2. Whenever the contractor or any subcontractor subcontracts a portion of the wor□, it shall include in each subcontract of □□,000 or more the nondiscrimination clause in this contract directly or through incorporation by reference. Any subcontract for wor□ involving a construction trade shall also include the Standard □alifornia □onstruction □ontract Specifications, either directly or through incorporation by reference.
□. The contractor shall implement the specific nondiscrimination standards provided in paragraphs □a□ through □e□of these specifications.
□. □either the provisions of any collective bargaining agreement, nor the failure by a union with whom the contractor has a collective bargaining agreement, to refer members of any group protected by the Act shall e□cuse the contractor□s obligations under these specifications, □overnment □ode section 12□□0, or the regulations promulgated pursuant thereto.□. In order for the nonwor□ing training hours of apprentices and trainees to be counted, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, sub□ect to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the □.S. Department of Labor or the □alifornia Department of Industrial Relations.
□. In order for the nonwor□ing training hours of apprentices and trainees to be counted, such apprentices and trainees must be employed by the contractor during the training period, and the contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, sub□ect to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the □.S. Department of Labor or the □alifornia Department of Industrial Relations.
□. The contractor shall ta□e specific actions to implement its nondiscrimination program. The evaluation of the contractor□s compliance with these specifications shall be based upon its effort to achieve ma□imum results from its actions. The contractor must be able to demonstrate fully its efforts under steps a. through e. below:
   a. □nsure and maintain a wor□ing environment free of harassment, intimidation, and coercion at all sites, and at all facilities at which the contractor□s employees are assigned to wor□. The contractor shall specifically ensure that all foremen, superintendents, and other on□site

supervisory personnel are aware of and carry out the contractor's obligations to maintain such a wor□ing environment.

b. □rovide written notification within seven days to the director of the D□□□ when the referral process of the union or unions with which the contractor has a collective bargaining agreement has impeded the contractor's efforts to meet its obligations.

c. Disseminate the contractor's equal employment opportunity policy by providing notice of the policy to unions and training, recruitment and outreach programs and requesting their cooperation in assisting the contractor to meet its obligations; and by posting the company policy on bulletin boards accessible to all employees at each location where construction wor□ is performed.

d. □nsure all personnel ma□ing management and employment decisions regarding hiring, assignment, layoff, termination, conditions of wor□, training, rates of pay or other employment decisions, including all supervisory personnel, superintendents, general foremen, on□site foremen, etc., are aware of the contractor's equal employment opportunity policy and obligations, and discharge their responsibilities accordingly.

e. □nsure that seniority practices, □ob classifications, wor□assignments, and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the equal employment opportunity policy and the contractor's obligations under these specifications are being carried out.

□. □ontractors are encouraged to participate in voluntary associations that assist in fulfilling their equal employment opportunity obligations. The efforts of a contractor association, □oint contractor□union, contractor□community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under these specifications provided that the contractor actively participates in the group, ma□es every effort to assure that the group has a positive impact on equal employment opportunity in the industry, ensures that the concrete benefits of the program are reflected in the contractor's wor□force participation, and can provide access to documentation that demonstrates the effectiveness of actions ta□en on behalf of the contractor. The obligation to comply, however, is the contractor's.

□. The contractor is required to provide equal employment opportunity for all persons. □onsequently, the contractor may be in violation of the □air □mployment and □ousing Act □□overnment □ode section 12□□0 et seq.□if a particular group is employed in a substantially disparate manner.

□. The contractor shall not use the nondiscrimination standards to discriminate against any person because race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, se□, gender, gender identity, gender e□pression, age, se□ual orientation, or military and veteran status.

10. The contractor shall not enter into any subcontract with any person or firm decertified from state contracts pursuant to □overnment □ode section 12□□0.

11. The contractor shall carry out such sanctions and penalties for violation of these specifications and the nondiscrimination clause, including suspension, termination and cancellation of e□isting subcontracts as may be imposed or ordered pursuant to □overnment □ode section 12□□0 and its implementing regulations by the awarding agency. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and □overnment □ode section 12□□0.

12. The contractor shall designate a responsible official to monitor all employment related activity to ensure that the company equal employment opportunity policy is being carried out, to submit reports relating to the provisions hereof as may be required by O□□ and to □eep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, status, □e.g., mechanic, apprentice trainee, helper, or laborer□, dates of changes in status, hours wor□ed per wee□ in the indicated trade, rate of pay, and locations at which the wor□ was performed. Records shall be maintained in any easily understandable and retrievable form; however, to the degree that e□isting records satisfy this requirement, contractors shall not be required to maintain separate records.

**Add to the end of the 2nd sentence in the 1st paragraph of section 7-1.02K(1):**

0□22□1□

, and hauling and delivery of ready□mi□ed concrete.

**Add between the 4th and 5th paragraphs of section 7-1.02K(3):**

0□22□1□

Submitted certified payrolls for hauling and delivering ready□mi□ed concrete must be accompanied by a written time record. The time record must include:

1. Truc□ driver□s full name and address
2. □ame and address of the factory or batching plant
□. Time the concrete was loaded at the factory or batching plant
□. Time the truc□ returned to the factory or batching plant
□. Truc□ driver□s signature certifying under penalty of per□ury that the information contained in this written time record is true and correct

**Add between the 9th and 10th paragraphs of section 7-1.03:**

0□1□1□

If a height differential of more than 0.0□ foot is created by construction activities at a □oint transverse to the direction of traffic on the traveled way or a shoulder sub□ect to public traffic, construct a temporary taper at the □oint with a slope complying with the requirements shown in the following table:

**Temporary Tapers**

| □eight differential □foot□ | Slope □hori□ontal:vertical□ | |
|---|---|---|
| | Taper use of 1□ days or less | Taper use of more than 1□ days |
| □reater than 0.0□ | 100:1 or flatter | 200:1 or flatter |
| 0.0□–0.0□ | □0:1 or flatter | □0:1 or flatter |

□or a taper on e□isting asphalt concrete or concrete pavement, construct the taper with minor □MA under section □□2.0□.

□rind e□isting surfaces to accommodate a minimum taper thic□ness of 0.10 foot under either of the following conditions:

1. □MA material such as rubberi□ed □MA, polymer□modified bonded wearing course, or open□graded friction course is unsuitable for ra□ing to a ma□imum 0.02 foot thic□ness at the edge
2. Taper will be in place for more than 1□ days

□or a taper on a bridge dec□ or approach slab, construct the taper with polyester concrete under section □0□□.0□□.

The completed surface of the taper must be uniform and must not vary more than 0.02 foot from the lower edge of a 12□foot straightedge when placed on its surface parallel and perpendicular to traffic.

If authori□ed, you may use alternative materials or methods to construct the required taper.

**Replace *§ 337.15* in the 3rd item in the list in the paragraph of section 7-1.06B with:**

0□0□1□

□ □□□.1

**Add between the 1st and 2nd paragraphs of section 7-1.11A:**

02□12□1□

□omply with □□ □□R □□1.□a□–b□.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 8 PROSECUTION AND PROGRESS

0□□1 □□1 □

**Replace the table in the 3rd paragraph of section 8-1.10A with:**

0□□1 □□1 □

**Liquidated Damages**

| Total bid | | Liquidated damages per day |
|---|---|---|
| □rom over | To | |
| □0 | □□0,000 | □1,□00 |
| □□0,000 | □200,000 | □2,□00 |
| □200,000 | □□00,000 | □□,200 |
| □□00,000 | □1,000,000 | □□,□00 |
| □1,000,000 | □2,000,000 | □□,000 |
| □2,000,000 | □□,000,000 | □□,□00 |
| □□,000,000 | □10,000,000 | □□,□00 |
| □10,000,000 | □20,000,000 | □10,000 |
| □20,000,000 | □□0,000,000 | □1□,□00 |
| □□0,000,000 | □100,000,000 | □1□,200 |
| □100,000,000 | □2□0,000,000 | □2□,□00 |

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 9 PAYMENT

01□1 □□1 □

**Replace *may withhold* in the 1st paragraph of section 9-1.16E(4) with:**

01□1 □□1 □

withholds

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# DIVISION II GENERAL CONSTRUCTION

## 10 GENERAL

0□□1 □□1 □

**Replace section 10-1.02B with:**

0□□1 □□1 □

**10-1.02B Traffic Elements**

□efore starting the operational test of a traffic management system that directly impacts traffic, the system must be ready for operation, and all signs, pavement delineation, and pavement mar□ings must be in place at the system□s location.

If maintaining e□isting traffic management system elements during construction is shown on the □id Item List, a list of the systems shown within the pro□ect limits and their operational status is included in the *Information Handout*. □efore starting □ob site activities, conduct a preconstruction operational status chec□ of the e□isting system□s elements and each element□s communication status with the transportation management center to which it communicates. If an e□isting system element is discovered and has not been identified, the Department adds the element to the list of systems. The pre□and postconstruction operational status chec□ of the discovered elements is change order wor□.

If maintaining e□isting traffic management system elements during construction is not shown on the □id Item List and an e□isting system element is discovered during the wor□, notify the □ngineer. The □ngineer orders a pre□and postconstruction operational status chec□ of the discovered elements. The status chec□ of the discovered elements is change order wor□.

□onduct the status chec□ with the □ngineer and an electrical representative from the traffic operations office of the district in which the wor□ is located. The Department provides you a list of the preconstruction operational status□chec□ results, including:

1. □□isting traffic management system elements and their locations within the pro□ect limits
2. □ully functioning elements
□. □onoperational elements

□efore □ontract acceptance, conduct a postconstruction operational status chec□ of all elements shown on the list with the □ngineer and an electrical representative from the traffic operations office of the district in which the wor□ is located.

**Replace 10-3 of section 10 with:**

0□1□1□

**10-2–10-3 RESERVED**

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# 12 TEMPORARY TRAFFIC CONTROL

0□1□1□

**Replace section 12-3.32 with:**

0□1□1□

**12-3.32 PORTABLE CHANGEABLE MESSAGE SIGNS**

**12-3.32A General**

**12-3.32A(1) Summary**

Section 12□□.□2A includes specifications for placing portable changeable message signs.

**12-3.32A(2) Definitions**

Reserved

**12-3.32A(3) Submittals**

If requested, submit a certificate of compliance for each □□MS.

Submit your cell phone number before starting the first activity that requires a □□MS.

**12-3.32A(4) Quality Assurance**

Reserved

**12-3.32B Materials**

□ach □□MS must have a message board, controller unit, power supply, and a structural support system. The unit must be assembled to form a complete self□contained □□MS that can be delivered to the □ob site and placed into immediate operation. The sign unit must be capable of operating at an ambient air temperature from □□ to 1□□ degrees □ and must be unaffected by mobile radio transmissions other than those required to control the □□MS.

A □□MS must be permanently mounted on a trailer, truc□ bed, or truc□ cab under the manufacturer□s instructions. The □□MS must be securely mounted on the support vehicle such that it remains attached during any impact to the vehicle. If it is mounted on a trailer, the trailer must be capable of being leveled and plumbed.

A minimum of □ feet of retroreflective material must be permanently affi□ed on all □ sides of the trailer. The retroreflective material need not be continuous but must be visible on the same plane.

The sign panel must be capable of displaying a □□line message with at least □ characters per line. The characters must be at least 1□ inches in height where the useable shoulder area is at least 1□ feet wide.

To prevent encroachment onto the traveled way where the useable shoulder area is less than 1□ feet wide, you may use a smaller message panel with at least 12□inch□high characters.

The message displayed on the sign must be visible from a distance of 1,□00 feet and legible from a distance of □□0 feet at noon on a cloudless day and during the night by persons with 20□20 vision or vision corrected to 20□20.

The characters on a sign panel may be 10 inches in height if:

1. □□MS is mounted on a service patrol truc□or other incident response vehicle or used for traffic control operations on a highway facility where the posted speed limit is less than □0 mph
2. Message is legible from a distance of at least □□0 feet at noon on a cloudless day and during the night by persons with 20□20 vision or vision corrected to 20□20

A matri□sign must provide a complete alphanumeric selection.

A □□MS must automatically ad□ust its brightness under varying light conditions to maintain the legibility of the message. The sign must be equipped with an automatic□dimming mode that automatically compensates for the influence of temporary light sources or abnormal lighting conditions. The sign must have □ or more manual dimming modes of different intensities.

During the hours of dar□ness, a matri□sign not using lamps must be either internally or e□ternally illuminated.

The controller must be an all solid□state unit containing the necessary circuitry for the storage of at least □ preprogrammed messages. The controller must be installed at a location that allows the operator to perform all functions from a single position. The controller must have a □eyboard entry system that allows the operator to generate an infinite number of additional messages in addition to the preprogrammed stored messages. The □eyboard must be equipped with a security loc□out feature to prevent unauthori□ed use of the controller.

The controller must have:

1. □onvolatile memory that stores □eyboard□created messages during periods when the power is not activated
2. □ariable display rate that allows the operator to match the information display to the speed of approaching traffic
□. Screen upon which messages may be reviewed before being displayed on the sign

The flashing□off time must be ad□ustable from within the control cabinet.

**12-3.32C Construction**

□lace a □□MS as far from the traveled way as practicable where it is legible to approaching traffic without encroaching on the traveled way. Where the vertical roadway curvature restricts the sight distance of approaching traffic, place the sign on or before the crest of the curvature where it is most visible to the approaching traffic. Where the hori□ontal roadway curvature restricts the sight distance of approaching traffic, place the sign at or before the curve where it is most visible to approaching traffic. Where practicable, place the sign behind guardrail or Type □ temporary railing.

Ma□e a taper consisting of □traffic cones placed 2□ feet apart to delineate the location of a □□MS e□cept where the sign is placed behind guardrail or Type □ temporary railing.

When in full operation, the bottom of a sign must be at least □ feet above the roadway in areas where pedestrians are anticipated and □ feet above the roadway elsewhere, and the top of the sign must be not more than 1□.□ feet above the roadway.

Operate the □□MS under the manufacturer□s instructions.

□eep the □□MS clean to provide ma□imum visibility.

If multiple signs are needed, place each sign on the same side of the road at least 1,000 feet apart on freeways and e□pressways and at least □00 feet apart on other types of highways.

If more than one □□MS is simultaneously visible to traffic, only 1 sign may display a sequential message at any time. Do not use dynamic message displays, such as animation, rapid flashing, dissolving, e□ploding, scrolling, hori□ontal movement, or vertical movement of messages. The message must be centered within each line of the display.

□ou may use an additional □□MS if more than 2 phases are needed to display a message.

Display only messages shown or ordered.

Repeat the entire message continuously in not more than 2 phases of at least □ seconds per phase. The sum of the display times for both of the phases must be a ma□imum of □ seconds. If more than 2 phases are needed to display a message, use an additional □□MS.

□ou must be available by cell phone during activities that require a sign. □e prepared to immediately change the displayed message if ordered. □ou may operate the sign with a 2□□hour timer control or remote control if authori□ed.

After the initial placement, move a sign from location to location as ordered.

When a □□MS is not in use, move it to an area at least 1□ feet from the edge of the traveled way or remove it from the □ob site away from traffic.

**12-3.32D Payment**

□ot □sed

**Add between the 1st sentence and 2nd sentences in the 1st paragraph of section 12-4.02A(3)(a):**

0□1□1□

□or a pro□ect in District □, submit the request at least 1□ days before the proposed closure date.

**Replace section 12-4.02C(2) with:**

01□1□1□

**12-4.02C(2) Lane Closure System**

**12-4.02C(2)(a) General**

The Department provides L□S training. Request the L□S training at least □0 days before submitting the 1st closure request. The Department provides the training within 1□ days after your request.

L□S training is web□based or held at a time and location agreed upon by you and the □ngineer. □or web□ based training, the □ngineer provides you the website address to access the training.

With □ business days after completion of the training, the Department provides L□S accounts and user IDs to your assigned, trained representatives.

□ach representative must maintain a unique password and current user information in the L□S.

0□1□1□

The pro□ect is not accessible in L□S after □ontract acceptance.

01□1□1□

**12-4.02C(2)(b) Status Updates for Authorized Closures**

□pdate the status of authori□ed closures using the L□S Mobile web page.

□or a stationary closure, use code:

1. 10□□□ immediately before you place the 1st advance warning sign
2. 10□□□ immediately after you remove all of the advance warning signs

□or a moving closure, use code:

1. 10□□□ immediately before the actual start time of the closure
2. 10□□□ immediately after the actual end time of the closure

□ancel an authori□ed closure by using code 10□22 within 2 hours after the authori□ed start time.

If you are unable to access the L□S Mobile web page, immediately notify the □ngineer of the closure□s status.

**Replace the 1st sentence in the 3rd paragraph of section 12-6.03A with:**

0□1□1□

When the □ngineer determines the temporary pavement delineation is no longer required for the direction of traffic, remove the temporary pavement delineation, including any underlying adhesive for temporary pavement mar□ers, from the final layer of surfacing and from the pavement to remain in place.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 13 WATER POLLUTION CONTROL

0□02□1□

**Replace *General Industrial Permit* in the 2nd item in the list in the paragraph of section 13-1.01C(3) with:**

0□0□1□

Industrial □eneral □ermit

**Replace the 2nd paragraph of section 13-1.01D(2) with:**

0□0□1□

Discharges from manufacturing facilities, such as batch plants and crushing plants, must comply with the discharge requirements in the □□D□S □eneral □ermit for Storm Water Discharges Associated with Industrial Activities; Order □o. 201□□00□□□DW□, □AS000001 □Industrial □eneral □ermit□, issued by the SWR□□. □or the Industrial □eneral □ermit, go to the SWR□□ website.

**Replace *General Industrial Permit* in the 3rd paragraph of section 13-1.01D(2) with:**

0□0□1□

Industrial □eneral □ermit

**Replace the 2nd paragraph of section 13-3.01D(2) with:**

0□02□1□

□or a pro□ect in the La□e Tahoe □ydrologic □nit, discharges of stormwater from the pro□ect must comply with the □□D□S □eneral □ermit for □eneral Waste Discharge Requirements and □ational □ollutant Discharge □limination System □eneral □ermit for Storm Water Discharges Associated with □onstruction Activity in the La□e Tahoe □ydrologic □nit, □ounties of Alpine, □l Dorado, and □lacer, □Order □o. R□T□ 201□□0010 and □□D□S □o. □A□□1□002□. □ou may view the □eneral □ermit for the La□e Tahoe □ydrologic □nit at the □onstruction Storm Water □rogram page of the SWR□□ website.

**Replace the 2nd paragraph of section 13-8.01D(2) with:**

0□02□1□

□or a pro□ect within the La□e Tahoe □ydrologic □nit, the design, installation, operation, and monitoring of the temporary ATS and monitoring of the treated effluent must comply with Attachment □ of the □□D□S □eneral □ermit for □eneral Waste Discharge Requirements and □ational □ollutant Discharge □limination System □eneral □ermit for Storm Water Discharges Associated with □onstruction Activity in the La□e Tahoe □ydrologic □nit, □ounties of Alpine, □l Dorado, and □lacer, □Order □o. R□T□201□□0010 and □□D□S □o. □A□□1□002□. □ou may view the □eneral □ermit for the La□e Tahoe □ydrologic □nit at the □onstruction Storm Water □rogram page of the SWR□□ website.

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## 16 TEMPORARY FACILITIES

0□□1 □□1 □

**Add between the 1st and 2nd sentences of section 16-2.03A(1):**

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□onstructing a high□visibility fence includes the installation of any signs specified in the special provisions.

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# DIVISION III EARTHWORK AND LANDSCAPE

## 20 LANDSCAPE

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**Replace *86* in the 1st paragraph of section 20-2.01C(2) with:**

0□□1 □□1 □

□□

**Replace the 8th paragraph of section 20-2.01C(2) with:**

0□□1 □□1 □

Trenches for irrigation supply lines and conduits □ inches and larger in diameter must be a minimum of 1□ inches below the finished grade, measured to the top of the installed pipe.

**Replace *86* in the 1st paragraph of section 20-2.01C(3) with:**

0□□1 □□1 □

□□

**Replace section 20-2.04A(4) with:**

0□□1 □□1 □

□erform conductors test. The test must comply with the specifications in section □□.

Where the conductors are installed by trenching and bac□filling, perform the test after a minimum of □ inches of bac□fill material has been placed and compacted over the conductors.

**Replace the 1st paragraph of section 20-2.04C(4) with:**

0□□1 □□1 □

Splice low voltage control and neutral conductors under section □□, e□cept do not use Method □.

**Replace the 3rd paragraph of section 20-2.05B with:**

0□□1 □□1 □

The impeller must be glass reinforced nylon on a tungsten carbide shaft.

**Replace *86* in the 2nd paragraph of section 20-2.06C with:**

0□□1 □□1 □

□□

**Replace section 20-2.07B(5) with:**

04-15-16

**20-2.07B(5) PVC Pipe Conduit Sleeve**

PVC pipe conduit sleeves must be schedule 40 complying with ASTM D1785.

Fittings must be schedule 40.

**Replace section 20-2.07C(3) with:**

04-15-16

**20-2.07C(3) PVC Pipe Conduit Sleeve**

Where PVC pipe conduit sleeves 2 inches or less in outside diameter is installed under surfacing, you may install by directional boring under section 20-2.07D(2)(b).

For sleeves 2 inches or less in diameter, the top of the conduit must be a minimum of 18 inches below surfacing.

Extend sleeves 6 inches beyond surfacing. Cap ends of conduit until used.

**Replace sections 20-2.09B and 20-2.09C with:**

07-15-16

**20-2.09B Materials**

**20-2.09B(1) General**

Swing joints must match the inlet connection size of the riser.

Where shown, a sprinkler assembly must include a check valve.

Threaded nipples for swing joints and risers must be schedule 80, PVC 1120 or PVC 1220 pipe, and comply with ASTM D1785. Risers for sprinkler assemblies must be UV resistant.

Fittings for sprinkler assemblies must be injection molded PVC, schedule 40, and comply with ASTM D2466.

Flexible hose for sprinkler assemblies must be lead free, non-rigid and comply with ASTM D2287, cell Type 65645-00. The hose must comply with ASTM D2122 and have the thickness shown in the following table:

| Nominal hose diameter (inch) | Minimum wall thickness (inch) |
|---|---|
| 1/2 | 0.127 |
| 3/4 | 0.154 |
| 1 | 0.179 |

Solvent cement and fittings for flexible hose must comply with section 20-2.08(5).

**20-2.09B(2) Pop-Up Sprinkler Assemblies**

Each pop-up sprinkler assembly must include a body, nozzle, swing joint, pressure reducing device, fittings, and sprinkler protector where shown.

**20-2.09B(3) Riser Sprinkler Assemblies**

Each riser sprinkler assembly must include a body, flexible hose, threaded nipple, nozzle, swing joint (except for a Type V riser), pressure reducing device, fittings, and riser support where shown.

**20-2.09B(4) Tree Well Sprinkler Assemblies**

Each tree well sprinkler assembly must include a threaded nipple, nozzle, swing joint, fittings, perforated drainpipe, and drain grate.

The perforated drainpipe must be commercial□grade, rigid PVC pipe with holes spaced not more than 6 inches on center on 1 side of the pipe.

The drain grate must be a commercially□available, 1□piece, in□ection□molded grate manufactured from structural foam polyolefins with UV light inhibitors. Drain grate must be blac□.

□ravel for filling the drainpipe must be graded such that 100 percent passes the 3/4□inch sieve and 100 percent is retained on the 1□2□inch sieve. The gravel must be clean, washed, dry, and free from clay or organic material.

**20-2.09C Construction**

Where shown, install a flow shut□off device under the manufacturer□s instructions, unless you use equipment with a preinstalled flow shut□off device.

Where shown, install a pressure reducing device under the manufacturer□s instructions, unless you use equipment with a preinstalled pressure reducing device.

Install pop□up and riser sprin□ler assembly:

1. □rom 6-□12 to 8 feet from curbs, di□es, and sidewal□s
2. At least 10 feet from paved shoulders
3. At least 3 feet from fences and walls

If sprin□ler assembly cannot be installed within these limits, the location will be determined by the □ngineer.

Set sprin□ler assembly riser on slopes perpendicular to the plane of the slope.

**Replace the paragraph of section 20-2.10B(3) with:**

07□15□16

□ach chec□ valve must be one of the following:

1. Schedule □0 PVC with a factory setting to withstand a minimum 7□foot head on risers
2. □lass 200 P□C if used on a nonpressuri□ed plastic irrigation supply line
3. Internal to the sprin□ler body with a factory setting to withstand a minimum 7□foot head

**Replace the paragraph of section 20-2.10C(3) with:**

07□15□16

Install chec□ valves as necessary to prevent low□head drainage.

**Replace the paragraphs of section 20-3.01B(10) with:**

07□15□16

□ach plant sta□e for vines must be nominal 1 by 1 inch and 18 inches long.

□ach plant sta□e for trees must be nominal 2 by 2 inches or nominal 2 inches in diameter and long enough to □eep the tree in an upright position.

**Replace the paragraph of section 20-3.01B(11) with:**

07□15□16

□ach plant tie for vines must be e□truded vinyl□based tape, 1 inch wide and at least 8 mils thic□.

□ach plant tie for trees must be a (□) minimum 3/4□inch□wide, □□□resistant, fle□ible vinyl tie complying with ASTM D412 for tensile and elongation strength, or (?) loc□stitch, woven polypropylene with a minimum 900 lb tensile strength.

**Add between the 7th and 8th paragraphs of section 20-3.02C(3)(b):**

0□1□1□

Spread the vine shoots and tie them with a plant tie to each sta□e above the crossing point.

**Replace the 8th paragraph of section 20-3.02C(3)(b) with:**

0□1□1□

Tie trees to the sta□es with 2 tree ties, 1 tie to each sta□e. □ach tie must form a figure eight by crossing the tie between the tree and the sta□e. Install ties at the lowest position that will support the tree in an upright position. Install the ties such that they provide trun□ fle□ibility but do not allow the trun□ to rub against the sta□es. Wrap each end of the tie 1□1□2 turns around the sta□e and securely tie or nail it to the sta□e.

**Replace the 1st paragraph of section 20-5.02C(1) with:**

0□1□1□

Where edging is used to delineate the limits of inert ground cover or wood mulch areas, install the edging before installing the inert ground cover or wood mulch.

0□1□1□

**Delete *AND MULCHES* in the heading of section 20-5.03.**

0□1□1□

**Delete *and mulches* in the paragraph of section 20-5.03A(1)(a).**

**Replace the paragraph of section 20-5.03A(3)(a) with:**

0□1□1□

□efore installing inert ground cover, remove plants and weeds to the ground level.

0□1□1□

**Delete *or mulch* at each occurrence in sections 20-5.03A(3)(c) and 20-5.03A(3)(d).**

**Replace section 20-5.03E with:**

0□1□1□

**20-5.03E Reserved**

**Replace section 20-5.04 with:**

0□1□1□

**20-5.04 WOOD MULCH**

**20-5.04A General**

**20-5.04A(1) Summary**

Section 20□□.0□ includes specifications for placing wood mulch.

**20-5.04A(2) Definitions**

Reserved

**20-5.04A(3) Submittals**

Submit a certificate of compliance for wood mulch.

Submit a 2 cu ft mulch sample with the mulch source shown on the bag. Obtain authori□ation before delivering the mulch to the □ob site.

**20-5.04A(4) Quality Assurance**

Reserved

### 20-5.04B Materials

#### 20-5.04B(1) General

Mulch must not contain more than 0.1 percent of deleterious materials such as roc□s, glass, plastics, metals, clods, weeds, weed seeds, coarse ob□ects, stic□s larger than the specified particle si□e, salts, paint, petroleum products, pesticides or chemical residues harmful to plant or animal life.

#### 20-5.04B(2) Tree Bark Mulch

Tree bar□mulch must be derived from cedar, Douglas fir, or redwood species.

The mulch must be ground such that at least □□ percent of the material by volume is less than 2 inches long in any dimension and no more than □0 percent by volume is less than 1 inch long in any dimension.

#### 20-5.04B(3) Wood Chip Mulch

Wood chip mulch must:

1. □e derived from clean wood
2. □ot contain leaves or small twigs
□. □ontain at least □□ percent by volume of wood chips with a width and thic□ness from 1□1□ to □□□ inch and a length from 1□2 to □ inches

#### 20-5.04B(4) Shredded Bark Mulch

Shredded bar□mulch must:

1. □e derived from trees
2. □e a blend of loose, long, thin wood, or bar□ pieces
□. □ontain at least □□ percent by volume of wood strands with a width and thic□ness from 1□□ to 1□1□2 inches and a length from 2 to □ inches

#### 20-5.04B(5) Tree Trimming Mulch

Tree trimming mulch must:

1. □e derived from chipped trees and may contain leaves and small twigs
2. □ontain at least □□ percent by volume of material less than □ inches long for any dimension and not more than □0 percent by volume of material less than 1 inch long for any dimension

#### 20-5.04B(6)–20-5.04B(11) Reserved

### 20-5.04C Construction

□efore placing wood mulch, remove plants and weeds to the ground level.

Maintain the planned flow lines, slope gradients, and contours of the □ob site. □rade the subgrade to a smooth and uniform surface.

□lace mulch after the plants have been planted.

□lace mulch in the plant basin at the rate described. Mulch must not come in contact with the plant crown and stem.

□lace mulch as shown in areas outside of plant basins to a uniform thic□ness.

Spread mulch from the outside edge of the plant basin to the ad□acent edges of shoulders, paving, retaining walls, di□es, edging, curbs, sidewal□s, walls, fences, and e□isting plantings. If the plant is 12 feet or more from the ad□acent edges of any of these elements, spread the mulch □ feet beyond the outside edge of the plant basin.

Do not place mulch within □ feet of:

1. □low line of earthen drainage ditches
2. □dge of paved ditches
□. Drainage flow lines

**20-5.04D Payment**

The payment quantity for wood mulch is the volume measured in the vehicle at the point of delivery.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 21 EROSION CONTROL

0□□1 □□1 □

**Add between *tube* and *12* in the 1st paragraph of section 21-2.02Q:**

0□□1 □□1 □

□or

^^^^^^^^^^^^^^^^^^^

If the independent third party determines the Department's test results are valid, the □ngineer deducts the independent third party testing costs from payments. If the independent third party determines your test results are valid, the Department pays the independent third party testing costs.

### 23-1.01D(2) Quality Control

#### 23-1.01D(2)(a) General

□rovide a □□ manager when the quantity of subbase or base is as shown in the following table:

**QC Manager Requirements**

| Subbase or base | Requirement |
|---|---|
| Stabili□ed soil □sq yd□ | ≥ 20,000 |
| Aggregate subbases □cu yd□ | ≥ 20,000 |
| Aggregate bases □cu yd□ | ≥ 20,000 |
| □T□ □cu yd□ | ≥ 10,000 |
| Lean concrete base □cu yd□ | ≥ 2,000 |
| Rapid strength concrete base □cu yd□ | ≥ 1,000 |
| Lean concrete base rapid setting □cu yd□ | ≥ 1,000 |
| □oncrete base □cu yd□ | ≥ 1,000 |
| Treated permeable bases □cu yd□ | ≥ 2,000 |
| Reclaimed pavements □sq yd□ | ≥ 10,000 |

□rovide a testing laboratory to perform quality control tests. Maintain sampling and testing equipment in proper wor□ing condition.

□ou are not entitled to compensation for the suspension of wor□ resulting from noncompliance with quality control requirements, including those identified within the □□ plan.

#### 23-1.01D(2)(b) Quality Control Plan

The □□ plan must describe the organi□ation and procedures used to:

1. □ontrol the production process
2. Determine if a change to the production process is needed
3. Implement a change

The □□ plan must include action and suspension limits and details of corrective action to be ta□en if any process is outside of those limits. Suspension limits must not e□ceed specified acceptance criteria.

The □□ plan must describe how test results will be submitted including times for sampling and testing for each quality characteristic.

#### 23-1.01D(2)(c) Qualifications

Testing laboratories and testing equipment must comply with the Department's Independent Assurance □rogram.

□ersonnel performing sampling and testing must be qualified under the Department's Independent Assurance □rogram for the sampling and testing performed.

### 23-1.01D(3) Department Acceptance

Reserved

### 23-1.02 MATERIALS

□ot □sed

### 23-1.03 CONSTRUCTION

□ot □sed

### 23-1.04 PAYMENT

□ot □sed

**23-2–23-7 RESERVED**

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 24 STABILIZED SOILS

0□□1 □□1 □

**Add to section 24-1.01C(1):**

0□□1 □□1 □

Submit a stabili□ed soil quality control plan.

**Add to section 24-1.01D(1):**

0□□1 □□1 □

□onstruct test pads for compaction tests by scraping away material to the depth ordered. If a compaction test fails, corrective action must include the layers of material already placed above the test pad elevation.

**Replace section 24-1.01D(2) with:**

0□□1 □□1 □

**24-1.01D(2) Quality Control**

**24-1.01D(2)(a) General**

Reserved

**24-1.01D(2)(b) Quality Control Plan**

Reserved

**24-1.01D(2)(c) Qualifications**

Reserved

**24-1.01D(2)(d) Preparing Basement Material**

After preparing an area for soil stabili□ation, verify the surface grades.

**24-1.01D(2)(e) Mixing**

□□cept for clods larger than 1 inch, randomly test the adequacy of the mi□ing with a phenolphthalein p□ indicator solution.

**Replace the 1st paragraph of section 24-1.03C with:**

0□□1 □□1 □

The □ngineer orders the application rate as pounds of stabili□ing agent per square yard of basement material to be stabili□ed.

0□□1 □□1 □

**Delete section 24-2.01D(1)(c)**

**Replace *250* in the 2nd sentence in the 2nd paragraph of section 24-2.01D(2)(c) with:**

0□□1 □□1 □

□00

**Add to section 24-2.01D(2):**

0□1□1□

**24-2.01D(2)(d) Quality Control Testing**

Lime stabili□ed soil quality control must include testing the quality characteristics at the frequencies shown in the following table:

**QC Testing Frequencies**

| □uality characteristic | Test method | Sampling location | Minimum frequency |
|---|---|---|---|
| □round surface temperature before adding lime and full depth ground temperature during mi□ing operations | □□ | □ach temperature location | 1 test per 20,000 sq ft, minimum 1 per day |
| Lime application rate | □alibrated tray or equal | Roadway | 1 test per □0,000 sq ft, minimum 2 per day |
| □radation on mi□ed material | □alifornia Test 202 | Roadway | 1 per □00 cu yd, minimum 1 per day |
| Moisture content | □alifornia Test 22□ | Roadway | 1 per □00 cu yd on each layer, each day during mi□ing and mellowing periods, minimum 1 per day |
| Relative compaction | □alifornia Test 2□1 | Roadway | 1 per □00 cu yd on each layer, minimum 1 per day |

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 25 AGGREGATE SUBBASES

0□□1□□1□

**Replace *Reserved* in section 25-1.01C with:**

0□□1□□1□

Submit an aggregate subbase □ □ plan.

**Replace *Reserved* in section 25-1.01D(2) with:**

0□□1□□1□

**25-1.01D(2)(a) General**

Reserved

**25-1.01D(2)(b) Quality Control Plan**

Reserved

**25-1.01D(2)(c) Qualifications**

Reserved

**25-1.01D(2)(d) Quality Control Testing**

AS quality control must include testing the quality characteristics at the frequencies shown in the following table:

**QC Testing Frequencies**

| □uality characteristic | Test method | Sampling location | Minimum frequency |
|---|---|---|---|
| R□value | □alifornia Test □01 | Stoc□piles, transportation units, windrows, or roadways | 1 test before beginning wor□ and every 2000 cu yd thereafter[a] |
| Aggregate gradation | □alifornia Test 202 | Stoc□piles, transportation units, windrows, or roadways | 1 per □00 cu yd but at least one per day of placement |
| Sand equivalent | □alifornia Test 21□ | Stoc□piles, transportation units, windrows, or roadways | |
| Relative compaction | □alifornia Test 2□1 | Roadway | 1 per □00 sq yd on each layer |

[a]Additional R□value frequency testing will not be required when the average of □consecutive sand equivalent tests is □or more above the specified operating range value.

**Add between the 2nd and 3rd paragraphs of section 25-1.01D(3):**

0□□1□□1□

The □ngineer ta□es aggregate subbase samples for R□value, aggregate gradation, and sand equivalent from any of the following locations:

1. Windrow
2. Roadway

0□□1□□1□

**Delete *for each noncompliant test result* in the 4th paragraph of section 25-1.01D(3).**

0□□1□□1□

**Delete *a* in the 5th paragraph of section 25-1.01D(3).**

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

## 26 AGGREGATE BASES

0□□1□□1□

**Replace *Reserved* in section 26-1.01C with:**

0□□1□□1□

Submit an aggregate base □□ plan.

**Replace *Reserved* in section 26-1.01D(1) with:**

0□□1□□1□

Aggregate samples must not be treated with lime, cement, or chemicals before testing for durability inde□. Aggregate from untreated reclaimed processed A□, □□□, L□□, or □T□ is not considered treated.

**Replace *Reserved* in section 26-1.01D(2) with:**

0□1□1□

**26-1.01D(2)(a) General**

Reserved

**26-1.01D(2)(b) Quality Control Plan**

Reserved

**26-1.01D(2)(c) Qualifications**

Reserved

**26-1.01D(2)(d) Quality Control Testing**

A□ quality control must include testing the quality characteristics at the frequencies shown in the following table:

**QC Testing Frequencies**

| □uality characteristic | Test method | Sampling location | Minimum frequency |
|---|---|---|---|
| R□value | □alifornia Test □01 | Stoc□piles, transportation units, windrows, or roadways | 1 test before starting wor□ and every 2,000 cu yd thereafter[a] |
| Aggregate gradation | □alifornia Test 202 | Stoc□piles, transportation units, windrows, or roadways | 1 per □00 cu yd but at least one per day of placement |
| Sand equivalent | □alifornia Test 21□ | Stoc□piles, transportation units, windrows, or roadways | |
| Durability inde□[b] | □alifornia Test 22□ | Stoc□piles, transportation units, windrows, or roadways | 1 per pro□ect |
| Relative compaction | □alifornia Test 2□1 | Roadway | 1 per □00 sq yd on each layer |

[a]Additional R□value frequency testing will not be required when the average of □ consecutive sand equivalent tests is 2□ or greater for □lass 2 A□ or 2□ or greater for □lass □A□.
[b]Applies if section 2□□1.02 contains an applicable requirement for durability inde□

**Add between *requirements,* and *and* in the 1st paragraph of section 26-1.01D(3):**

0□1□1□

durability,

**Add between the 2nd and 3rd paragraphs of section 26-1.01D(3):**

0□1□1□

The □ngineer ta□es aggregate base samples for R□value, aggregate gradation, sand equivalent, and durability inde□from any of the following locations:

1. Windrow
2. Roadway

0□1□1□

**Delete the 3rd paragraph of section 26-1.01D(3).**

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 27 CEMENT TREATED BASES

0□□1 □□1□

**Add to section 27-1.01C:**

0□□1 □□1□

Submit cement treated base □□ plan.

**Replace the headings and paragraphs in section 27-1.01D with:**

0□□1 □□1□

**27-1.01D Quality Assurance**

**27-1.01D(1) General**

After the □T□ has been spread on the subgrade and before initial compaction, the cement content of the completed mi□ture of □T□ must not vary from the specified cement content by more than 0.□ percent of the weight of the dry aggregate when tested under □alifornia Test □□□.

□or □lass A □T□, compaction is tested under □alifornia Test □12 or 2□1.

The relative compaction of □T□ must be at least □□ percent. □ach layer of □T□ may be tested for compaction, or all layers may be tested together at the option the □ngineer. If all layers are tested together, you are not relieved of the responsibility to achieve the required compaction in each layer placed.

**27-1.01D(1)(a) Aggregate**

When tested under □alifornia Test □01, aggregate for □lass □ □T□ must have □1□an R□value of at least □0 before mi□ing with cement and □2□an R□value of at least □0 when aggregate is mi□ed with an amount of cement that does not e□ceed 2.□ percent by weight of the dry aggregate.

□efore sand equivalent testing, aggregate samples must not be treated with lime, cement, or chemicals.

If the aggregate gradation test results, the sand equivalent test results, or both comply with contract compliance requirements but not operating range requirements, you may continue placing □T□ for the remainder of the wor□day. Do not place additional □T□ until you demonstrate to the □ngineer that the □T□ to be placed complies with the operating range requirements.

If the aggregate gradation test results, sand equivalent test results, or both do not comply with contract compliance requirements, remove the □T□ or request a payment deduction. If your request is authori□ed, □2.□0□cu yd is deducted. If □T□ is paid for by weight, the □ngineer converts tons to cubic yards for the purpose of reducing payment for noncompliant □T□ left in place. An aggregate gradation and a sand equivalent test represents up to □1□□00 cu yd or □2□1 day□s production if less than □00 cu yd.

**27-1.01D(1)(b) Road-Mixed Cement Treated Base Moisture Content**

□ust before initial compaction the moisture content of the completed mi□ture must be at least the optimum moisture content less 1 percent. The moisture content is determined under □alifornia Test 22□ and optimum moisture content is determined under □alifornia Test □12.

**27-1.01D(1)(c) Plant-Mixed Cement Treated Base Moisture Content**

At the point of delivery to the wor□, the moisture content of the completed mi□ture must be at least the optimum moisture content less 1 percent. The moisture content is determined under □alifornia Test 22□ and optimum moisture content under □alifornia Test □12.

**27-1.01D(2) Quality Control**

**27-1.01D(2)(a) General**

Reserved

**27-1.01D(2)(b) Quality Control Plan**

Reserved

### 27-1.01D(2)(c) Qualifications

Reserved

### 27-1.01D(2)(d) Quality Control Testing

□T□ quality control must include testing the quality characteristics at the frequencies shown in the following table:

**QC Testing Frequencies**

| □uality characteristic | Test method | Sampling location | Minimum frequency |
|---|---|---|---|
| Aggregate gradation | □alifornia Test 202 modified | Stoc□piles, plant, transportation units, windrow, or roadway | 1 per □00 cu yd but at least one per day of placement |
| Sand equivalent | □alifornia Test 21□ | Stoc□piles, plant, transportation units, windrow, or roadway | |
| R□value[a] | □alifornia Test □01 | Stoc□piles, plant, transportation units, windrows, or roadway | 1 test before starting wor□ and every 2000 cu yd thereafter[b] |
| Optimum moisture content | □alifornia Test □12 | □lant, transportation units, windrow, or roadway | 1 per day of placement |
| Moisture content | □alifornia Test 22□ | Roadway | 1 per □00 cu yd but at least one per day of placement |
| □ement content | □alifornia Test □□□ | Windrows or roadway | 1 per 1000 cu yd but at least one per day of placement |
| Relative compaction | □alifornia Test □12 or 2□1 | Roadway | 1 per 2000 sq yd but at least one per day of placement |
| □ompressive strength[c] | □alifornia Test □12 | Windrow or roadways | 1 per day of placement |

[a]R□value is required for □lass □ □T□ only

[b]Additional R□value frequency testing will not be required while the average of □consecutive sand equivalent tests is □or more above the specified operating range value.

[c]□ompressive strength is required for □lass A □T□ only when specified

### 27-1.01D(3) Department Acceptance

The Department's acceptance testing includes testing the □T□ quality characteristics shown in the following table:

**CTB Requirements for Acceptance**

| □uality characteristic | Test method |
|---|---|
| Aggregate gradation | □alifornia Test 202 modified |
| Sand equivalent | □alifornia Test 21□ |
| R□value[a] | □alifornia Test □01 |
| Optimum moisture content | □alifornia Test □12 |
| Moisture content | □alifornia Test 22□ |
| □ement content | □alifornia Test □□□ |
| Relative compaction | □alifornia Test □12 or 2□1 |
| □ompressive strength[b] | □alifornia Test □12 |

[a]R□value is required for □lass □ □T□ only

[b]□ompressive strength is required for □lass A □T□ only when specified

The □ngineer ta□es samples for aggregate gradation and sand equivalent from any of the following locations:

1. □lant

2. Truc□
□. Windrow, for road□mi□ed only
□. Roadbed, for road□mi□ed only

**Add to section 27-1.02:**

0□□1□□1□

Water must comply with section □0□1.02D.

**Add to section 27-1.03F:**

0□□1□□1□

The relative compaction of □T□ must be at least □□ percent.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 28 CONCRETE BASES

0□□1□□1□

**Replace the headings and paragraphs in section 28-1.01D with:**

0□□1□□1□

**28-1.01D Quality Assurance**

**28-1.01D(1) General**

Aggregate samples must not be treated with lime, cement, or chemicals before testing for sand equivalent.

Stop concrete base activities and immediately notify the □ngineer whenever:

1. Any □□ or □A test result does not comply with the specifications
2. □isual inspection shows a noncompliant concrete base

If concrete base activities are stopped, before resuming activities:

1. □otify the □ngineer of the ad□ustments you will ma□e
2. Remedy or replace the noncompliant concrete base
□. □ield qualify or construct a new test strip as specified for the concrete base involved to demonstrate compliance with the specifications
□. Obtain authori□ation

**28-1.01D(2) Quality Control**

**28-1.01D(2)(a) General**

Reserved

**28-1.01D(2)(b) Quality Control Plan**

Reserved

**28-1.01D(2)(c) Qualifications**

Reserved

**28-1.01D(3) Department Acceptance**

Reserved

**Add to section 28-2.01C(1):**

0□□1□□1□

Submit a lean concrete base □□ plan.

**Replace the headings and paragraphs in section 28-2.01D with:**

0□1□1□

**28-2.01D Quality Assurance**

**28-2.01D(1) General**

**28-2.01D(1)(a) General**

The molds for compressive strength testing under ASTM □□1 or ASTM □1□2 must be □ by 12 inches.

If the aggregate gradation test results, sand equivalent test results or both comply with the contract compliance requirements but not the operating range requirements, you may continue placing L□□ for the remainder of the wor□day. Do not place additional L□□ until you demonstrate the L□□ to be placed complies with the operating range requirements.

**28-2.01D(1)(b) Qualifications**

□ield qualification tests and calculations must be performed by an A□I certified "□oncrete Laboratory Technician, □rade I.

**28-2.01D(1)(c) Aggregate Qualification Testing**

□ualify the aggregate for each proposed aggregate source and gradation. The qualification tests include □1□a sand equivalent and □2□an average □□day compressive strength under ASTM □□□ of □cylinders manufactured under ASTM □1□2 e□cept cure cylinders in molds without lids after initial curing.

□or the compressive strength test, the cement content for each cylinder must be □00 lb□cu yd. The □□day average compressive strength must be at least □10 psi. The cement must be Type II portland cement.

L□□ must have from □ to □ percent air content during aggregate qualification testing.

**28-2.01D(1)(d) Field Qualification Testing**

□efore placing L□□, you must perform field qualification testing and obtain authori□ation for each mi□ design. Retest and obtain authori□ation for changes to the authori□ed mi□designs.

□otify the □ngineer at least □ business days before field qualification. □erform the field qualification at the □ob site or an authori□ed location.

□ield qualification testing includes tests for compressive strength, air content, and penetration or slump.

□or compressive strength field qualification testing:

1. □repare 12 cylinders under ASTM □□1 e□cept final cure cylinders in molds without lids from a single batch.
2. □erform □ tests; each test consists of determining the average compressive strength of 2 cylinders at □ days under ASTM □□□. The average compressive strength for each test must be at least □□0 psi

If you submitted a notice to produce L□□ qualifying for a transverse contraction □oint waiver, manufacture additional specimens and test the L□□ for compressive strength at □ days. □repare the compressive strength cylinders under ASTM □□1 e□cept final cure cylinders in molds without lids at the same time using the same material and procedures as the □□day compressive strength cylinders e□cept do not submit □ additional test cylinders. The average □□day compressive strength for each test must be not more than □00 psi.

**28-2.01D(2) Quality Control**

**28-2.01D(2)(a) General**

Reserved

**28-2.01D(2)(b) Quality Control Manager**

Reserved

**28-2.01D(2)(c) Quality Control Testing**

Test the L□□ under the test methods and at the locations and frequencies shown in the following table:

**LCB Sampling Location and Testing Frequencies**

| □uality characteristic | Test method | Sampling location | Minimum sampling and testing frequency |
|---|---|---|---|
| Sand equivalent | ASTM D2□1□ | Source | 1 per □00 cubic yards but at least 1 per day of production |
| Aggregate gradation | ASTM □1□□ | | |
| Air content | ASTM □2□1 | □ob site | |
| □enetration[a] | ASTM □□□0 | | |
| Slump[a] | ASTM □1□□ | | |
| □ompressive strength | ASTM □□□[b] | | |

[a]Test for either penetration or slump

[b]□repare cylinders under ASTM □□1 e□cept final cure cylinders in molds without lids.

**28-2.01D(3) Department Acceptance**

The Department accepts L□□ based on compliance with the requirements shown in the following table:

**LCB Requirements for Acceptance**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □ompressive strength □min, psi at □days□ | ASTM □□□[a] | □□0[b] |

[a] □ylinders prepared under ASTM □□1 e□cept final cure cylinders in molds without lids.

[b] A compressive strength test represents up to □1□1,000 cu yd or □2□1 day□s production if less than 1,000 cu yd.

**Replace *section 28-2.01D(4)* in item 3 of the 5th paragraph in section 28-2.03D with:**

0□1□1□

section 2□□2.01D□1□□c□

**Replace the 1st paragraph in section 28-2.03F with:**

0□1□1□

After finishing L□□, cure L□□ with pigmented curing compound under section □0□1.0□□□□□and □0□1.0□□. Apply curing compound:

1. In 2 separate applications
2. □efore the atmospheric temperature falls below □0 degrees □
□. At a rate of 1 gal□1□0 sq ft for the first application
□. At a rate of 1 gal□200 sq ft for the second application

**Replace *Reserved* in section 28-3.01C(3) with:**

0□1□1□

Submit a rapid strength concrete base □□ plan.

**Replace the headings and paragraphs in section 28-3.01D with:**

0□1□1□

**28-3.01D Quality Assurance**

**28-3.01D(1) General**

**28-3.01D(1)(a) General**

At the preconstruction meeting be prepared to discuss the pro□ect specifications and methods of performing each item of wor□. Items discussed must include the processes for:

1. □roduction
2. Transportation

□. □lacement
□. □□ plan, if specified in the special provisions
□. □ontingency plan
□. □□ sampling and testing
□. Acceptance criteria

□eams for modulus of rupture testing must be fabricated and tested under □alifornia Test □2□. The beams may be fabricated using an internal vibrator under ASTM □□1. □or each test, □beam must be fabricated and the test results averaged. □o single test represents more than that day□s production or 1□0 cu yd, whichever is less.

□or early age testing, beams must be cured so the monitored temperatures in the beams and the test strip are always within □degrees □. The internal temperatures of the RS□ base and early age beams must be monitored and recorded at intervals of at least □minutes. Thermocouples or thermistors connected to strip□chart recorders or digital data loggers must be installed to monitor the temperatures. Temperature recording devices must be accurate to within □2 degrees □. □ntil early age testing is completed, internal temperatures must be measured at 1 inch from the top, 1 inch from the bottom, and no closer than □inches from any edge.

□or other age testing, beams must be cured under □alifornia Test □2□ e□cept beams must be placed into sand at a time that is the earlier of either from □to 10 times the final set time, or 2□hours.

RS□ base must have an opening age modulus of rupture of not less than □00 psi and a □□day modulus of rupture of not less than □00 psi.

**28-3.01D(1)(b) Preconstruction Meeting**

Reserved

**28-3.01D(1)(c) Test Strip**

Reserved

**28-3.01D(2) Quality Control**

**28-3.01D(2)(a) General**

Reserved

**28-3.01D(2)(b) Quality Control Manager**

Reserved

**28-3.01D(2)(c) Quality Control Testing**

Test the rapid strength concrete base under the test methods and at the locations and frequencies shown in the following table:

**Rapid Strength Concrete Base Sampling Location and Testing Frequencies**

| □uality characteristic | Test method | Sample Location | Minimum testing frequency[a] |
|---|---|---|---|
| □leanness value | □alifornia Test 22□ | Source | 1 per □00 cubic yards but at least 1 per shift |
| Sand equivalent | □alifornia Test 21□ | | |
| Aggregate gradation | □alifornia Test 202 | | |
| Air content | □alifornia Test □0□ | □ob site | 1 per 1□0 cu yd but at least 1 per shift |
| □ield | □alifornia Test □1□ | | 1 per shift |
| Slump or penetration | ASTM □1□□or □alifornia Test □□□ | | 1 per 2 hours of placement |
| Density | □alifornia Test □1□ | | 1 per shift |
| Aggregate moisture meter calibration[b] | □alifornia Test 22□ or □alifornia Test 22□ | | 1 per shift |
| Modulus of rupture | □alifornia Test □2□ | | 1 per 1□0 cu yd but at least 1 per shift |

[a]Test at the most frequent interval.

[b]□hec□calibration of the plant moisture meter by comparing moisture meter readings with □alifornia Test 22□ or □alifornia Test 22□ test results.

□otify the □ngineer at least 2 business days before any sampling and testing. Submit testing results within 1□ minutes of testing completion. Record inspection, sampling, and testing on the forms accepted with the □□ plan and submit them within □□ hours of completion of each day of production and within 2□ hours of □□day modulus of rupture tests.

During the placement of RS□ base, fabricate beams and test for the modulus of rupture:

1. At opening age
2. At □ days after placing the first □0 cu yd
□. At least once every 1□0 cu yd
□. Within the final truc□load

Opening age tests must be performed in the presence of the □ngineer.

**28-3.01D(3) Department Acceptance**

The Department accepts RS□ base based on compliance with the requirements shown in the following table:

**RSC Base Requirements for Acceptance**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Modulus of rupture □min, psi at □days□ | □alifornia Test □2□ | □00 |

The □ngineer ad□ust payment for RS□ base for the □□day modulus of rupture as follows:

1. □ayment for a base with a modulus of rupture of □00 psi or greater is not ad□usted.
2. □ayment for a base with a modulus of rupture of less than □00 and greater than or equal to □□0 psi is reduced by □ percent.
□. □ayment for a base with a modulus of rupture of less than □□0 and greater than or equal to □00 psi is reduced by 10 percent.
□. □ayment for a base with a modulus of rupture of less than □00 psi is not ad□usted and no payment is made. Remove and replace this base.

**Add to section 28-4.01C(1):**

0□1□1□

Submit a lean concrete base rapid setting □□ plan.

**Replace the headings and paragraphs in section 28-4.01D with:**

0□□1□□1□

**28-4.01D Quality Assurance**

**28-4.01D(1) General**

**28-4.01D(1)(a) General**

□or compressive strength testing, prepare □ cylinders under □alifornia Test □□0. Test cylinders must be □ by 12 inches. As an alternative to rodding, a vibrator may be used under □alifornia Test □2□. Test cylinders under □alifornia Test □21 and perform □ tests with each test consisting of 2 cylinders. The test result is the average from the 2 cylinders.

**28-4.01D(1)(b) Field Qualification**

□efore placing lean concrete base rapid setting, you must perform field qualification testing and obtain authori□ation for each mi□ design. Retest and obtain authori□ation for changes to authori□ed mi□ed designs.

□roposed mi□ designs must be field qualified before you place the base represented by those mi□ designs. The technician performing the field test must hold current A□I certification as a □oncrete □ield Testing Technician□□rade I.

□otify the □ngineer at least □ days before field qualification. □erform field qualification within the □ob site or a location authori□ed.

□ield qualification testing includes compressive strength, air content, and penetration or slump in compliance with the table titled "Lean □oncrete □ase Rapid Setting Requirements."

□ield qualification must comply with the following:

1. Test for compressive strength at opening age and □ days of age
2. At opening age, the compressive strength for each test must be at least 1□0 psi and the average strength for the □ tests must be at least 200 psi
□. At □ days age, the compressive strength for each test must be at least □00 psi and the average strength for the □ tests must be at least □2□ psi

**28-4.01D(2) Quality Control**

**28-4.01D(2)(a) General**

Reserved

**28-4.01D(2)(b) Quality Control Manager**

Reserved

**28-4.01D(2)(c) Quality Control Testing**

Test the base under the test methods and at the locations and frequencies shown in the following table:

**LCB Rapid Setting Sampling Location and Testing Frequencies**

| □uality characteristic | Test method | Sampling location | Minimum sampling and testing frequency |
|---|---|---|---|
| Sand equivalent | ASTM D2□1□ | Source | 1 per □00 cu yd, minimum 1 per day of production |
| Aggregate gradation | ASTM □1□□ | | |
| Air content | ASTM □2□1 | □ob site | 1 per □ hours of placement wor□, plus one in the last hour of placement wor□ |
| □enetration[a] | ASTM □□□0 | | |
| Slump[a] | ASTM □1□□ | | |
| □ompressive strength | □alifornia Test □21 | | |

[a]Test either penetration or slump

During placement of lean concrete base rapid setting, fabricate cylinders and test compressive strength for opening age and □ days. Opening age tests must be performed in the presence of the □ngineer.

**28-4.01D(3) Department Acceptance**

The Department accepts L□□ rapid setting based on compliance with the requirement shown in the following table:

**LCB Rapid Setting Requirements for Acceptance**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □ompressive strength □min, psi at □ days□ | □alifornia Test □21[a] | □2□ |

[a] □ylinders made under □alifornia Test □□0

**Replace the 2nd and 3rd paragraphs in section 28-4.03A with:**

0□□1□□1□

□oncrete paving operations with equipment not supported by the base may start before opening age. Do not open pavement for traffic before opening age of the L□□ rapid setting.

Any other paving operations must start after the final set time of the base. The base must have a compressive strength of at least □□0 psi under □alifornia Test □21 before:

1. □lacing □MA
2. □lacing other base material
□. Operating equipment on the base

**Replace *Reserved* in section 28-5.01C with:**

0□□1□□1□

Submit a concrete base □ □ plan.

**Replace the headings and paragraphs in section 28-5.01D(2) with:**

0□□1□□1□

**28-5.01D(2) Quality Control**

**28-5.01D(2)(a) General**

Reserved

**28-5.01D(2)(b) Quality Control Manager**

Reserved

**28-5.01D(2)(c) Quality Control Testing**

Test the concrete base under the test methods and at the locations and frequencies shown in the following table:

**Concrete Base Sampling Location and Testing Frequencies**

| □uality characteristic | Test method | Sample location | Minimum testing frequency[a] |
|---|---|---|---|
| □leanness value | □alifornia Test 22□ | Source | 1 per □00 cubic yards but at least 1 per shift |
| Sand equivalent | □alifornia Test 21□ | | |
| Aggregate gradation | □alifornia Test 202 | | |
| Air content | □alifornia Test □0□ | □ob site | 1 per □00 cu yd but at least 1 per shift |
| □ield | □alifornia Test □1□ | | 1 per shift |
| Slump or penetration | ASTM □1□□or □alifornia Test □□□ | | 1 per 2 hours of placement |
| Density | □alifornia Test □1□ | | 1 per shift |
| Aggregate moisture meter calibration[b] | □alifornia Test 22□ or □alifornia Test 22□ | | 1 per shift |
| Modulus of rupture | □alifornia Test □2□ | | 1 per □00 cu yd but at least 1 per shift |

[a]Test at the most frequent interval.

[b]□hec□calibration of the plant moisture meter by comparing moisture meter readings with □alifornia Test 22□ or □alifornia Test 22□ test results.

**28-5.01D(3) Department Acceptance**

The Department accepts a concrete base based on compliance with the requirements shown in the following table:

**Concrete Base Requirements for Acceptance**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Modulus of rupture □min, psi at 2□ days□ | □alifornia Test □2□ | □□0 |

Acceptance for the modulus of rupture is on a lot basis. The Department provides the molds and machines for the modulus of rupture acceptance testing. □rovide any material and labor the □ngineer may require for the testing.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 29 TREATED PERMEABLE BASES

0□□1□□1□

**Replace the headings and paragraphs in section 29-1.01 with:**

0□□1□□1□

**29-1.01 GENERAL**

**29-1.01A Summary**

Section 2□□1 includes general specifications for constructing treated permeable bases.

**29-1.01B Definitions**

Reserved

**29-1.01C Submittals**

Submit a treated permeable base quality control plan.

**29-1.01D Quality Assurance**

**29-1.01D(1) General**

Reserved

**29-1.01D(2) Quality Control**

**29-1.01D(2)(a) General**

Reserved

**29-1.01D(2)(b) Quality Control Plan**

Reserved

**29-1.01D(2)(c) Qualifications**

Reserved

**29-1.01D(3) Department Acceptance**

Reserved

**Replace the headings and paragraphs in section 29-2.01D with:**

0□1□1□

**29-2.01D Quality Assurance**

**29-2.01D(1) General**

The □ngineer determines the asphalt content of the asphalt mi□ture under □alifornia Test □□2. The bitumen ratio, pounds of asphalt per 100 lb of dry aggregate, must not vary more than 0.□ lb of asphalt above or below the quantity designated by the □ngineer. Samples used to determine the bitumen ratio are obtained from truc□s at the plant or from the mat behind the paver before rolling. If the sample is ta□en from the mat behind the paver, the bitumen ratio must not be less than the quantity designated by the □ngineer, less 0.□ lb of asphalt per 100 lb of dry aggregate.

**29-2.01D(2) Quality Control**

**29-2.01D(2)(a) General**

Reserved

**29-2.01D(2)(b) Quality Control Testing**

AT□□ quality control must include testing the quality characteristics at the frequencies shown in the following table:

**QC Testing Frequencies**

| □uality characteristic | Test method | Sampling location | Minimum frequency |
|---|---|---|---|
| □radation | □alifornia Test 202 | Stoc□piles or plant | 1 for every □ hours of production but at least one per day of placement |
| □leanness value | □alifornia Test 22□ | Stoc□piles or plant | 1 for every □ hours of production but at least one per day |
| □ercentage of crushed particles | □alifornia Test 20□ | Stoc□piles or plant | 1 test before production and one every □,000 cu yd thereafter |
| Los Angeles rattler loss at □00 rev | □alifornia Test 211 | Stoc□piles or plant | 1 test before production and one every □,000 cu yd thereafter |
| □ilm stripping | □alifornia Test □02 | □lant | 1 test before production and one every □000 cu yd thereafter |
| Asphalt content of the asphalt mi□ture | □alifornia Test □□2 | □lant, transportation units, windrows, or roadway | 1 for every □ hours of production but at least one per day |

**29-2.01D(3) Department Acceptance**

The Department accepts AT□□ based on aggregate gradation, cleanness value, percent of crushed particles, Los Angeles rattler, film stripping and asphalt content requirements specified in section 2□□2.02 and section 2□□2.01D□1□.

The □ngineer ta□es samples for aggregate gradation, cleanness value, percent of crushed particles, Los Angeles rattler, and film stripping from the plant.

The □ngineer ta□es samples for asphalt content of the asphalt mi□ture from any of the following locations:

1. □lant
2. Truc□
□. Windrow
□. Roadbed

**Replace the headings and paragraphs in section 29-3.01 with:**

0□□1□□1□

**29-3.01 GENERAL**

**29-3.01A Summary**

Section 2□□□ includes specifications for constructing cement treated permeable bases.

**29-3.01B Definitions**

Reserved

**29-3.01C Submittals**

Reserved

**29-3.01D Quality Assurance**

**29-3.01D(1) General**

Reserved

**29-3.01D(2) Quality Control**

**29-3.01D(2)(a) General**

Reserved

**29-3.01D(2)(b) Quality Control Testing**

□T□□ quality control must include testing the quality characteristics at the frequencies shown in the following table:

**QC Testing Frequencies**

| □uality characteristic | Test method | Sampling location | Minimum frequency |
|---|---|---|---|
| □radation | □alifornia Test 202 | Stoc□piles or plant | 1 for every □ hours of production but at least one per day of placement |
| □leanness value | □alifornia Test 22□ | Stoc□piles or plant | 1 for every □ hours of production but at least one per day |
| Los Angeles rattler loss at □00 rev | □alifornia Test 211 | Stoc□piles or plant | 1 test before production and one every □,000 cu yd thereafter |
| Soundness | □alifornia Test 21□ | Stoc□piles or plant | 1 test before production and one every □,000 cu yd thereafter |

**29-3.01D(3) Department Acceptance**

The Department accepts □T□□ based on aggregate gradation, cleanness value, Los Angeles rattler and soundness requirements in section 2□□□.02.

The □ngineer ta□es samples for aggregate gradation, cleanness value, Los Angeles rattler and soundness from the plant.

**Add to section 29-3.02A:**

0□1□1□

Water must comply with section □0□1.02D.

**Replace *3rd* in the 2nd paragraph in section 29-3.03 with:**

0□1□1□

□th

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# 30 RECLAIMED PAVEMENT

0□□1□□1□

**Replace *section 30-1.01C(2)(c)* in the 1st paragraph of section 30-3.01C(2)(c) with:**

0□□1□□1□

section □0□1.01□□□□c□

**Replace the table in section 30-3.02A with:**

0□1□1□

**FDR—Foamed Asphalt Quality Characteristic Requirements**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Moisture content before □MA paving | □alifornia Test 22□ | □ □0□ of OM□ |
| Asphalt binder e□pansion ratio<br>□min, □ □ | □ote a | 10 |
| Asphalt binder half□life<br>□seconds, min□ | | 12 |
| □radation □□ , passing□<br>Sieve Si□e:<br>□inch<br>2 inch<br>1□1□2 inch | □alifornia Test 202 | 100<br>□□–100<br>□□–100 |
| Moisture content<br>Ma□imum<br>Minimum | □alifornia Test 22□ | OM□<br>OM□ □2□ |
| In□place wet density<br>□lb□cu ft□ | □alifornia Test 21□ | Report only |
| Relative compaction<br>□min, □ □ | □alifornia Test 2□1 | □□ |
| Indirect dry tensile strength □psi□[b]<br>Indirect wet tensile strength □psi□[b] | □alifornia Test □□1<br>□alifornia Test □□1 | □0□ of mi□design value<br>□0□ of mi□design value |
| Tensile strength ratio<br>□□ □ | □alifornia Test □□1 | □0□ of mi□design value |

[a]Test at the foaming temperature and percentage of foaming water by dry weight of □DR—foamed asphalt material designated in the mi□design. To test asphalt binder e□pansion ratio and half□life, use a pail of □nown volume and a dipstic□calibrated for the pail. □rom the inspection no□□le on the asphalt binder spray bar, in□ect foamed asphalt into the pail without e□ceeding the pail□s capacity.
With the dipstic□, immediately measure and record the level of foamed asphalt in the pail. Record the half□life in seconds from the time the in□ection of foamed asphalt in the pail is turned off to half the dip stic□reading after pea□. □alculate the e□pansion ratio as the volume of the foamed asphalt upon in□ection divided by the volume of the unfoamed asphalt binder.

[b]□rom material passing the 1□inch sieve, compact □specimens under □alifornia Test □0□, □art 2. □ure the specimens at 100 □□ for □2 hours and allow the specimens to cool to room temperature. Test □specimens for dry tensile strength under □alifornia Test □□1. Test □specimens for wet tensile strength under □alifornia Test □□1 after moisture conditioning.

**Replace *section 30-4.01D(3)* in the 2nd paragraph of section 30-4.01D(1) with:**

0□1□1□

section □0□□.01D□□□

**Replace *section 30-4.01D(1)(a)* in the table in section 30-4.02A with:**

0□1□1□

section □0□□.01D□2□

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# DIVISION V SURFACINGS AND PAVEMENTS

## 37 BITUMINOUS SEALS

0□□1 □□1 □

**Replace section 37 with:**

0□□1 □□1 □

## 37 SEAL COATS

### 37-1 GENERAL

#### 37-1.01 GENERAL

#### 37-1.01A Summary

Section □□□1 includes general specifications for applying seal coats.

#### 37-1.01B Definitions

Reserved

#### 37-1.01C Submittals

At least 10 days before the preconstruction meeting submit a list of participants in the preconstruction meeting. □rovide each participant□s name, employer, title, and role in the production and placement of the seal coats.

At least 10 days before starting seal coat activities, submit the names of the authori□ed laboratories for quality control testing.

□or each delivery of asphalt binder or asphaltic emulsion to the □ob site, submit a certificate of compliance and a copy of the specified test results.

□or a seal coat that uses crumb rubber modifier, submit a □rumb Rubber □sage Report form monthly and at the end of pro□ect.

#### 37-1.01D Quality Assurance

#### 37-1.01D(1) General

□or aggregate testing, quality control laboratories must be in compliance with the Department□s Independent Assurance □rogram to be an authori□ed laboratory. □uality control personnel must be qualified under the Department□s Independent Assurance □rogram.

□or emulsion testing, quality control laboratories must participate in the AAS□TO Material□s Reference Laboratory proficiency sample program.

#### 37-1.01D(2) Preconstruction Meeting

□old a preconstruction meeting within □ days before start of seal coat wor□ at a mutually agreed time and place with the □ngineer and your:

1. □ro□ect superintendent
2. □ro□ect foreman
□. Traffic control foreman

Ma□e arrangements for the conference facility. □reconstruction meeting participants must sign an attendance sheet provided by the □ngineer. □e prepared to discuss:

1. □uality control testing
2. Acceptance testing
□. Seal coat placement
□. □roposed application rates for asphaltic emulsion or asphalt binder and aggregate.
□. Training on placement methods
□. □hec□list of items for proper placement
□. □nique issues specific to the pro□ect, including:
   □.1. Weather
   □.2. Alignment and geometrics
   □.□. Traffic control requirements

□.□. □aul distances
□.□. □resence and absence of shaded areas
□.□. Any other local conditions
□. □ontingency plan for material deliveries, equipment brea□downs, and traffic handling
□. Who in the field has authority to ad□ust application rates and how ad□ustments will be documented
10. Schedule of sweepings

### 37-1.02 MATERIALS

□ot □sed

### 37-1.03 CONSTRUCTION

#### 37-1.03A General

If seal coat activities affect access to public par□ing, residential property, or commercial property, post signs at 100□foot intervals on the affected streets. Signs must display *No Parking – Tow Away*. Signs must state the dates and hours par□ing or access will be restricted. □otify residents, businesses, and local agencies at least 2□ hours before starting activities. The notice must:

1. Describe the wor□ to be performed
2. Detail streets and limits of activities
□. Indicate dates and wor□ hours
□. □e authori□ed

Asphaltic emulsion or asphalt binder for seal coats may be reheated if necessary. After loading the asphaltic emulsion or asphalt binder into a truc□ for transport to the □ob site, do not heat asphaltic emulsion above 1□0 degrees □ and asphalt rubber binder above □2□ degrees □. During reheating, circulate or agitate the asphaltic emulsion or asphalt binder to prevent locali□ed overheating.

□□cept for fog seals, apply quic□ setting □rade 1 asphaltic emulsions at a temperature from □□ to 1□0 degrees □ and apply quic□ setting □rade 2 asphaltic emulsions at a temperature from 110 to 1□□ degrees □.

□ou determine the application rates for asphaltic emulsion or asphalt binder and aggregate and the □ngineer authori□es the application rates.

#### 37-1.03B Equipment

A self□propelled distributor truc□ for applying asphaltic emulsion or asphalt binder must be equipped with:

1. □ressure□type system with insulated tan□s with circulating unit
2. Spray bars:
   2.1. With minimum length of □ feet and full□circulating type
   2.2. With full□circulating□type e□tensions if needed to cover a greater width
   2.□. Ad□ustable to allow positioning at various heights above the surface to be treated
   2.□. Operated by levers such that 1 or all valves may be quic□ly opened or closed in one operation
□. Devices and charts to provide for accurate and rapid determination and control of asphaltic emulsion or asphalt binder quantities being applied. Include an au□iliary wheel type meter that registers:
   □.1. Speed in ft□min
   □.2. Trip by count
   □.□. Total distance in feet
□. Distribution system:
   □.1. □apable of producing a uniform application of asphaltic emulsion or asphalt binder in controlled quantities ranging from 0.02 to 1 gal□sq yd of surface and at a pressure ranging from 2□ to □□ psi
   □.2. □umps that spray asphaltic emulsion or asphalt binder within 0.02 gal□sq yd of the set rate
   □.□. With a hose and no□□le for application of asphaltic emulsion to areas inaccessible to the spray bar
   □.□. With pressure gauges and a thermometer for determining temperatures of the asphaltic emulsion or asphalt binder

□ou may use cab□controlled valves for the application of asphaltic emulsion or asphalt binder. The valves controlling the flow from no□□les must act positively to provide a uniform unbro□en application of asphaltic emulsion or asphalt binder.

Maintain distributor and storage tan□s at all times to prevent dripping.

### 37-1.04 PAYMENT

□ot □sed

## 37-2 CHIP SEALS

### 37-2.01 GENERAL

### 37-2.01A General

#### 37-2.01A(1) Summary

Section □□2.01 includes general specifications for applying chip seals.

#### 37-2.01A(2) Definitions

Reserved

#### 37-2.01A(3) Submittals

At least 1□ days before starting placement of chip seal, submit:

1. Samples for:
   1.1. Asphaltic emulsion chip seal, two 1□quart wide mouth plastic containers with screw top lid of asphaltic emulsion
   1.2. □olymer modified asphaltic emulsion chip seal, two 1□quart wide mouth plastic containers with screw top lid of polymer modified asphaltic emulsion
   1.□. Asphalt rubber binder chip seal, two 1□quart cans of base asphalt binder
   1.□. Asphalt rubber binder chip seal, five 1□quart cans of asphalt rubber binder
2. Asphaltic emulsion, polymer modified asphaltic emulsion, asphalt binder or asphalt rubber binder data as follows:
   2.1. Supplier and Type□□rade of asphaltic emulsion or asphalt binder
   2.2. Type of modifier used including polymer or crumb rubber or both
   2.□. □ercent of crumb rubber, if used as modifier
   2.□. □opy of the specified test results for asphaltic emulsion or asphalt binder
□. □0 lb of uncoated aggregate
□. Aggregate test results for the following:
   □.1. □radation
   □.2. Los Angeles Rattler
   □.□. □ercent of crushed particles
   □.□. □lat and elongated particles
   □.□. □ilm stripping
   □.□. □leanness value
   □.□. Durability
□. □ialit test results

Submit quality control test results for the quality characteristics within the reporting times allowance after sampling shown in the following table:

**Quality Control Test Result Reporting**

| □uality characteristic | Ma□imum reporting time allowance |
|---|---|
| Los Angeles Rattler loss □ma□, □ □ | □□hours |
| □ercent of crushed particles □min, □ □ | □□hours |
| □lat and elongated particles □ma□by weight at □:1, □ □ | □□hours |
| □ilm stripping □ma□, □ □ | □□hours |
| Durability □min□ | □□hours |
| □radation □percentage passing□ | 2□hours |
| □leanness value □min□ | 2□hours |
| Asphaltic emulsion spread rate □gal□sq yd□ | 2□hours |

Within □ days after ta□ing asphaltic emulsion or asphalt binder quality control samples, submit the authori□ed laboratory□s test results.

### 37-2.01A(4) Quality Assurance

### 37-2.01A(4)(a) General

Reserved

### 37-2.01A(4)(b) Quality Control

### 37-2.01A(4)(b)(i) General

Reserved

### 37-2.01A(4)(b)(ii) Aggregate

All tests must be performed on uncoated aggregate e□cept for film stripping which must be performed on precoated aggregate.

□or aggregate, the authori□ed laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

**Aggregate Quality Control Requirements**

| □uality characteristic | Test method | Minimum sampling and testing frequency | Location of sampling |
|---|---|---|---|
| Los Angeles Rattler loss □ma□, □ □<br>At 100 revolutions<br>At □00 revolutions | □alifornia Test 211 | 1st day of production | See □alifornia Test 12□ |
| □ercent of crushed particles<br>□oarse aggregate □min, □ □<br>One□fractured face<br>Two□fractured faces<br>□ine aggregate □min, □ □<br>□□assing □o. □ sieve and retained on □o. □ sieve□<br>One fractured face | AAS□TO T □□□ | 1st day of production | See □alifornia Test 12□ |
| □lat and elongated particles □ma□ by weight at □:1, □ □ | ASTM D□□□1 | 1st day of production | See □alifornia Test 12□ |
| □ilm stripping □ma□, □ □ | □alifornia Test □02 | 1st day of production | See □alifornia Test 12□ |
| Durability □min□ | □alifornia Test 22□ | 1st day of production | See □alifornia Test 12□ |
| □radation □□ passing□ | □alifornia Test 202 | 2 per day | See □alifornia Test 12□ |
| □leanness value □min□ | □alifornia Test 22□ | 2 per day | See □alifornia Test 12□ |

### 37-2.01A(4)(b)(iii) Chip Seals

□or a chip seal, the authori□ed laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

**Chip Seal Quality Control Requirements**

| □uality characteristic | Test method | Minimum sampling and testing frequency | Location of sampling |
|---|---|---|---|
| Asphaltic emulsion binder spread rate □gal□sq yd□ | □alifornia Test □□□ | 1 per day per distributor truc□ | □avement surface |

### 37-2.01A(4)(c) Department Acceptance

Department Acceptance shall not apply to identified areas where the e□isting surfacing before application of chip seal, contains defective areas as determined by the □ngineer and □ontractor. At least □ days

before starting placement of the chip seal, the □ontractor shall submit a written list of e□isting defective areas, identifying the lane direction, lane number, starting and ending highway post mile locations, and defect type. The □ngineer must agree on which of the identified areas are defective.

Defective areas are defined as one of the following:

1. Areas with wheel path rutting in e□cess of □□□ inch when measured by placing a straightedge 12 feet long on the finished surface perpendicular to the center line and measuring the vertical distance between the finished surface and the lower edge of the straightedge
2. Areas e□hibiting flushing

□or a chip seal, acceptance is based on visual inspection for the following:

1. □niform surface te□ture
2. Raveling, which consists of the separation of the aggregate from the asphaltic emulsion or asphalt binder
□. □lushing, which consists of the occurrence of a film of asphaltic material on the surface of the chip seal.
□. Strea□ing, which consists of alternating longitudinal bands of asphaltic emulsion or asphalt binder without uniform aggregate retention, appro□imately parallel with the lane line.

Areas of raveling, flushing or strea□ing that are greater than 0.□ sq ft shall be considered defective and must be repaired.

Raveling and strea□ing must be repaired by placing an additional layer of chip seal over the defective area.

□or asphaltic emulsion or asphalt binder, acceptance is based on the Department's sampling and testing for compliance with the requirements for the quality characteristics specified.

□or aggregate, acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

**Chip Seal Aggregate Acceptance Criteria**

| □uality characteristic | Test method | Requirements |
|---|---|---|
| Los Angeles Rattler loss □ma□, □ □ | | |
| At 100 revolutions | □alifornia Test 211 | 10 |
| At □00 revolutions | | □0 |
| □ercent of crushed particles: | AAS□TO T □□□ | |
| □oarse aggregate □min, □ □ | | |
| One□fractured face | | □□ |
| Two□fractured faces | | □0 |
| □ine aggregate □min, □ □ | | |
| □□assing □o. □ sieve and retained on □o. □ sieve□ | | |
| One fractured face | | □0 |
| □lat and elongated particles □ma□by weight at □:1, □ □ | ASTM D□□□1 | 10 |
| □ilm stripping □ma□, □ □ | □alifornia Test □02 | 2□ |
| Durability □min□ | □alifornia Test 22□ | □2 |
| □radation □□ passing by weight□ | □alifornia Test 202 | Aggregate □radation table shown under Materials for the chip seal type specified. |
| □leanness value □min□ | □alifornia Test 22□ | □0 |

If test results for the aggregate gradation do not comply with specifications, you may remove the chip seal represented by these tests or request that it remain in place with a payment deduction. The deduction is □1.□□ per ton for the aggregate represented by the test results.

If test results for aggregate cleanness value do not comply with the specifications, you may remove the chip seal represented by these tests or you may request that the chip seal remain in place with a pay deduction corresponding to the cleanness value shown in the following table:

**Chip Seal Cleanness Value Deductions**

| □leanness value | Deduction |
|---|---|
| □0 or over | □one |
| □□ | □2.00 □ton |
| □□–□□ | □□.00 □ton |
| □□–□□ | □□.00 □ton |

If the aggregate cleanness value is less than □□, remove the chip seal.

### 37-2.01B Materials

#### 37-2.01B(1) General

Reserved

#### 37-2.01B(2) Asphaltic Emulsions and Asphalt Binders

Reserved

#### 37-2.01B(3) Aggregate

#### 37-2.01B(3)(a) General

Aggregate must be bro□en stone, crushed gravel, or both.

Aggregate must comply with the requirements shown in the following table:

**Chip Seal Aggregate Requirements**

| □uality characteristic | Test method | Requirements |
|---|---|---|
| Los Angeles Rattler loss □ma□, □ □<br>At 100 revolutions<br>At □00 revolutions | □alifornia Test 211 | <br>10<br>□0 |
| □ercent of crushed particles<br>□oarse aggregate □min, □ □<br>One □fractured face<br>Two □fractured faces<br>□ine aggregate □min, □ □<br>□□assing □o. □ sieve and retained on □o. □ sieve□<br>One fractured face | AAS□TO T □□□ | <br><br>□□<br>□0<br><br><br>□0 |
| □lat and elongated particles □ma□ by weight at □:1, □ □ | ASTM D□□□1 | 10 |
| □ilm stripping □ma□, □ □ | □alifornia Test □02 | 2□ |
| Durability □min□ | □alifornia Test 22□ | □2 |
| □radation □□ passing by weight□ | □alifornia Test 202 | Aggregate □radation table shown under Materials for the chip seal type specified. |
| □leanness value □min□ | □alifornia Test 22□ | □0 |

The authori□ed laboratory must conduct the □ialit test using the proposed asphaltic emulsion or asphalt binder and aggregate for compliance with the requirements shown in the following table:

**Chip Retention Requirements**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □hip retention □□ □ | □ialit test method for aggregate in chip seals, □rench chip □Modified□[a] | □□ |

[a]The asphaltic emulsion or asphalt binder must be within the field placement temperature range and application rate during specimen preparation. □or asphalt binder cure the specimen for first 2 hours at 100 □□.

### 37-2.01B(3)(b) Precoated Aggregate

□recoating of aggregate must be performed at a central mi□ing plant. The plant must be authori□ed under the Department□s *MPQP*.

When precoating aggregate, do not recombine fine materials collected in dust control systems.

□recoated aggregate must be preheated from 2□0 to □2□ degrees □. □oat with any of the asphalts specified in the table titled "□erformance □raded Asphalt □inder" in section □2. The asphalt must be from 0.□ to 1.0 percent by weight of dry aggregate. □ou determine the e□act asphalt rate for precoating of aggregate.

Do not stoc□pile precoated aggregate.

### 37-2.01C Construction

### 37-2.01C(1) General

□or chip seals on 2□lane, 2□way roadways, place a W□□□ □LOOS□ □RA□□L□sign and a W1□□1 □□□□plaque at 2,000□foot ma□imum intervals along each side of the traveled way where aggregate is spread on a traffic lane and at public roads or streets entering the chip seal area. □lace the 1st W□□□ sign in each direction where traffic first encounters the loose aggregate, regardless of which lane the aggregate is spread on. A W1□□1 □□□□plaque is not required where the posted speed limit is less than □0 mph.

□or chip seals on freeways, e□pressways, and multilane conventional highways, place a W□□□, □LOOS□ □RA□□L□sign and a W1□□1 □□□□plaque at 2,000□foot ma□imum intervals along the outside edge of the traveled way nearest to the lane wor□ed on, at on ramps, and at public roads or streets entering the chip seal area. □lace the 1st W□□□ sign where the aggregate starts with respect to the direction of travel on that lane. A W1□□1 □□□□plaque is not required where the posted speed limit is less than □0 mph.

□ilot cars must have cellular or radio contact with other pilot cars and personnel in the wor□ □one. The ma□imum speed of the pilot cars convoying or controlling traffic through the traffic control □one must be 1□ mph on 2□lane, two□way highways and 2□ mph on multilane divided and undivided highways. □ilot cars must only use traffic lanes open to traffic.

On the days that closures are not allowed, you may use a moving closure to maintain the seal coat surface. The moving closure is only allowed during daylight hours when traffic will be the least inconvenienced and delayed. The □ngineer determines the hours for the moving closure.

Maintain signs in place at each location until the final sweeping of the chip seal surface for that location is complete. Signs may be set on temporary portable supports with the W1□□1 sign below the W□□□ sign or on barricades with the W1□□1 sign alternating with the W□□□ sign.

Schedule chip seal activities so that the chip seals are placed on both lanes of the traveled way each wor□ shift.

If traffic is routed over a surface where a chip seal application is intended, the chip seal must not be applied to more than half the width of the traveled way at a time, and the remaining width must be □ept free of obstructions and open to traffic until the previously applied width is ready for traffic use.

Wherever maintenance sweeping of the chip seal surface is complete, place permanent traffic stripes and pavement mar□ings within 10 days.

If you fail to place the permanent traffic stripes and pavement mar□ings within the specified time, the Department withholds □0 percent of the estimated value of the chip seal wor□ completed that has not received permanent traffic stripes and pavement mar□ings.

### 37-2.01C(2) Equipment

□quipment for chip seals must include and comply with the following:

1. Aggregate haul truc□s must have:
   1.1. Tailgate that discharge aggregate
   1.2. Device to loc□ onto the rear aggregate spreader hitch
   1.□. Dump bed that will not push down on the spreader when fully raised
   1.□. Dump bed that will not spill aggregate on the roadway when transferred to the spreader hopper
   1.□. Tarpaulin to cover precoated aggregate when haul distance e□ceeds □0 minutes or ambient temperature is less than □□ degrees □
2. Self□propelled aggregate spreaders must have:
   2.1. Aggregate hopper in the rear
   2.2. □elt conveyor that carries the aggregate to the front
   2.□. Spreading hopper capable of providing a uniform aggregate spread rate over the entire width of the traffic lane in 1 application.
□. Self□propelled power brooms must:
   □.1. □ot be steel□tined brooms on emulsion chip seals
   □.2. □e capable of removing loose aggregate ad□acent to barriers that prevent aggregate from being swept off the roadway, including curbs, gutters, di□es, berms, and railings
□. □neumatic or foam filled rubber tired rollers must:
   □.1. □e an oscillating type at least □ feet wide
   □.2. □e self□propelled and reversible
   □.□. □ave tires of equal si□e, diameter, type, and ply
   □.□. □arry at least □,000 lbs of load on each wheel
   □.□ □ave tires with an air pressure of 100 □ □ psi or be foam filled

### 37-2.01C(3) Surface Preparation

□efore applying chip seals, cover manholes, valve and monument covers, grates, or other e□posed facilities located within the area of application, using a plastic or oil resistant construction paper secured by tape or adhesive to the facility being covered. Reference the covered facilities with enough control points to relocate the facilities after the application of the chip seal.

Immediately before applying chip seals, clean the surface to receive a chip seal by removing any e□traneous material affecting adhesion of the chip seal with the e□isting surface and drying. □se self□ propelled power brooms to clean the e□isting pavement.

### 37-2.01C(4) Placement

#### 37-2.01C(4)(a) General

Schedule the operations so that chip seals are placed on both lanes of the traveled way each wor□ shift. At the end of the wor□ shift, the end of the chip seals on both lanes must generally match.

#### 37-2.01C(4)(b) Applying Asphaltic Emulsions or Asphalt Binders

□revent spraying on e□isting pavement not intended for chip seals or on previously applied chip seals using a material such as building paper. Remove the material after use.

Align longitudinal □oints between chip seal applications with designated traffic lanes.

□or asphaltic emulsion or asphalt binder, overlap longitudinal □oints by not more than □ inches. □ou may overlap longitudinal □oints up to □ inches if authori□ed.

□or areas not accessible to a truc□ distributor bar apply:

1. Asphaltic emulsions by hand spraying
2. Asphalt binders with a squeegee or other authori□ed means

□ou may overlap the asphaltic emulsion or asphalt binder applications before the application of aggregate at longitudinal □oints.

Do not apply the asphaltic emulsion or asphalt binder unless there is sufficient aggregate at the □ob site to cover the asphaltic emulsion or asphalt binder.

Discontinue application of asphaltic emulsion or asphalt binder early enough to comply with lane closure requirements. Apply to 1 lane at a time and cover the lane width entirely in 1 operation.

### 37-2.01C(4)(c) Spreading Aggregates

#### 37-2.01C(4)(c)(i) General

□revent vehicles from driving on asphaltic emulsion or asphalt binder before spreading aggregate.

Spread aggregate within 10 percent of your determined rate.

Spread aggregate at a uniform rate over the full lane width in 1 application. Apply to 1 lane at a time.

Sweep e□cess aggregate at □oints before spreading ad□acent aggregate.

Operate the spreader at speeds slow enough to prevent aggregate from rolling over after dropping.

If the spreader is not moving, aggregate must not drop. If you stop spreading and aggregate drops, remove the e□cess aggregate before resuming activities.

#### 37-2.01C(4)(c)(ii) Precoated Aggregate Application

During transit, cover precoated aggregate with tarpaulins if the ambient air temperature is below □□ degrees □ or the haul time e□ceeds □0 minutes.

When applied, precoated aggregate must be from 22□ to □2□ degrees □.

### 37-2.01C(4)(d) Finishing

#### 37-2.01C(4)(d)(i) General

Remove piles, ridges, or unevenly distributed aggregate. Repair permanent ridges, bumps, strea□s or depressions in the finished surface. Spread additional aggregate and roll if aggregate is pic□ed up by rollers or vehicles.

□hip seal □oints between ad□acent applications of a chip seal must be smooth, straight, uniform, and completely covered.

A coverage is 1 roller movement over the entire width of lane. A pass is 1 roller movement parallel to the chip seal application in either direction. Overlapping passes are part of the coverage being made and are not part of a subsequent coverage. Do not start a new coverage until completing the previous coverage.

□efore opening to traffic, finish the chip seals in the following sequence:

1. □erform initial rolling consisting of 1 coverage with a pneumatic□tired roller
2. □erform final rolling consisting of 2 coverages with a pneumatic□tired roller
□. Sweep e□cess aggregate from the roadway and ad□acent abutting areas
□. Apply a flush coat if specified
□. Remove covers from the facilities

#### 37-2.01C(4)(d)(ii) Traffic Control With Pilot Car

□or 2□lane 2□way roadways under 1□way traffic control, upon completion of final rolling, traffic must be controlled with pilot cars and routed over the new chip seal for a period of 2 to □ hours before opening the lane to traffic not controlled with pilot cars.

□or multilane roadways, when traffic is controlled with pilot cars, a ma□imum of 1 lane in the direction of travel must be open to traffic. Traffic must be controlled with pilot cars and be routed on the new chip seal surface of the lane for a minimum of 2 hours after completion of the initial sweeping and before opening the lane to traffic not controlled with pilot cars. Once traffic controlled with pilot cars is routed over the chip seal at a particular location, continuous control must be maintained at that location until the chip seal placement and sweeping on ad□acent lanes to receive a chip seal is completed.

### 37-2.01C(4)(d)(iii) Sweeping

Sweeping must be performed after the chip seal has set and there is no damage or dislodging of aggregate from the chip seal surface. As a minimum, sweeping is required at the following times:

1. On 2-lane 2-way roadways, from 2 to  hours after traffic, controlled with pilot cars, has been routed on the chip seal
2. On multilane roadways, from 2 to  hours after aggregate have been placed
3. In addition to previous sweeping, perform final sweeping immediately before opening any lane to public traffic, not controlled with pilot cars

### 37-2.01C(4)(d)(iv) Excess Aggregate

Dispose of e-cess aggregate. If ordered, salvaging and stoc-piling of e-cess aggregate is change order wor-.

### 37-2.01C(4)(e) Chip Seal Maintenance

-erform sweeping on the morning following the application of aggregate on any lane that has been open to traffic not controlled with pilot cars and before starting any other activities.

-hip seal surfaces must be maintained for  consecutive days from the day aggregate is applied. Maintenance must include sweeping to maintain a surface free of loose aggregate and to prevent formation of corrugations. Sweeping must not dislodge aggregate set in asphaltic emulsion or asphalt binder.

After  consecutive days, e-cess aggregate must be removed from the paved areas.

### 37-2.01D Payment

If there is no bid item for traffic control system, furnishing and using a pilot car is included in the various items of the wor- involved in applying the chip seal.

The payment quantity for precoated aggregate is the weight measured after the aggregate is preheated and precoated with asphalt binder.

If recorded batch weights are printed automatically, the payment quantity for aggregate is the weight determined from the printed batch weights if:

1. Total weight for the precoated aggregate per batch is printed
2. Total asphalt binder weight per batch is printed
3. -ero tolerance weight is printed before weighing the first batch and after weighing the last batch for each truc-load
4. Time, date, mi-number, load number, and truc-identification are correlated with a load slip
5. -opy of the recorded batch weights is certified by a licensed weighmaster

## 37-2.02 ASPHALTIC EMULSION CHIP SEALS

### 37-2.02A General

### 37-2.02A(1) Summary

Section --2.02 includes specifications for applying asphaltic emulsion chip seals. An asphaltic emulsion chip seal includes applying an asphaltic emulsion, followed by aggregate, and then a flush coat.

A double asphaltic emulsion chip seal is the application of an asphaltic emulsion followed by aggregate, applied twice in sequence and then a flush coat.

### 37-2.02A(2) Definitions

Reserved

### 37-2.02A(3) Submittals

Immediately after sampling, submit two 1-quart plastic containers of asphaltic emulsion ta-en in the presence of the -ngineer. Samples must be submitted in insulated shipping container.

### 37-2.02A(4) Quality Assurance

#### 37-2.02A(4)(a) General

Reserved

#### 37-2.02A(4)(b) Quality Control

#### 37-2.02A(4)(b)(i) General

Reserved

#### 37-2.02A(4)(b)(ii) Asphaltic Emulsions

□irculate asphaltic emulsion in the distributor truc□ before sampling. Ta□e samples from the distributor truc□ at mid load or from a sampling tap or thief. □efore ta□ing samples, draw and dispose of 1 gallon. In the presence of the □ngineer, ta□e two 1□quart samples in a plastic container with lined sealed lid for acceptance testing.

□or asphaltic emulsion, the authori□ed laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

**Asphaltic Emulsion**

| □uality characteristic | Test method | Minimum sampling and testing frequency | Sampling location |
|---|---|---|---|
| Saybolt □urol □iscosity, at 2□°□ □Saybolt □urol seconds□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Distributor truc□ |
| Sieve Test □□ □ | | | |
| Storage stability, 1 day □□ □ | | | |
| Residue by distillation □□ □ | | | |
| □article charge[a] | | | |
| Tests on Residue from Distillation Test: | | | |
| □enetration, 2□°□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Distributor truc□ |
| Ductility | AAS□TO T □1 | | |
| Solubility in trichloroethylene | AAS□TO T □□ | | |

[a]If the result of the particle charge is inconclusive, the asphaltic emulsion must be tested for p□ under ASTM □□0. □rade □S1h asphaltic emulsion must have a minimum p□ of □.□. □rade □□S1h asphaltic emulsion must have a ma□imum p□ of □.□.

#### 37-2.02A(4)(c) Department Acceptance

Aggregate acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

**Aggregate Gradation Acceptance Criteria**

| □uality characteristic | Test method | Requirement | | |
|---|---|---|---|---|
| □radation □□ passing by weight□ Sieve si□e: | □alifornia Test 202 | □□□" | □1□" | 1□□" |
| □□□" | | □□ | □□ | □□ |
| 1□2" | | 100 | □□ | □□ |
| □□□" | | □□–100 | 100 | 100 |
| □o. □ | | 0–1□ | 0–□0 | □0–□□ |
| □o. □ | | 0–□ | 0–1□ | 0–2□ |
| □o. 1□ | | □□ | 0–□ | 0–□ |
| □o. □0 | | □□ | 0–□ | 0–□ |
| □o. 200 | | 0–2 | 0–2 | 0–2 |

### 37-2.02B Materials

#### 37-2.02B(1) General

Reserved

### 37-2.02B(2) Asphaltic Emulsions

Reserved

### 37-2.02B(3) Aggregate

Aggregate gradation for an asphaltic emulsion chip seal must comply with the requirements shown in the following table:

**Asphaltic Emulsion Chip Seal Aggregate Gradation**

| Quality characteristic | Test method | Requirement | | |
|---|---|---|---|---|
| Gradation, percent passing by weight: Sieve size: | California Test 202 | 3/8" | 1/2" | 1" |
| 1" | | 100 | 100 | 100 |
| 1/2" | | 90–100 | 100 | 100 |
| 3/8" | | 0–15 | 0–40 | 0–90 |
| No. 4 | | 0–5 | 0–15 | 0–25 |
| No. 8 | | 0–2 | 0–5 | 0–5 |
| No. 16 | | 0–2 | 0–5 | 0–5 |
| No. 200 | | 0–2 | 0–2 | 0–2 |

### 37-2.02C Construction

### 37-2.02C(1) General

Reserved

### 37-2.02C(2) Asphaltic Emulsions

Asphaltic emulsions must be applied within the application rate ranges shown in the following table:

**Asphaltic Emulsion Application Rates**

| Aggregate gradation | Application rate range (gal/sq yd) |
|---|---|
| 3/8" | 0.30–0.45 |
| 1/2" | 0.25–0.40 |
| 1" | 0.20–0.30 |

For double asphaltic emulsion chip seals, the asphaltic emulsions must be applied within the application rates shown in the following table:

**Asphaltic Emulsion Application Rates**

| Double chip seals | Application rate range (gal/sq yd) |
|---|---|
| 1st application | 0.30–0.45 |
| 2nd application | 0.20–0.30 |

When applied, the temperature of the asphaltic emulsions must be from 150 to 190 degrees F.

Apply asphaltic emulsions when the ambient air temperature is from 60 to 110 degrees F and the pavement surface temperature is at least 60 degrees F.

Do not apply asphaltic emulsions when weather forecasts predict the ambient air temperature will fall below 60 degrees F within 24 hours after application.

### 37-2.02C(3) Spreading Aggregates

Aggregate must be spread within the spread rate ranges shown in the following table:

**Aggregate Spread Rates**

| Aggregate gradation | Spread rate range (lb/sq yd) |
|---|---|
| (3/8") | 20–30 |
| (1/2") | 15–25 |
| (3/4") | 12–20 |

For double asphaltic emulsion chip seals, aggregate must be spread within the spread rate ranges shown in the following table:

**Aggregate Spread Rates**

| Double chip seal | Spread rate range (lb/sq yd) |
|---|---|
| 1st application | 25–30 |
| 2nd application | 12–20 |

Remove excess aggregate on the 1st application before the 2nd application of asphaltic emulsion.

You may stockpile aggregate for asphaltic emulsion chip seals if you prevent contamination. Aggregate must have a damp surface at spreading. If water visibly separates from the aggregate, do not spread. You may redampen aggregate in the delivery vehicle.

Spread aggregate before an asphaltic emulsion sets or breaks.

Do not spread aggregate more than 2,000 feet ahead of the completed initial rolling.

**37-2.02D Payment**

Not used

**37-2.03 POLYMER MODIFIED ASPHALTIC EMULSION CHIP SEALS**

**37-2.03A General**

**37-2.03A(1) Summary**

Section 37-2.03 includes specifications for applying polymer modified asphaltic emulsion chip seals. A polymer modified asphaltic emulsion chip seal includes applying a polymer modified asphaltic emulsion, followed by aggregate, and then a flush coat.

A double polymer modified asphaltic emulsion chip seal is the application of a polymer modified asphaltic emulsion followed by aggregate, applied twice in sequence and then a flush coat.

**37-2.03A(2) Definitions**

Reserved

**37-2.03A(3) Submittals**

Immediately after sampling, submit two 1-quart cans of polymer modified asphaltic emulsion taken in the presence of the Engineer. A sample must be submitted in an insulated shipping container.

**37-2.03A(4) Quality Assurance**

**37-2.03A(4)(a) General**

Reserved

**37-2.03A(4)(b) Quality Control**

**37-2.03A(4)(b)(i) General**

Reserved

**37-2.03A(4)(b)(ii) Polymer Modified Asphaltic Emulsions**

Circulate polymer modified asphaltic emulsions in the distributor truck before sampling. Take samples from the distributor truck at mid load or from a sampling tap or thief. Before taking samples, draw and dispose of 1 gallon. In the presence of the Engineer, take two 1-quart samples for acceptance testing.

□or polymer modified asphaltic emulsions, the authori□ed laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

**Polymer Modified Asphaltic Emulsion**

| □uality characteristic | Test method | Minimum sampling and testing frequency | Sampling location |
|---|---|---|---|
| Saybolt □urol □iscosity, at □0 □□ □Saybolt □urol seconds□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Distributor truc□ |
| Settlement, □days □ma□, □ □ | | | |
| Storage stability test, 1 day □ma□, □ □ | | | |
| Sieve test □ma□, □ □ | | | |
| Demulsibility □min, □ □ | | | |
| □article charge | | | |
| Ash content □ma□, □ □ | ASTM D□□2□ | | |
| Residue by evaporation □min, □ □ | □alifornia Test □□1 | | |
| Tests on residue from evaporation test: | | | |
| □enetration, 2□ □□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Distributor truc□ |
| □enetration, □ □□, 200g for □0 seconds | AAS□TO T □□ | | |
| Ductility, 2□ □□ □min, mm□ | AAS□TO T □1 | | |
| Torsional recovery □min, □ □ | □alifornia Test □□2 | | |
| Ring and □all Softening □oint □min, □□□ | AAS□TO T □□ | | |

### 37-2.03A(4)(c) Department Acceptance

Aggregate acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

**Aggregate Gradation Acceptance Criteria**

| □uality characteristic | Test method | Requirement | | |
|---|---|---|---|---|
| □radation □□ passing by weight□ Sieve si□e: | □alifornia Test 202 | □□□" | □□1 □" | 1□□" |
| □□□" | | □□ | □□ | □□ |
| 1□2" | | 100 | □□ | □□ |
| □□□" | | □□–100 | 100 | 100 |
| □o. □ | | 0–1□ | 0–□0 | □0–□□ |
| □o. □ | | 0–□ | 0–1□ | 0–2□ |
| □o. 1□ | | □□ | 0–□ | 0–□ |
| □o. □0 | | □□ | 0–□ | 0–□ |
| □o. 200 | | 0–2 | 0–2 | 0–2 |

### 37-2.03B Materials

### 37-2.03B(1) General

Reserved

### 37-2.03B(2) Polymer Modified Asphaltic Emulsions

A polymer modified asphaltic emulsion must include elastomeric polymer.

A polymer modified asphaltic emulsion must be □rade □MRS2, □MRS2h, □M□RS2, or □M□RS2h. □olymer content in percent by weight does not apply.

A polymer modified asphaltic emulsion must comply with section □□ and the quality characteristic requirements in the following table:

**Polymeric Asphaltic Emulsion**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □enetration, □ □□, 200g for □0 seconds □min□ | AAS□TO T □□ | □ |
| Ring and □all Softening □oint □min, □□□ | AAS□TO T □□ | 1□□ |

### 37-2.03B(3) Aggregate

The aggregate gradation for a polymer modified asphaltic emulsion chip seal must comply with the requirements shown in the following table:

**Asphaltic Emulsion Chip Seal Aggregate Gradation**

| □uality characteristic | Test method | Requirement | | |
|---|---|---|---|---|
| □radation □□ passing by weight□ Sieve Si□e | □alifornia Test 202 | □□□" | □□1□" | 1□□" |
| □□□" | | □□ | □□ | □□ |
| 1□2" | | 100 | □□ | □□ |
| □□□" | | □□–100 | 100 | 100 |
| □o. □ | | 0–1□ | 0–□0 | □0–□□ |
| □o. □ | | 0–□ | 0–1□ | 0–2□ |
| □o. 1□ | | □□ | 0–□ | 0–□ |
| □o. □0 | | □□ | 0–□ | 0–□ |
| □o. 200 | | 0–2 | 0–2 | 0–2 |

### 37-2.03C Construction

□olymer modified asphaltic emulsions must be applied within the application rate ranges shown in the following table:

**Polymer Modified Asphaltic Emulsion Application Rates**

| Aggregate gradation | Application rate range □gal□sq yd□ |
|---|---|
| □□□" | 0.□0–0.□□ |
| □□1□" | 0.2□–0.□□ |
| 1□□" | 0.20–0.□0 |

□or double polymer modified asphaltic emulsion chip seals, polymer modified asphaltic emulsions must be applied within the application rates shown in the following table:

**Polymer Modified Asphaltic Emulsion Application Rates**

| Double application | Application rate range □gal□sq yd□ |
|---|---|
| 1st application | 0.□0–0.□□ |
| 2nd application | 0.20–0.□0 |

Apply polymer modified asphaltic emulsions when the ambient air temperature is from □0 to 10□ degrees □ and the pavement surface temperature is at least □0 degrees □.

Do not apply polymer modified asphaltic emulsions when weather forecasts predict the ambient air temperature will fall below □□ degrees □ within 2□ hours after application.

Aggregate must be spread within the spread rate ranges shown in the following table:

**Aggregate Spread Rates**

| □hip seal type | Spread rate range □lb□sq yd□ |
|---|---|
| □□□" | 20–□0 |
| □□1 □" | 1□–2□ |
| 1□□" | 12–20 |

□or double chip seals, aggregate must be spread within spread rate ranges shown in the following table:

**Aggregate Spread Rates**

| Double application | Spread rate range □lb□sq yd□ |
|---|---|
| 1st application<br>2nd application | 2□–□0<br>12–20 |

Remove e□cess aggregate on the 1st application before the 2nd application of asphaltic emulsion.

□ou may stoc□pile aggregate for the polymer modified asphaltic emulsion chip seals if you prevent contamination. Aggregate must have damp surfaces at spreading. If water visibly separates from the aggregate, do not spread. □ou may redampen aggregate in the delivery vehicle.

Spread aggregate before the polymer modified asphaltic emulsion sets or brea□s.

Do not spread aggregate more than 2,□00 feet ahead of the completed initial rolling.

**37-2.03D Payment**

□ot □sed

**37-2.04 ASPHALT RUBBER BINDER CHIP SEALS**

**37-2.04A General**

**37-2.04A(1) Summary**

Section □□2.0□ includes specifications for applying asphalt rubber binder chip seals.

An asphalt rubber binder chip seal consists of applying asphalt rubber binder followed by heated aggregate precoated with asphalt binder followed by a flush coat.

**37-2.04A(2) Definitions**

**crumb rubber modifier:** □ombination of ground or granulated high natural scrap tire crumb rubber and scrap tire crumb rubber derived from waste tires described in □ub Res □ode □ □2□0□.

**descending viscosity reading:** Subsequent viscosity reading at least □ percent lower than the previous viscosity reading.

**high natural scrap tire crumb rubber:** Material containing □0 to □□ percent natural rubber.

**scrap tire crumb rubber:** Any combination of vehicle tires or tire buffing.

**37-2.04A(3) Submittals**

At least □ business days before use, submit the permit issued by the local air district for asphalt rubber binder field blending equipment and application equipment. If an air quality permit is not required by the local air district for producing asphalt rubber binder, submit verification from the local air district that an air quality permit is not required.

□or each delivery of asphalt rubber binder ingredients to the □ob site, submit a certificate of compliance with a copy of the specified test results.

Submit a certified volume or weight slip for each delivery of asphalt rubber binder ingredients and asphalt rubber binder.

Submit a SDS for each asphalt rubber binder ingredient and the asphalt rubber binder.

At least 1□ days before use, submit:

1. Samples of each asphalt rubber binder ingredient:
   1.1. 2 lbs of scrap tire crumb rubber
   1.2. 2 lbs of high natural scrap tire crumb rubber
   1.□. Two 1□quart cans of base asphalt binder
   1.□. Two 1□quart cans of asphalt modifier
2. Asphalt rubber binder formulation and data as follows:
   2.1. □or asphalt modifier, include:
      2.1.1. Source of asphalt modifier
      2.1.2. Type of asphalt modifier
      2.1.□. □ercentage of asphalt modifier by weight of asphalt binder
      2.1.□. □ercentage of combined asphalt binder and asphalt modifier by weight of asphalt rubber binder
      2.1.□. Test results for the specified quality characteristics
   2.2. □or crumb rubber modifier, include:
      2.2.1. □ach source and type of scrap tire crumb rubber and high natural scrap tire crumb rubber
      2.2.2. □ercentage of scrap tire crumb rubber and high natural scrap tire crumb rubber by total weight of asphalt rubber binder
      2.2.□. Test results for the specified quality characteristics
   2.□. □or asphalt rubber binder, include minimum reaction time and temperature

Immediately after sampling, submit five 1□quart cans of asphalt rubber binder ta□en in the presence of the □ngineer. Sample must be submitted in insulated shipping containers.

Submit notification 1□ minutes before each viscosity test or submit a schedule of testing times.

Submit the log of asphalt rubber binder descending viscosity test results within 1 business day after sampling.

Submit asphalt rubber binder quality control viscosity test results within 1 business day after sampling.

**37-2.04A(4) Quality Assurance**

**37-2.04A(4)(a) General**

The equipment used in producing asphalt rubber binder and the equipment used in spreading asphalt rubber binder must be permitted for use or e□empted by the local air district.

**37-2.04A(4)(b) Quality Control**

**37-2.04A(4)(b)(i) General**

Reserved

**37-2.04A(4)(b)(ii) Asphalt Modifiers**

□or asphalt modifiers, the authori□ed laboratory must perform quality control sampling and testing at the specified frequency for the following quality characteristics:

**Asphalt Modifier for Asphalt Rubber Binder**

| □uality characteristic | Test method | □requency |
|---|---|---|
| □iscosity<br>□lash point | ASTM D□□□<br>ASTM D□2 | 1 per shipment |
| Molecular Analysis: | | |
| Asphaltenes<br>Aromatics | ASTM D200□<br>ASTM D200□ | 1 per shipment |

**37-2.04A(4)(b)(iii) Crumb Rubber Modifiers**

Sample and test scrap tire crumb rubber and high natural scrap tire crumb rubber separately.

□erform quality control sampling and testing at the specified frequency for the following quality characteristics:

**Crumb Rubber Modifier**

| □uality characteristic | Test method | □requency |
|---|---|---|
| Scrap tire crumb rubber gradation | □alifornia Test □□□ | 1 per 10,000 |
| □igh natural scrap tire crumb rubber gradation | □alifornia Test □□□ | 1 per □,□00 lb |
| Wire in □RM | □alifornia Test □□□ | 1 per 10,000 lb |
| □abric in □RM | □alifornia Test □□□ | |
| □RM particle length | □□ | |
| □RM specific gravity | □alifornia Test 20□ | |
| □atural rubber content in high natural scrap tire crumb rubber | ASTM D2□□ | 1 per □,□00 lb |

### 37-2.04A(4)(b)(iv) Asphalt Rubber Binders

□or asphalt rubber binders, the authori□ed laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

**Asphalt Rubber Binder Quality Control Requirements**

| □uality characteristic | Test method | Sampling location | □requency |
|---|---|---|---|
| Descending viscosity[a] at □□□ □□ (Pa•s □10[□]□ | ASTM D□□□1 | Reaction vessel | 1 per lot[b] |
| □iscosity at □□□ □□ (Pa•s □10[□]□ | ASTM D□□□1 | Distribution truc□ | 1□minutes before use per lot[b] |
| □one penetration at 2□ □□ □0.10 mm□ | ASTM D21□ | Distribution truc□ | 1 per lot[b] |
| Resilience at 2□ □□ □□ rebound□ | ASTM D□□2□ | | |
| Softening point □□□□ | ASTM D□□ | | |

[a]Start ta□ing viscosity readings at least □□ minutes after adding crumb rubber modifier and continue ta□ing viscosity readings every □0 minutes until 2 consecutive descending viscosity readings have been obtained and the final viscosity complies with the specification requirement.
[b]A lot is defined in the *MPQP*.

Retain samples from each lot. Test samples for cone penetration, resilience, and softening point for the first □ lots and if all □ lots pass, the testing frequency may be reduced to once for every □ lots.

If □ □ test results indicate that the asphalt rubber binder does not comply with the specifications, ta□e corrective action and notify the □ngineer.

### 37-2.04A(4)(c) Department Acceptance

### 37-2.04A(4)(c)(i) General

Reserved

### 37-2.04A(4)(c)(ii) Asphalt Modifiers

The Department accepts asphalt modifier based on compliance with the requirements shown in the following table:

**Asphalt Modifier for Asphalt Rubber Binder**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □iscosity at 100 □□ □m$^2$□s □10[□]□ | ASTM D□□□ | □ □ □[a] |
| □lash point □min, □□ | ASTM D□2 | 20□ |
| Molecular Analysis: | | |
| Asphaltenes □ma□, □ by mass□ | ASTM D200□ | 0.1 |
| Aromatics □min, □ by mass□ | ASTM D200□ | □□ |

[a]The symbol "□" is the asphalt modifier viscosity.

### 37-2.04A(4)(c)(iii) Crumb Rubber Modifiers

Scrap tire □RM and high natural □RM are sampled and tested separately.

The Department accepts scrap tire □RM and high natural □RM based on compliance with the requirements shown in the following table:

**Crumb Rubber Modifier for Asphalt Rubber Binder**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Wire in □RM □ma□, □ □ | □alifornia Test □□□ | 0.01 |
| □abric in □RM □ma□, □ □ | □alifornia Test □□□ | 0.0□ |
| □RM particle length □ma□, in□ | □□ | □□1□ |
| □RM specific gravity | □alifornia Test 20□ | 1.1–1.2 |
| □atural rubber content in high natural □RM □□ □ | ASTM D2□□ | □0.0–□□.0 |

The Department accepts □RM gradation based on the requirements shown in the following table:

**Crumb Rubber Modifier Gradation Requirements**

| □uality characteristic | Test method | Requirement | | | |
|---|---|---|---|---|---|
| □radation □□ passing by weight□ Sieve si□e: | □alifornia Test □□□ | Scrap tire crumb rubber | | □igh natural scrap tire crumb rubber | |
| | | Operating range | □ontract compliance | Operating range | □ontract compliance |
| □o. □ | | 100 | 100 | □□ | □□ |
| □o. 10 | | □□–100 | □0–100 | 100 | 100 |
| □o. 1□ | | □□–□□ | □2–□□ | □2–100 | □□–100 |
| □o. □0 | | 2–2□ | 1–□0 | 2□–□□ | 20–□□ |
| □o. □0 | | 0–10 | 0–1□ | □–□□ | 2–□0 |
| □o. 100 | | 0–□ | 0–10 | 0–□ | 0–10 |
| □o. 200 | | 0–2 | 0–□ | 0–□ | 0–□ |

If a test result for □RM gradation does not comply with the specifications, the Department deducts the corresponding amount for each gradation test as shown in the following table:

| Material | □radation test result[a] | Deduction |
|---|---|---|
| Scrap tire crumb rubber | Operating range □TR □ □ontract compliance | □2□0 |
| Scrap tire crumb rubber | TR □ □ontract compliance | □1,100 |
| □igh natural scrap tire crumb rubber | Operating range □TR □ □ontract compliance | □2□0 |
| □igh natural scrap tire crumb rubber | TR □ □ontract compliance | □□00 |

[a]Test Result □TR

□ach gradation test for scrap tire crumb rubber represents 10,000 lb or the quantity used in that day□s production, whichever is less.

□ach gradation test for high natural scrap tire crumb rubber represents □,□00 lb or the quantity used in that day□s production, whichever is less.

### 37-2.04A(4)(c)(iv) Asphalt Rubber Binders

□or Department acceptance testing, ta□e a sample of asphalt rubber binder in the □ngineer□s presence every □ lots or once a day, whichever is greater. □ach sample must be in five 1□quart cans with an open top and friction lid.

□or an asphalt rubber binder, acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

**Asphalt Rubber Binder**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □one penetration at 2□ □□ □0.10 mm□ | ASTM D21□ | 2□–□0 |
| Resilience at 2□ □□ □□ rebound□ | ASTM D□□2□ | 1□–□0 |
| Softening point □□□ □ | ASTM D□□ | □□–□□ |
| □iscosity at □□□ □□ (Pa•s □10[□□]-[a] | ASTM D□□□1 | 1,□00–2,□00 |

[a] □repare sample for viscosity test under □alifornia Test □□□.

### 37-2.04A(4)(c)(v) Precoated Aggregate

The Department accepts precoated aggregate based on compliance with the requirements shown in the following table:

**Precoated Aggregate Gradation Acceptance Criteria**

| □uality □haracteristic | Test method | Requirement |
|---|---|---|
| 1□2" gradation □□ passing by weight□ | □alifornia Test 202 | |
| Sieve si□e: | | |
| □□□" | | 100 |
| 1□2" | | □□–□0 |
| □□□" | | 0–□0 |
| □o. □ | | 0–□ |
| □o. □ | | □□ |
| □o. 200 | | 0–1 |
| □□□" gradation □□ passing by weight□ | □alifornia Test 202 | |
| Sieve si□e: | | |
| □□□" | | 100 |
| 1□2" | | □□–100 |
| □□□" | | □0–□□ |
| □o. □ | | 0–1□ |
| □o. □ | | 0–□ |
| □o. 200 | | 0–1 |

### 37-2.04B Materials

### 37-2.04B(1) General

Reserved

### 37-2.04B(2) Asphalt Binders

Asphalt binder used as the base binder for asphalt rubber binder must comply with the specifications for asphalt binder. Do not modify asphalt binder with polymer.

### 37-2.04B(3) Asphalt Modifiers

An asphalt modifier must be a resinous, high flash point, and aromatic hydrocarbon. An asphalt modifier must comply with the requirements shown in the following table:

**Asphalt Modifier for Asphalt Rubber Binder**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □iscosity at 100 □□ □m[2]□s □10[□□]□ | ASTM D□□□ | □ □ □[a] |
| □lash point □min, □L.O.□., □□□ | ASTM D□2 | 20□ |
| Molecular analysis: | | |
| Asphaltenes by mass □ma□, □ □ | ASTM D200□ | 0.1 |
| Aromatics by mass □min, □ □ | ASTM D200□ | □□ |

[a] *X* denotes the proposed asphalt modifier viscosity from 1□ to □□. A change in *X* requires a new asphalt rubber binder submittal.

### 37-2.04B(4) Crumb Rubber Modifiers

The □RM to be used must be on the Authori□ed Materials List for crumb rubber modifier.

The □RM must be ground or granulated at ambient temperature.

Scrap tire crumb rubber and high natural scrap tire crumb rubber must be delivered to the asphalt rubber binder production site in separate bags.

Steel and fiber must be separated. If steel and fiber are cryogenically separated, it must occur before grinding and granulating. □ryogenically□produced □RM particles must be large enough to be ground or granulated.

The □RM must be dry, free□flowing particles that do not stic□together. A ma□imum of □percent calcium carbonate or talc by weight of □RM may be added. The □RM must not cause foaming when combined with the asphalt binder and asphalt modifier.

The □RM must comply with the requirements shown in the following table:

**Crumb Rubber Modifier for Asphalt Rubber Binder**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Wire in □RM □ma□, □ □ | □alifornia Test □□□ | 0.01 |
| □abric in □RM □ma□, □ □ | □alifornia Test □□□ | 0.0□ |
| □RM particle length □ma□, in□ | □□ | □□1 □ |
| □RM specific gravity | □alifornia Test 20□ | 1.1–1.2 |

The □RM must comply with the requirements shown in the following table:

**Crumb Rubber Modifier Requirements**

| □uality characteristic | Test method | Requirement | |
|---|---|---|---|
| | | Scrap tire crumb rubber | □igh natural scrap tire crumb rubber |
| Acetone e□tract □□ □ | ASTM D2□□ | □.0–1□.0 | □.0–1□.0 |
| Rubber hydrocarbon □min, □ □ | | □2.0–□□.0 | □0.0 |
| □atural rubber content □□ □ | | 22.0–□□.0 | □0.0–□□.0 |
| □arbon blac□content □□ □ | | 2□.0–□□.0 | □□ |
| Ash content □ma□, □ □ | | □.0 | □□ |

Scrap tire crumb rubber gradation must comply with the gradation requirements shown in the following table:

**Scrap Tire Crumb Rubber Gradation**

| □uality characteristic | Test method | Requirement | | |
|---|---|---|---|---|
| □radation □□ passing by weight□ Sieve si□e: | □alifornia Test □□□ | □radation limit | Operating range | □ontract compliance |
| □o. □ | | 100 | 100 | 100 |
| □o. 10 | | □□–100 | □□–100 | □0–100 |
| □o. 1□ | | □□–□□ | □□–□□ | □2–□□ |
| □o. □0 | | 2–20 | 2–2□ | 1–□0 |
| □o. □0 | | 0–□ | 0–10 | 0–1□ |
| □o. 100 | | 0–2 | 0–□ | 0–10 |
| □o. 200 | | 0 | 0–2 | 0–□ |

□igh natural scrap tire crumb rubber gradation must comply with the gradation requirements shown in the following table:

**High Natural Scrap Tire Crumb Rubber Gradation**

| □uality characteristic | Test method | Requirement | | |
|---|---|---|---|---|
| □radation □□ passing by weight□ Sieve si□e: | | □radation limit | Operating range | □ontract compliance |
| □o. 10 | □alifornia Test □□□ | 100 | 100 | 100 |
| □o. 1□ | | □□–100 | □2–100 | □□–100 |
| □o. □0 | | □□–□□ | 2□–□□ | 20–□□ |
| □o. □0 | | 10–□0 | □–□□ | 2–□0 |
| □o. 100 | | 0–□ | 0–□ | 0–10 |
| □o. 200 | | 0–1 | 0–□ | 0–□ |

**37-2.04B(5) Asphalt Rubber Binders**

An asphalt rubber binder must be a combination of:

1. Asphalt binder
2. Asphalt modifier
□. □rumb rubber modifier

Asphalt rubber binder blending equipment must be authori□ed under the Department□s *MPQP*.

The blending equipment must allow the determination of weight percentages of each asphalt rubber binder ingredient.

An asphalt rubber binder must be □□ □1 percent by weight asphalt binder and 21 □1 percent by weight of □RM. The minimum percentage of □RM must be 20.0 percent and lower values must not be rounded up.

The □RM must be □□ □2 percent by weight scrap tire crumb rubber and 2□ □2 percent by weight high natural scrap tire crumb rubber.

An asphalt modifier and asphalt binder must be blended at the production site. An asphalt modifier must be from 2.□ to □.0 percent by weight of the asphalt binder in the asphalt rubber binder. The asphalt rubber binder supplier determines the e□act percentage.

If blended before adding □RM, the asphalt binder must be from □□□ to □□0 degrees □ when an asphalt modifier is added and the mi□ture must circulate for at least 20 minutes. An asphalt binder, asphalt modifier, and □RM may be proportioned and combined simultaneously.

The blend of an asphalt binder and an asphalt modifier must be combined with the □RM at the asphalt rubber binder production site. The asphalt binder and asphalt modifier blend must be from □□□ to □□0 degrees □ when the □RM is added. □ombined ingredients must be allowed to react at least □□ minutes at temperatures from □□□ to □2□ degrees □ e□cept the temperature must be at least 10 degrees □ below the flash point of the asphalt rubber binder.

After reacting, the asphalt rubber binder must comply with the requirements shown in the following table:

**Asphalt Rubber Binder**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □one penetration at 2□ □□ □0.10 mm□ | ASTM D21□ | 2□–□0 |
| Resilience at 2□ □□ □□ rebound□ | ASTM D□□2□ | 1□–□0 |
| Softening point □□□ □ | ASTM D□□ | □□–□□ |
| □iscosity at □□□ □□ (Pa•s □10^□□^[a] | ASTM D□□□1 | 1,□00–2,□00 |

[a] □repare sample for viscosity test under □alifornia Test □□□.

Maintain asphalt rubber binder at a temperature from □□□ to □1□ degrees □.

Stop heating unused asphalt rubber binder □ hours after the □□□minute reaction period. Reheating asphalt rubber binder that cools below □□□ degrees □ is a reheat cycle. Do not e□ceed 2 reheat cycles. If reheating, the asphalt rubber binder must be from □□□ to □1□ degrees □ before use.

During reheating, you may add □RM. The □RM must not e□ceed 10 percent by weight of the asphalt rubber binder. Allow added □RM to react for at least □□ minutes. Reheated asphalt rubber binder must comply with the specifications for asphalt rubber binder.

### 37-2.04B(6) Precoated Aggregate

□efore precoating with asphalt binder, aggregate for an asphalt rubber binder chip seal must comply with the gradation requirements shown in the following table:

**Asphalt Rubber Binder Chip Seal Aggregate Gradation**

| □uality characteristic | Test method | Requirement | |
|---|---|---|---|
| □radation □□ passing by weight□ Sieve si□e: | | 1□2" | □□□" |
| □□□" | □alifornia Test 202 | 100 | 100 |
| 1□2" | | □□–□0 | □□–100 |
| □□□" | | 0–□0 | □0–□□ |
| □o. □ | | 0–□ | 0–1□ |
| □o. □ | | □□ | 0–□ |
| □o. 200 | | 0–1 | 0–1 |

### 37-2.04C Construction

### 37-2.04C(1) General

Reserved

### 37-2.04C(2) Equipment

Distributor truc□s must be equipped with:

1. Mi□ing and heating unit
2. Observation platform on the rear of the truc□ for an observer on the platform to see the no□□les and unplug them if needed

### 37-2.04C(3) Asphalt Rubber Binder Application

Apply the asphalt rubber binder when the ambient temperature is from □0 to 10□ degrees □ and the pavement surface temperature is at least □□ degrees □.

Do not apply the asphalt rubber binder unless enough aggregate is available at the □ob site to cover the asphalt rubber binder within 2 minutes. Intersections, turn lanes, gore points, and irregular areas must be covered within 1□ minutes.

Do not apply asphalt rubber binder when pavement is damp or during high wind conditions. If authori□ed, you may ad□ust the distributor bar height and distribution speed and use shielding equipment during high wind conditions.

When applied, the temperature of the asphalt rubber binder must be from □□□ to □1□ degrees □.

Apply the asphalt rubber binder at a rate from 0.□□ to 0.□□ gal□sq yd. □ou may reduce the application rate by 0.0□0 gal□sq yd in the wheel paths.

### 37-2.04C(4) Precoated Aggregate Spreading

Spread aggregate at a rate from 2□ to □0 lb□sq yd. Do not spread aggregate more than 200 feet ahead of the completed initial rolling.

### 37-2.04C(5) Rolling and Sweeping

□erform initial rolling within □0 seconds of spreading aggregate. If authori□ed for final rolling, you may use a steel□wheeled roller weighing from □ to 10 tons in static mode only.

□erform a final sweeping before □ontract acceptance. The final sweeping must not dislodge aggregate.

**37-2.04D Payment**

Asphalt rubber binder is measured as specified for asphalt binder.

**37-2.05 STRESS ABSORBING MEMBRANE INTERLAYERS**

**37-2.05A General**

Section □□2.0□ includes specifications for placing stress absorbing membrane interlayers □SAMI□.

□omply with section □□2.0□ e□cept a flush coat is not required.

Traffic must not be allowed on a SAMI.

**37-2.05B Materials**

□or a SAMI, aggregate must comply with the □□□inch gradation.

**37-2.05C Construction**

If a SAMI is overlaid in the same wor□ shift, section □□2.01□ □□□e□ does not apply.

□inal sweeping is not required for a SAMI.

**37-2.05D Payment**

□ot □sed

**37-2.06 MODIFIED ASPHALT BINDER CHIP SEALS**

Reserved

**37-2.07 SCRUB SEALS**

Reserved

## 37-3 SLURRY SEALS AND MICRO-SURFACINGS

**37-3.01 GENERAL**

**37-3.01A General**

**37-3.01A(1) Summary**

Section □□□.01 includes general specifications for applying slurry seals and micro□surfacings.

**37-3.01A(2) Definitions**

Reserved

**37-3.01A(3) Submittals**

At least 1□ days before starting placement of a slurry seal or micro□surfacing, submit:

1. Samples for:
   1.1. Asphaltic emulsion slurry seal, two 1□quart wide mouth plastic containers with screw top lid of asphaltic emulsion
   1.2 □olymer modified asphaltic emulsion slurry seal, two 1□quart wide mouth plastic containers with screw top lid of polymer modified asphaltic emulsion
   1.□. Micro□surfacing, two 1□quart wide mouth plastic containers with screw top lid of micro□surfacing emulsion
2. Asphaltic emulsion, polymer modified asphaltic emulsion, or micro□surfacing emulsion data as follows:
   2.1. Supplier and Type□□rade of asphaltic emulsion
   2.2. Type of modifier polymer for polymer modified asphaltic emulsion or micro□surfacing emulsion
   2.□. □opy of the specified test results for asphaltic emulsion, polymer modified asphaltic emulsion, or micro□surfacing emulsion
□. □0 lb of aggregate
□. Aggregate test results for the followings:
   □.1. □radation
   □.2. Los Angeles Rattler
   □.□. □ercent of crushed particles

□.□ Sand equivalent
□.□ Durability

At least 10 days before starting placement of a slurry seal or micro□surfacing, submit a laboratory report of test results and the proposed mi□design from an authori□ed laboratory. The authori□ed laboratory must sign the laboratory report and mi□design.

The report must include:

1. Test results used in the mi□design compared with specification requirements
2. □roportions based on the dry weight of aggregate, including ranges, for:
   2.1. Aggregate
   2.2. Water
   2.□. Additives
   2.□. Mineral filler
   2.□. Slurry seal emulsion or micro□surfacing emulsion residual asphalt content
□. Recommended changes to the proportions based on heating the mi□ture to 100 degrees □ and mi□ing for □0 seconds, if atmospheric temperatures during application will be □0 degrees □ or above, for:
   □.1. Water
   □.2. Additives
   □.□. Mineral filler
□. □uantitative moisture effects on the aggregate□s unit weight determined under ASTM □2□M

If the mi□design consists of the same materials covered by a previous laboratory report, you may submit the previous laboratory report that must include material testing data performed within the previous 12 months for authori□ation.

If you change any of the materials in the mi□design, submit a new mi□design and laboratory report at least 10 days before starting slurry seal or micro□surfacing wor□.

Submit a certificate of compliance as specified for asphaltic emulsion in section □□1.01□ with each shipment of asphaltic emulsion, polymer modified asphaltic emulsion or micro□surfacing emulsion.

Submit quality control test results for the quality characteristics within the reporting times allowance after sampling shown in the following table:

**Quality Control Test Reporting Requirements**

| □uality characteristic | Ma□imum reporting time allowance |
|---|---|
| Los Angeles Rattler loss □ma□, □ □ | 2 business days |
| □ercent of crushed particles □min, □ □ | 2 business days |
| Durability □min□ | 2 business days |
| Resistance of fine aggregate to degradation by abrasion in the Micro□ Deval Apparatus □□ loss by weight□ | 2 business days |
| □radation □□ passing by weight□ | □□ hours |
| Sand equivalent □min□ | □□ hours |
| Moisture content □□ □ | □□ hours |

Within □ days after ta□ing asphaltic emulsion, polymer modified asphaltic emulsion or micro□surfacing emulsion quality control samples, submit the authori□ed laboratory□s test results.

### 37-3.01A(4) Quality Assurance

### 37-3.01A(4)(a) General

□our authori□ed laboratory must be able to perform International Slurry Surfacing Association tests and mi□design.

### 37-3.01A(4)(b) Quality Control

#### 37-3.01A(4)(b)(i) General

Reserved

#### 37-3.01A(4)(b)(ii) Aggregate

□or aggregate, the authori□ed laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

**Aggregate Quality Control**

| □uality characteristic | Test method | Minimum sampling and testing frequency | Location of sampling |
|---|---|---|---|
| Los Angeles Rattler loss □ma□, □ □<br>At □00 revolutions | □alifornia Test 211 | 1st day of production | See □alifornia Test 12□ |
| □ercent of crushed particles □min, □ □ | AAS□TO T □□□ | 1st day of production | See □alifornia Test 12□ |
| Sand equivalent □min□ | □alifornia Test 21□ | 1 per wor□ing stoc□pile per day | See □alifornia Test 12□ |
| Resistance of fine aggregate to degradation by abrasion in the Micro□Deval Apparatus □□ loss by weight□ | ASTM D□□2□ | 1 per wor□ing stoc□pile per day | See □alifornia Test 12□ |
| □radation □□ passing by weight□ | □alifornia Test 202 | 1 per wor□ing stoc□pile per day | See □alifornia Test 12□ |
| Moisture content, from field stoc□pile □□ □ | AAS□TO T 2□□[a] | 1 per wor□ing stoc□pile per day | See □alifornia Test 12□ |

[a]Test aggregate moisture at field stoc□pile every 2 hours if you are unable to maintain the moisture content to within a ma□imum daily variation of □0.□ percent.

#### 37-3.01A(4)(b)(iii) Slurry Seals and Micro-surfacings

Reserved

### 37-3.01A(4)(c) Department Acceptance

Slurry Seal and micro□surfacing acceptance is based on:

1. □isual inspection for the following:
   1.1. □niform surface te□ture throughout the wor□ limits.
   1.2. Mar□s in the surface:
      1.2.1. □p to □ mar□s in the completed slurry seal or micro□surfacing surface that are up to 1 inch wide and up to □ inches long per 1000 square feet of slurry seal or micro□ surfacing placed.
      1.2.2. □o mar□s in the completed slurry seal or micro□surfacing surface that are over 1 inch wide or □ inches long.
   1.□. □□cessive raveling consisting of the separation of the aggregate from the asphaltic emulsion, polymer modified asphaltic emulsion or micro□surfacing emulsion.
   1.□. □leeding consists of the occurrence of a film of asphaltic material on the surface of the slurry seal or micro□surfacing.
   1.□. Delaminating of slurry seal or micro□surfacing from the e□isting pavement.
   1.□. Rutting or wash□boarding.
2. Department□s sampling and testing for compliance with the requirements for aggregate shown in the following table:

**Aggregate Gradation Acceptance Criteria**

| □uality characteristic | Test method | Requirements | | |
|---|---|---|---|---|
| □radation □□ passing by weight□ Sieve Si□e: | | Type I | Type II | Type III |
| □□□" | | □□ | 100 | 100 |
| □o. □ | □alifornia Test 202 | 100 | □□–100 | □0–□0 |
| □o. □ | | □0–100 | □□–□0 | □□–□0 |
| □o. 1□ | | □0–□0 | □0–□0 | 2□–□0 |
| □o. □0 | | □0–□□ | 2□–□0 | 1□–□□ |
| □o. 200 | | 10–20 | □–1□ | □–1□ |

An aggregate gradation test represents □00 tons or 1 day□s production, whichever is less.

If test results for aggregate gradation do not comply with the specifications, you may remove the slurry seal or micro□surfacing represented by the test results or request it remain in place with a payment deduction. If your request is authori□ed, the Department deducts:

1. □1.□□ per ton of slurry seal for each noncompliant aggregate gradation
2. □2.00 per ton of micro□surfacing for each noncompliant aggregate gradation

### 37-3.01B Materials

#### 37-3.01B(1) General

Additional water must not cause separation of the asphaltic emulsion, polymer modified asphaltic emulsion or micro□surfacing emulsion from the aggregate before placement.

□ou may use an additive that does not adversely affect the slurry seal or micro□surfacing.

#### 37-3.01B(2) Aggregate

Aggregate must be roc□ dust. Aggregate must be free from vegetable matter, deleterious substances, ca□ed or clay lumps, and oversi□ed particles.

Aggregate for a slurry seal and micro□surfacing must comply with the gradations shown in the following table:

**Aggregate Gradation**

| □uality characteristic | Test method | Requirements | | |
|---|---|---|---|---|
| □radation □□ passing by weight□ Sieve si□e: | | Type I | Type II | Type III |
| 3/8” | □alifornia Test 202 | □□ | 100 | 100 |
| □o. □ | | 100 | □□□100 | □0□□0 |
| □o. □ | | □0□100 | □□□□0 | □□□□0 |
| □o. 1□ | | □0□□0 | □0□□0 | 2□□□0 |
| □o. □0 | | □0□□□ | 2□□□0 | 1□□□□ |
| □o. 200 | | 10□20 | □□1□ | □□1□ |

### 37-3.01C Construction

#### 37-3.01C(1) General

□efore applying slurry seals or micro□surfacings, cover manholes, valve and monument covers, grates, and other e□posed facilities located within the area of application using plastic or oil resistant construction paper secured by tape or adhesive to the facility being covered. Reference the covered facilities with enough control points to relocate the facilities after application of the slurry seals or micro□surfacings.

#### 37-3.01C(2) Proportioning

□roportion slurry seal and micro□surfacing ingredients in compliance with the authori□ed mi□ design.

### 37-3.01C(3) Mixing and Spreading Equipment

#### 37-3.01C(3)(a) General

Mi□ing and spreading equipment for slurry seals and micro□surfacings must proportion the asphaltic emulsions, water, aggregate, and any additives by volume and mi□them in continuous pug mill mi□ers.

Introduce emulsions into the mi□er with a positive displacement pump. If you use a variable□rate pump, the ad□usting unit must be sealed in its calibrated position.

Introduce water into the mi□er through a meter that measures gallons.

□hoose a truc□mounted mi□er□spreader or continuous self□loading mi□er spreader.

#### 37-3.01C(3)(b) Truck Mounted Mixer Spreaders

Truc□mounted mi□er spreaders must comply with:

1. Rotating and reciprocating equipment must be covered with metal guards.
2. □roportion aggregate using a belt feeder with an ad□ustable cutoff gate. The □ngineer verifies the height of the gate opening.
□. □elt feeder must have a depth monitor device. The depth monitor device must automatically shut down power to the belt feeder when the aggregate depth is less than □0 percent of the target depth.
□. Separate monitor device must detect the revolutions of the belt feeder. This device must automatically shut down power to the belt feeder if it detects no revolutions. If the belt feeder is an integral part of the equipment□s drive chain, the monitor device is not required.
□. Aggregate belt feeder must be connected directly to the drive on the emulsion pump. The aggregate feeder drive shaft must have a revolution counter reading the nearest 0.10 revolution for micro□surfacing, and nearest 1 revolution for slurry seal.
□. □mulsion storage must be equipped with a device that automatically shuts down power to the emulsion pump and aggregate belt feeder when the level of stored emulsion is lowered. To allow for normal fluctuations, there may be a delay of □seconds between detection of low emulsion storage levels or low aggregate depths and automatic power shut down.
□. □mulsion storage must be located immediately before the emulsion pump.
□. □mulsion storage tan□must have a temperature indicator at the pump suction level. The indicator must be accurate to □□ degrees □.
□. □o□flow and revolution warning devices must be in wor□ing condition. Low□flow indicators must be visible while wal□ing alongside the equipment.

#### 37-3.01C(3)(c) Continuous Self-Loading Mixer Spreaders

□ontinuous self□loading mi□er spreaders must be automatically sequenced and self□propelled. The mi□ing machine must deliver each material to a double shafted mi□er and discharge the mi□ed material on a continuous flow basis. The mi□ing machines must have sufficient storage capacity to maintain a continuous supply of material to the proportioning controls. The mi□ing machine operators must have full control of forward and reverse speeds during placement.

#### 37-3.01C(3)(d) Spreader Boxes

The spreader bo□es used to spread slurry seals and micro□surfacings must be:

1. □apable of spreading the slurry seal or micro□surfacing a minimum of 12 feet wide and preventing the loss of slurry seal or micro□surfacing.
2. □quipped with fle□ible rubber belting on each side. The belting must contact the pavement to prevent the loss of slurry seal or micro□surfacing from the bo□.
□. □quipped to uniformly apply the slurry seal or micro□surfacing on superelevated sections and shoulder slopes. Micro□surfacing spreader bo□must be equipped with reversible motor driven augers.
□. □quipped with a series of stri□e□off devices at its rear.
    □.1. The leading stri□e off device must be:
        □.1.1. □abricated of a suitable material such as steel or stiff rubber
        □.1.2. Designed to maintain close contact with the pavement during spreading
        □.1.□. □apable of obtaining the specified thic□ness
        □.1.□. □apable of being ad□usted to the various pavement cross sections
    □.2. The final stri□e□off device must be:
        □.2.1. □abricated of fle□ible material that produces a uniform te□ture in the finished surface

□.2.2. □leaned daily and changed if longitudinal scouring occurs in the slurry seal of micro□ surfacing

□. □lean and free of slurry seal or micro□surfacing at the start of each wor□ shift.

### 37-3.01C(3)(e) Shoulder Equipment

Spread the slurry seal or micro□surfacing on shoulders with a device such as an edge bo□ that forms clean and straight □oints and edges.

### 37-3.01C(3)(f) Equipment Calibration

□quipment calibration must comply with the *MPQP*. □otify the □ngineer at least □ business days before calibrating.

If the Department authori□es a truc□ or continuous mi□er spreader, its calibration is valid for □ months provided you:

1. □se the same truc□ or continuous mi□er spreader verified with a unique identifying number
2. □se the same materials in compliance with the authori□ed mi□ design
□. Do not perform any repair or alteration to the proportioning systems

□alibrate the ad□ustable cut□off gate settings of each truc□ or continuous mi□er spreader on the pro□ect to achieve the correct delivery rate of aggregate and emulsion per revolution of the aggregate feeder under the *MPQP*.

□hec□s must be performed for each aggregate source using an authori□ed vehicle scale.

Individual chec□s of the aggregate belt feeder□s delivery rate to the pug mill mi□er must not vary more than 2 percent from the average of □ runs of at least □ tons each.

□efore using a variable□rate emulsion pump, the pump must be calibrated and sealed in the calibrated condition under the *MPQP*.

Individual chec□s of the emulsion pump□s delivery rate to the pug mill mi□er must not vary more than 2 percent from the average of □ runs of at least □00 gal each.

### 37-3.01C(4) Surface Preparation

Immediately before applying slurry seals or micro□surfacings, clean the surface to receive slurry seals or micro□surfacings by removing any e□traneous material affecting adhesion of the slurry seal or micro□ surfacing with the e□isting surface. □se self□propelled power brooms or other methods such as flushing to clean the e□isting pavement.

### 37-3.01C(5) Placement

### 37-3.01C(5)(a) General

If truc□□mounted mi□er□spreaders are used, □eep at least 2 operational spreaders at the □ob site during placement.

Spread slurry seals and micro□surfacings uniformly and do not spot, rehandle, or shift the mi□ture. □owever in areas inaccessible to spreading equipment, spread the slurry seal or micro□surfacing mi□tures with hand tools or other authori□ed methods. If placing with hand tools, lightly dampen the area first.

□ou may fog the roadway surface with water ahead of the spreader bo□. The fog spray must be ad□usted for pavement:

1. Temperature
2. Surface te□ture
□. Dryness

□ou determine the application rates for slurry seals or micro□surfacings and the □ngineer authori□es the application rates. Spread within 10 percent of authori□ed rate.

The mi□tures must be uniform and homogeneous after spreading, and there must not be separation of the emulsion and aggregate after setting.

### 37-3.01C(5)(b) Weather Conditions

Only place slurry seals or micro□surfacings if both the pavement and air temperatures are at least □0 degrees □ and rising. The e□pected high temperature must be at least □□ degrees □ within 2□ hours after placement.

Do not place slurry seals or micro□surfacings if rain is imminent or the air temperature is e□pected to be below □□ degrees □ within 2□ hours after placement.

### 37-3.01C(5)(c) Joints

Transverse and longitudinal □oints must be:

1. □niform
2. Straight
3. □eat in appearance
4. Without material buildup
5. Without uncovered areas

Transverse □oints must be butt□type □oints.

□revent double placement at transverse □oints over previously placed slurry seals or micro□surfacings.

□lace longitudinal □oints:

1. On centerlines, lane lines, edge lines, or shoulder lines
2. With overlaps not more than □ inches

□ou may request other longitudinal □oint patterns if they do not adversely affect the slurry seals or micro□ surfacings.

The ma□imum difference between the pavement surface and the bottom edge of a 12□foot straightedge placed perpendicular to the longitudinal □oint must be 0.0□ foot.

### 37-3.01C(5)(d) Finished Surfaces

□inished slurry seals or micro□surfacings must be smooth and free of irregularities such as scratch or tear mar□s. □ou may leave up to □ mar□s that are up to 1 inch wide and □ inches long per □□ linear feet of slurry seal or micro□surfacing placed. Do not leave any mar□s that are over 1 inch wide or □ inches long.

### 37-3.01C(5)(e) Maintenance Sweeping

Sweep the slurry seals or micro□surfacings 2□ hours after placement without damaging the slurry seals or micro□surfacings. □or □ days afterwards, sweep the slurry seals or micro□surfacings daily unless determined otherwise by the □ngineer.

### 37-3.01C(5)(f) Repair of Early Distress

The slurry seals or micro□surfacings must not show bleeding, raveling, separation, or other distresses for 1□ days after placing. If bleeding, raveling, delaminating, rutting, or wash□boarding occurs after placing the slurry seals or micro□surfacings, ma□e repairs using an authori□ed method.

### 37-3.01D Payment

□ot □sed

## 37-3.02 SLURRY SEALS

### 37-3.02A General

### 37-3.02A(1) Summary

Section □□□□.02 includes specifications for applying slurry seals.

Applying a slurry seal consists of spreading a mi□ture of asphaltic emulsion or polymer modified asphaltic emulsion, aggregate, additives, and water on a surface or pavement.

### 37-3.02A(2) Definitions

Reserved

### 37-3.02A(3) Submittals

Immediately after sampling, submit two 1□quart wide mouth plastic containers of asphaltic emulsion or polymer modified asphaltic emulsion ta□en in the presence of the □ngineer. Samples must be submitted in insulated shipping containers.

### 37-3.02A(4) Quality Assurance

### 37-3.02A(4)(a) General

Reserved

### 37-3.02A(4)(b) Quality Control

### 37-3.02A(4)(b)(i) General

Ta□e samples of asphaltic emulsion and polymer modified asphaltic emulsion from the tan□truc□at mid load or from a sampling tap or thief. □efore ta□ing samples, draw and dispose of 1 gallon. In the presence of the □ngineer ta□e two 1□quart samples in wide mouth plastic containers with lined, sealed lids for acceptance testing.

### 37-3.02A(4)(b)(ii) Asphaltic Emulsion

□or asphaltic emulsions, the authori□ed laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

**Asphaltic Emulsion**

| □uality characteristic | Test method | Minimum sampling and testing frequency | Sampling location |
|---|---|---|---|
| Saybolt □urol □iscosity, at 2□ °□ □Saybolt □urol seconds□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Delivery truc□ |
| Sieve Test □□ □ | | | |
| Storage stability, 1 day □□ □ | | | |
| Residue by distillation □□ □ | | | |
| □article charge[a] | | | |
| Tests on Residue from Distillation Test: | | | |
| □enetration, 2□ °□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Delivery truc□ |
| Ductility | AAS□TO T □1 | | |
| Solubility in tricloroethylene | AAS□TO T □□ | | |

[a]If the result of the particle charge is inconclusive, the asphaltic emulsion must be tested for p□ under ASTM □□0. □rade □S1h asphaltic emulsion must have a minimum p□ of □.□. □rade □□S1h asphaltic emulsion must have a ma□imum p□ of □.□.

### 37-3.02A(4)(b)(iii) Polymer Modified Asphaltic Emulsion

□or polymer modified asphaltic emulsions, the authori□ed laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

**Polymer Modified Asphaltic Emulsion**

| □uality characteristic | Test method | Minimum sampling and testing frequency | Sampling Location |
|---|---|---|---|
| Tests on emulsion: | | | |
| Saybolt □urol □iscosity at 2□ □□ □Saybolt □urol seconds□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Delivery truc□ |
| Sieve test □□ □ | AAS□TO T □□ | | |
| Storage stability after 1 day □□ □ | AAS□TO T □□ | | |
| Residue by evaporation □min, □ □ | □alifornia Test □□1 | | |
| □article charge | AAS□TO T □□ | | |
| Tests on residue by evaporation: | | | |
| □enetration at 2□ □□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Delivery truc□ |
| Ductility at 2□ □□ □min, mm□ | AAS□TO T □1 | | |
| Torsional recovery □min, □ □<br><br>Or<br><br>□olymer content based on residual asphalt □min, □ □ | □alifornia Test □□2<br><br><br><br>□alifornia Test □01 | | |

**37-3.02A(4)(c) Department Acceptance**

□or a slurry seal asphaltic emulsion and polymer modified asphaltic emulsion, acceptance is based on the Department's sampling and testing for compliance with the requirements for the quality characteristics specified.

Aggregate acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

**Aggregate Acceptance Criteria**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Los Angeles Rattler loss □ma□, □ □<br>At □00 revolutions | □alifornia Test 211[a] | □□ |
| □ercent of crushed particles □min, □ □ | □alifornia Test 20□ | □□ |
| Durability □min□ | □alifornia Test 22□ | □□ |
| Sand equivalent □min□<br>Type I<br>Type II<br>Type III | □alifornia Test 21□ | <br>□□<br>□□<br>□0 |

[a] □alifornia Test 211 must be performed on the source aggregate before crushing.

A sand equivalent test represents □00 tons or 1 day□s production, whichever is less.

If test results for sand equivalent do not comply with the specifications, you may remove the slurry seal represented by the test results or request it remain in place with a payment deduction. If your request is authori□ed, the Department deducts □1.□□ per ton of slurry seal for each noncompliant sand equivalent test.

**37-3.02B Materials**

**37-3.02B(1) General**

Reserved

**37-3.02B(2) Asphaltic Emulsions**

An asphaltic emulsion must comply with the requirements in Section □□. The asphaltic emulsion must be □rade □□S1h.

### 37-3.02B(3) Polymer Modified Asphaltic Emulsions

A polymer modified asphaltic emulsion must:

1. □onsist of an elastomeric polymer mi□ed with an asphaltic material uniformly emulsified with water and an emulsifying or stabili□ation agent.
2. □se either neoprene polymer or butadiene and styrene copolymer. The polymer must be homogeneous and milled into the asphaltic emulsion at the colloid mill.
□. □e □rade □M□□S1h and must comply with the requirements shown in the following table:

**Polymer Modified Asphaltic Emulsion Requirements**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Tests on emulsion: | | |
| Saybolt □urol □iscosity at 2□ □□ □Saybolt □urol seconds□ | AAS□TO T □□ | 1□–□0 |
| Sieve test □□ □ | AAS□TO T □□ | 0–0.□ |
| Storage stability after 1 day □□ □ | AAS□TO T □□ | 0–1 |
| Residue by evaporation □min, □ □ | □alifornia Test □□1 | □0 |
| □article charge | AAS□TO T □□ | □ositive |
| Tests on residue by evaporation: | | |
| □enetration at 2□ □□ | AAS□TO T □□ | □0–□0 |
| Ductility at 2□ □□ □min, mm□ | AAS□TO T □1 | □00 |
| Torsional recovery □min, □ □<br><br>Or<br><br>□olymer content based on residual asphalt □min, □ □ | □alifornia Test □□2<br><br><br><br>□alifornia Test □01 | 1□<br><br><br><br>2.□ |

### 37-3.02B(4) Aggregate

Aggregate must comply with the quality characteristic requirements shown in the following table:

**Aggregate Requirements**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Los Angeles Rattler loss □ma□, □ □<br>At □00 revolutions | □alifornia Test 211[a] | □□ |
| □ercent of crushed particles □min, □ □ | □alifornia Test 20□ | □□ |
| Durability □min□ | □alifornia Test 22□ | □□ |
| Sand equivalent □min□<br>Type I<br>Type II<br>Type III | □alifornia Test 21□ | <br>□□<br>□□<br>□0 |

[a] □alifornia Test 211 must be performed on the source aggregate before crushing. The aggregate supplier must certify that the crushed aggregate being used on the pro□ect is manufactured from the source aggregate complying with the LA rattler requirements.

### 37-3.02B(5) Slurry Seal Mix Design

The slurry seal mi□design, using pro□ect source aggregate, an asphaltic emulsion, and set□control agents if any, must comply with the requirements shown in the following table:

**Slurry Seal Mix Design Requirements**

| □uality characteristic | Test method[a] | Requirement |
|---|---|---|
| □onsistency □ma□, mm□ | Technical □ulletin 10□ | □0 |
| Wet stripping<br>□ompatibility | Technical □ulletin 11□<br>Technical □ulletin 11□ | □ass<br>□ass[b] |
| □ohesion test, within 1 hour □min, □g□mm□<br>Wet trac□abrasion □ma□, g□m$^2$□ | Technical □ulletin 1□□<br>Technical □ulletin 100 | 200<br>□10 |

[a]Test methods are by the International Slurry Surfacing Association.

[b]Mi□ing test must pass at the ma□imum e□pected air temperature at the □ob site during placement.

The mi□design must have the percent of asphaltic residue, based on percentage by weight of the dry aggregate, within the ranges shown in the following table:

| Slurry seal type | Residue range |
|---|---|
| Type I | 10–1□ |
| Type II | □.□–1□.□ |
| Type III | □.□–12.0 |

Determine the e□act percentage based on the design asphalt binder content and the asphalt residual content of the asphaltic emulsion furnished.

**37-3.02C Construction**

**37-3.02C(1) General**

Reserved

**37-3.02C(2) Proportioning**

After proportioning, slurry seal mi□tures must be wor□able.

**37-3.02C(3) Mixing and Spreading Equipment**

Reserved

**37-3.02C(4) Placement**

The slurry seal spread rates must be within the ranges shown in the following table:

**Slurry Seal Spread Rates**

| Slurry seal type | Application range<br>□lb of dry aggregate□sq yd□ |
|---|---|
| Type I | □–12 |
| Type II | 10–1□ |
| Type III | 20–2□ |

Within □ hours after placement, slurry seals must be set enough to allow traffic without pilot cars. □rotect slurry seals from damage until it has set and will not adhere or be pic□ed up by vehicle tires. Slurry seals must not e□hibit distress from traffic such as bleeding, raveling, separation or other distresses.

**37-3.02D Payment**

The payment quantity for slurry seal is the weight determined by combining the weights of the aggregate and asphaltic emulsion or polymeric asphaltic emulsion. The payment quantity for slurry seal does not include the weights of the added water and set□control additives.

**37-3.03 MICRO-SURFACINGS**

**37-3.03A General**

**37-3.03A(1) Summary**

Section □□□□.0□ includes specifications for applying micro□surfacings.

Applying a micro□surfacing consists of spreading a mi□ture of a micro□surfacing emulsion, water, additives, mineral filler, and aggregate on the pavement.

### 37-3.03A(2) Definitions

Reserved

### 37-3.03A(3) Submittals

Immediately after sampling, submit two 1□quart wide mouth plastic containers of micro□surfacing emulsion ta□en in the presence of the □ngineer. Samples must be submitted in insulated shipping container.

### 37-3.03A(4) Quality Assurance

### 37-3.03A(4)(a) General

Reserved

### 37-3.03A(4)(b) Quality Control

### 37-3.03A(4)(b)(i) General

Reserved

### 37-3.03A(4)(b)(ii) Micro-surfacing Emulsions

Ta□e samples from the truc□ tan□ at mid load from a sampling tap or thief. □efore ta□ing samples, draw and dispose of 1 gallon. In the presence of the □ngineer, ta□e two 1□quart wide mouth plastic containers for acceptance testing.

□or a micro□surfacing emulsion, the authori□ed laboratory must perform quality control sampling and testing at the specified frequency and location for the quality characteristics shown in the following table:

**Micro-Surfacing Emulsion**

| □uality characteristic | Test method | Minimum sampling and testing frequency | Sampling location |
|---|---|---|---|
| Tests on emulsion: | | | |
| Saybolt □urol □iscosity, at 2□□□ □Saybolt □urol seconds□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Delivery truc□ |
| Storage stability, 1 day □ma□, □ □[a] | | | |
| Sieve test □ma□, □ □ | | | |
| Residue by evaporation □min, □ □ | □alifornia Test □□1 | Minimum 1 per day per delivery truc□ | Delivery truc□ |
| Tests on residue from evaporation test: | | | |
| □enetration at 2□ □□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Delivery truc□ |
| Softening point □min, □□ □ | AAS□TO T □□ | | |

[a]Storage stability test will be run if the storage e□ceeds □□ hours

### 37-3.03A(4)(c) Department Acceptance

□or micro□surfacing emulsions, acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

**Micro-surfacing Emulsion Acceptance Criteria**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Tests on emulsion: | | |
| Saybolt □urol □iscosity at 2□ □□<br>□Saybolt □urol seconds□ | AAS□TO T □□ | 1□–□0 |
| Sieve test □□ □ | AAS□TO T □□ | 0.□0 |
| Storage stability, 1 day □ma□, □ □<br>Settlement[a], □ days □ma□, □ □ | AAS□TO T □□<br>ASTM D2□□ | 0–1<br>□ |
| Residue by evaporation □min, □ □ | □alifornia Test □□1 | □2 |
| Tests on residue by evaporation: | | |
| □enetration at 2□ □□ | AAS□TO T □□ | □0–□0 |
| Softening point □min, □□ □ | AAS□TO T □□ | □□ |

[a]Settlement test on emulsion is not required if used within □□ hours of shipment.

Acceptance of aggregate, e□cept mineral filler, is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

**Aggregate Acceptance Criteria**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Los Angeles Rattler loss □ma□, □ □<br>At □00 revolutions | □alifornia Test 211[a] | □□ |
| □ercent of crushed particles □min, □ □ | □alifornia Test 20□ | □□ |
| Durability □min□ | □alifornia Test 22□ | □□ |
| Sand equivalent □min□<br>Type II<br>Type III | □alifornia Test 21□ | <br>□□<br>□□ |

[a]□alifornia Test 211 must be performed on the aggregate before crushing. The aggregate supplier must certify that the crushed aggregate being used on the pro□ect is manufactured from the source aggregate complying with the LA rattler requirements.

An aggregate sand equivalent test represents □00 tons or 1 day's production, whichever is less.

If the test results for aggregate sand equivalent do not comply with the specifications, you may remove the micro□surfacing represented by the test results or request it remain in place with a payment deduction. If your request is authori□ed, the Department deducts □2.00 per ton of micro□surfacing for each noncompliant aggregate sand equivalent test.

### 37-3.03B Materials

#### 37-3.03B(1) General

Reserved

#### 37-3.03B(2) Micro-surfacing Emulsions

A micro□surfacing emulsion must be a homogeneous mi□ture of asphalt, an elastomeric polymer and an emulsifier solution.

Add an elastomeric polymer modifier to asphalt or emulsifier solution before emulsification. An elastomeric polymer solid must be a minimum of □ percent by weight of the micro□surfacing emulsion's residual asphalt.

A micro□surfacing emulsion must comply with the requirements shown in the following table:

**Micro-surfacing Emulsion Requirements**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Tests on emulsion: | | |
| Saybolt □urol □iscosity at 2□ □□ □Saybolt □urol seconds□ | AAS□TO T □□ | 1□–□0 |
| Sieve test □□ □ | AAS□TO T □□ | 0.□0 |
| Storage stability, 1 day □ma□, □ □ | AAS□TO T □□ | 0–1 |
| Settlement[a], □days □ma□, □ □ | ASTM D2□□ | □ |
| Residue by evaporation □min, □ □ | □alifornia Test □□1 | □2 |
| Tests on residue by evaporation: | | |
| □enetration at 2□ □□ | AAS□TO T □□ | □0–□0 |
| Softening point □min, □□ □ | AAS□TO T □□ | □□ |

[a]Settlement test on emulsion is not required if used within □□ hours of shipment.

### 37-3.03B(3) Aggregate

Aggregate must comply with the quality characteristic requirements shown in the following table:

**Aggregate Requirements**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Los Angeles Rattler loss □ma□, □ □<br>At □00 revolutions | □alifornia Test 211[a] | □□ |
| □ercent of crushed particles □min, □ □ | □alifornia Test 20□ | □□ |
| Durability □min□ | □alifornia Test 22□ | □□ |
| Sand equivalent □min□<br>Type II<br>Type III | □alifornia Test 21□ | <br>□□<br>□□ |

[a]□alifornia Test 211 must be performed on the source aggregate before crushing. The aggregate supplier must certify that the crushed aggregate being used on the pro□ect is manufactured from the source aggregate complying with the LA rattler requirements.

### 37-3.03B(4) Mineral Fillers

If a mineral filler is used, it must be type I or type II □ortland cement. A mineral filler used during mi□ design must be used during production.

### 37-3.03B(5) Micro-Surfacing Mix Designs

The micro□surfacing mi□design must have the material proportion limits shown in the following table:

**Micro-surfacing Mix Design Proportion Limits**

| Material | □roportion limits |
|---|---|
| Micro□surfacing emulsion asphalt residual content □□ of dry weight of aggregate□ | □.□–10.□ |
| Water and additives | As Required |
| Mineral filler □□ of dry weight of aggregate□ | 0–□ |

The micro□surfacing mi□design must comply with the requirements shown in the following table:

**Micro-surfacing Mix Design Requirements**

| □uality characteristics | Test method[a] | Requirement |
|---|---|---|
| Wet cohesion<br>At □0 minutes □set□□min, □g□cm□<br>At □0 minutes □traffic□□min, □g□cm□ | Technical □ulletin 1□□ | 12<br>20 |
| □□cess asphalt □ma□, g□m$^2$□ | Technical □ulletin 10□ | □□0 |
| Wet stripping □min, □ □ | Technical □ulletin 11□ | □0 |
| Wet trac□ abrasion loss<br>□□day soa□ □ma□, g□m$^2$□ | Technical □ulletin 100 | □10 |
| Displacement<br>Lateral □ma□, □ □<br>Specific gravity after 1000 cycles of □□ □g □ma□□ | Technical □ulletin 1□□A | □<br>2.10 |
| □lassification compatibility □min, grade points□ | Technical □ulletin 1□□ | □AAA, □AA□11 |
| Mi□time at 2□ □□ □min□ | Technical □ulletin 11□ | □ontrollable to 120 seconds |

[a]Test methods are by the International Slurry Surfacing Association.

### 37-3.03B(6) Tack Coats

If there is a bid item for tac□coat, you must coat the pavement surface with an asphaltic emulsion mi□ed with additional water before applying a micro□surfacing. The ma□imum ratio of water to asphaltic emulsion must be 2 to 1. Apply the tac□coat at a rate from 0.0□ to 0.1□ gal□sq yd. The e□act rate must be authori□ed.

□ou determine the grade of slow□setting or quic□setting asphaltic emulsion to be used.

### 37-3.03C Construction

### 37-3.03C(1) General

Reserved

### 37-3.03C(2) Proportioning

□ield conditions may require ad□ustments to the proportions within the authori□ed mi□design during construction.

### 37-3.03C(3) Mixing and Spreading Equipment

### 37-3.03C(3)(a) General

Reserved

### 37-3.03C(3)(b) Scratch Course Boxes

Spread the scratch courses with the same type of spreader bo□used to spread micro□surfacings e□cept use an ad□ustable steel stri□e□off device instead of a final stri□e□off device.

### 37-3.03C(3)(c) Wheel Path Depression Boxes

□ach wheel path depression bo□must have ad□ustable stri□e□off device between □ and □ feet wide to regulate depth. The wheel path depression bo□must also have devices such as hydraulic augers capable of:

1. Moving the mi□ed material from the rear to the front of the filling chamber
2. □uiding larger aggregate into the deeper section of the wheel path depression
□. □orcing the finer material towards the outer edges of the spreader bo□

### 37-3.03C(4) Test Strips

If micro□surfacing placement will require more than 1 day, you must construct a test strip. The test strip must be:

1. □rom □00 to □□0 feet long
2. The same as the full production micro□surfacing
□. On 1 of the application courses specified at an authori□ed location

□. At the same time of day or night the full production micro□surfacing is to be applied

If multiple application courses are specified, you may construct test strips over 2 days or nights.

The □ngineer evaluates the test strip after traffic has used it for 12 hours. If the □ngineer determines the mi□design or placement procedure is unacceptable, ma□e modifications and construct a new test strip for the □ngineer□s evaluation.

**37-3.03C(5) Placement**

**37-3.03C(5)(a) General**

Reserved

**37-3.03C(5)(b) Repair Wheel Path Depressions**

If repairing wheel path depressions is shown in plans, fill wheel path depressions and irregularities with micro□surfacing material before spreading micro□surfacing. If the depressions are less than 0.0□ foot deep, fill with a scratch course. If the depressions are 0.0□ foot deep or more, fill the depressions using a wheel path depression bo□.

Spread scratch courses by ad□usting the steel stri□e□off of a scratch course bo□until it is directly in contact with the pavement surface.

Spread micro□surfacings with a wheel path depression bo□leaving a slight crown at the surface. □se multiple applications to fill depressions more than 0.12 foot deep. Do not apply more than 0.12 foot in a single application.

Allow traffic to compact each filled wheel path depression for a minimum of 12 hours before placing additional micro□surfacings.

**37-3.03C(5)(c) Micro-surfacing Pavement Surfaces**

The micro□surfacing spread rates must be within the ranges shown in the following table:

| Micro□surfacing type | Application range □lb of dry aggregate□sq yd□ |
|---|---|
| Tvpe II | 10–20 |
| Type III[a] | 20–□2 |
| Type III[b] | □0–□2 |

[a]Over asphalt concrete pavement

[b]Over concrete pavement and concrete bridge dec□s

Within 2 hours after placement, micro□surfacings must be set enough to allow traffic without pilot cars. □rotect the micro□surfacings from damage until it has set and will not adhere or be pic□ed up by vehicle tires. Micro□surfacings must not e□hibit distress from traffic such as bleeding, raveling, separation or other distresses.

**37-3.03D Payment**

The payment quantity for micro□surfacing is the weight determined by combining the weights of the aggregate and micro□surfacing emulsion. The payment quantity for micro□surfacing does not include the weights of added water, mineral filler, and additives.

**37-3.04 RUBBERIZED AND MODIFIED SLURRY SEALS**

Reserved

## 37-4 FOG SEALS AND FLUSH COATS

**37-4.01 GENERAL**

**37-4.01A General**

**37-4.01A(1) Summary**

Section □□□□.01 includes general specifications for applying fog seals and flush coats.

### 37-4.01A(2) Definitions

Reserved

### 37-4.01A(3) Submittals

At least 1□days before use, submit:

1. Sample of asphaltic emulsion in two 1□quart plastic container with lined, sealed lid
2. Asphaltic emulsion information and test data as follows:
   2.1. Supplier
   2.2. Type□□rade of asphalt emulsion
   2.□. □opy of the specified test results for asphaltic emulsion

### 37-4.01B Materials

□ot □sed

### 37-4.01C Construction

### 37-4.01C(1) General

Reserved

### 37-4.01C(2) Weather Conditions

Only place a fog seal or flush coat if both the pavement and ambient temperatures are at least □0 degrees □ and rising. Do not place a fog seal or flush coat within 2□ hours of rain or within 2□ hours of forecast rain or free□ing temperatures.

### 37-4.01D Payment

□ot □sed

## 37-4.02 FOG SEALS

### 37-4.02A General

### 37-4.02A(1) Summary

Section □□□□.02 includes specifications for applying fog seals.

Applying a fog seal includes applying a diluted slow□setting or quic□setting asphaltic emulsion.

### 37-4.02A(2) Definitions

Reserved

### 37-4.02A(3) Submittals

Immediately after sampling, submit two 1□quart plastic container of asphaltic emulsion ta□en in the presence of the □ngineer. Samples must be submitted in insulated shipping container.

### 37-4.02A(4) Quality Assurance

### 37-4.02A(4)(a) General

Reserved

### 37-4.02A(4)(b) Quality Control

### 37-4.02A(4)(b)(i) General

Reserved

### 37-4.02A(4)(b)(ii) Asphaltic Emulsions

□irculate asphaltic emulsions in the distributor truc□ before sampling. Ta□e samples from the distributor truc□ at mid load or from a sampling tap or thief. □efore ta□ing samples, draw and dispose of 1 gallon. In the presence of the □ngineer, ta□e asphalt emulsion sample in two 1□quart plastic container with lined, sealed lid.

□or asphaltic emulsions, the authori□ed laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

**Asphaltic Emulsion**

| □uality characteristic | Test Method | Minimum sampling and testing frequency | Sampling location |
|---|---|---|---|
| Saybolt □urol □iscosity, at 2□°□ □Saybolt □url seconds□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Distributor truc□ |
| Sieve Test □□ □ | | | |
| Storage stability, 1 day □□ □ | | | |
| Residue by distillation □□ □ | | | |
| □article charge[a] | | | |
| Tests on Residue from Distillation Test: | | | |
| □enetration, 2□°□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Distributor truc□ |
| Ductility | AAS□TO T □1 | | |
| Solubility in tricloroethylene | AAS□TO T □□ | | |

[a]If the result of the particle charge is inconclusive, the asphaltic emulsion must be tested for p□ under ASTM □□0. □rade □S1h asphaltic emulsion must have a minimum p□ of □.□. □rade □□S1h asphaltic emulsion must have a ma□imum p□ of □.□.

### 37-4.02A(4)(b)(iii) Asphaltic Emulsion Spread Rates

□or fog seals, the authori□ed laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

**Fog Seal Quality Control Requirements**

| □uality characteristic | Test method | Minimum sampling and testing frequency | Location of sampling |
|---|---|---|---|
| Asphaltic emulsion spread rate □gal□sq yd□ | □alifornia Test □□□ | 2 per day | □avement surface |

### 37-4.02A(4)(c) Department Acceptance

□og seal acceptance is based on:

1. □isual inspection for the following:
   1.1. □niform surface te□ture throughout the wor□ limits
   1.2. □lushing consisting of the occurrence of a film of asphaltic material on the surface
   1.□ Strea□ing consisting of alternating longitudinal bands of asphaltic emulsion appro□imately parallel with the lane line
2. The Department□s sampling and testing for compliance with the requirements for the quality characteristics specified in section □□ for asphaltic emulsion
□. Department□s sampling and testing for compliance with the requirements for fog seal shown in the following table:

**Fog Seal Acceptance Criteria**

| □uality □haracteristic | Test Method | Requirement |
|---|---|---|
| Asphaltic emulsion spread rate □gal□sq yd□ | □alifornia Test □□□ | T□ □10□ |

### 37-4.02B Materials

□ou determine the grade of slow□setting or quic□setting asphaltic emulsion to be used.

### 37-4.02C Construction

Apply asphaltic emulsions for fog seals at a residual asphalt rate from 0.02 to 0.0□ gal□sq yd.

If additional water is added to the asphaltic emulsions, the resultant mi□ture must not be more than 1 part asphaltic emulsion to 1 part water. □ou determine the dilution rate.

If the fog seals become tac□y, sprin□le water as required.

If fog seals and chip seals are on the same pro□ect, the □oint between the seal coats must be neat and uniform.

### 37-4.02D Payment

The Department does not ad□ust the unit price for an increase or decrease in the asphaltic emulsion quantity.

## 37-4.03 FLUSH COATS

### 37-4.03A General

### 37-4.03A(1) Summary

Section □□□□.0□ includes specifications for applying flush coats.

Applying a flush coat includes applying a fog seal coat followed by sand.

### 37-4.03A(2) Definitions

Reserved

### 37-4.03A(3) Submittals

At least 1□ days before use, submit:

1. □roposed target □ values for sand gradation.
2. □radation test results for sand

Submit quality control test results for sand gradation within 2 business days of sampling.

### 37-4.03A(4) Quality Assurance

### 37-4.03A(4)(a) General

Reserved

### 37-4.03A(4)(b) Quality Control

□or sand, the authori□ed laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

**Sand Quality Control**

| □uality characteristic | Test method | Minimum sampling and testing frequency | Location of sampling |
|---|---|---|---|
| □radation □□ passing by weight□ | □alifornia Test 202 | 1 per day | See □alifornia Test 12□ |

### 37-4.03A(4)(c) Department Acceptance

□lush coat acceptance is based on fog seal acceptance and the following:

1. □isual inspection for uniform application of sand.
2. Sand acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

**Sand Gradation Acceptance Criteria**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □radation □□ passing by weight□ Sieve si□e: | □alifornia Test 202 | |
| □□□" | | 100 |
| □o. □ | | □□–100 |
| □o. □ | | □1–□□ |
| □o. 1□ | | □ □1□ |
| □o. □0 | | □ □12 |
| □o. □0 | | □ □ □ |
| □o.100 | | 1–1□ |
| □o. 200 | | 0–10 |

□OT□: "□" is the gradation that you propose to furnish for the specific sieve si□e.

**37-4.03B Material**

**37-4.03B(1) General**

Reserved

**37-4.03B(2) Sand**

Sand must be free from deleterious coatings, clay balls, roots, bar□, stic□s, rags, and other e□traneous material.

Sand for a flush coat must comply with the gradations shown in the following table:

**Sand Gradation**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □radation □□ passing by weight□ Sieve si□e: | □alifornia Test 202 | |
| □□□" | | 100 |
| □o. □ | | □□–100 |
| □o. □ | | □1–□□ |
| □o. 1□ | | □ □1□ |
| □o. □0 | | □ □12 |
| □o. □0 | | □ □ □ |
| □o.100 | | 1–1□ |
| □o. 200 | | 0–10 |

□OT□: "□" is the gradation that you propose to furnish for the specific sieve si□e.

□ine aggregate si□es must be distributed such that the difference between the total percentage passing the □o. 1□ and □o. □0 sieves is from 10 to □0, and the difference between the percentage passing the □o. □0 and □o. □0 sieves is from 10 to □0.

**37-4.03C Construction**

**37-4.03C(1) General**

During flush coat activities, close ad□acent lanes to traffic. Do not trac□ asphaltic emulsion on e□isting pavement surfaces.

Apply sand immediately after applying asphaltic emulsions.

Spread sand aggregate with a mechanical device that spreads sand at a uniform rate over the full width of a traffic lane in a single application. Spread sand at a rate from 2 to □ lb□sq yd. □ou determine the application rates for sand and the □ngineer authori□es the application rate.

**37-4.03C(2) Sweeping**

Sweep loose sand material remaining on the surface 2□ hours after application.

### 37-4.03D Payment

The Department does not adjust the unit price for an increase or decrease in the sand cover seal quantity.

## 37-5 PARKING AREA SEALS

### 37-5.01 GENERAL

### 37-5.01A Summary

Section includes specifications for applying parking area seals. Sealing a parking area consists of spreading a mixture of asphaltic emulsion, aggregate, polymer, and water.

### 37-5.01B Definitions

Reserved

### 37-5.01C Submittals

At least 1 days before starting placement, submit a 20 lb sample of the aggregate to be used.

At least 10 days before starting placement, submit:

1. Name of the authorized laboratory to perform testing and mix design.
2. Laboratory report of test results and a proposed mix design. The report and mix design must include the specific materials to be used and show a comparison of test results and specifications. The mix design report must include the quantity of water allowed to be added at the job site. The authorized laboratory performing the tests must sign the original laboratory report and mix design.
3. Manufacturer's data for oil seal primer and polymer.

If the mix design consists of the same materials covered by a previous laboratory report, you may submit the previous laboratory report that must include material testing data performed within the previous 12 months for authorization.

If you request substitute materials, submit a new laboratory report and mix design at least 10 days before starting placement.

Submit a certificate of compliance for the parking area seal material.

Immediately after sampling, submit two 1-quart plastic containers of parking area seal taken in the presence of the Engineer. Samples must be submitted in insulated shipping containers.

### 37-5.01D Quality Assurance

#### 37-5.01D(1) General

Reserved

#### 37-5.01D(2) Quality Control

#### 37-5.01D(2)(a) General

Reserved

#### 37-5.01D(2)(b) Asphaltic Emulsions

For an asphaltic emulsion, the authorized laboratory must perform quality control sampling and testing at the specified frequency and location for the following quality characteristics:

**Asphaltic Emulsion**

| □uality characteristic | Test Method | Minimum sampling and testing frequency | Sampling location |
|---|---|---|---|
| Saybolt □urol □iscosity, at 2□°□ □Saybolt □urol seconds□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Distributor truc□ |
| Sieve Test □□ □ | | | |
| Storage stability, 1 day □□ □ | | | |
| Residue by distillation □□ □ | | | |
| □article charge[a] | | | |
| Tests on Residue from Distillation Test | | | |
| □enetration, 2□°□ | AAS□TO T □□ | Minimum 1 per day per delivery truc□ | Distributor truc□ |
| Ductility | AAS□TO T □1 | | |
| Solubility in trichloroethylene | AAS□TO T □□ | | |

[a]If the result of the particle char is inconclusive, the asphaltic emulsion must be tested for p□ under ASTM □□0. □rade □S1h asphaltic emulsion must have a minimum p□ of □.□. □rade □□S1h asphaltic emulsion must have a ma□imum p□ of □.□.

### 37-5.01D(2)(c) Sand

□or sand, the authori□ed laboratory must perform sampling and testing at the specified frequency and location for the following quality characteristics:

**Sand Quality Control**

| □uality characteristic | Test method | Minimum sampling and testing frequency | Location of sampling |
|---|---|---|---|
| □radation □□ passing by weight□ | □alifornia Test 202 | One per pro□ect | See □alifornia Test 12□ |

### 37-5.01D(2)(d) Parking Area Seals

□or a par□ing area seal, the authori□ed laboratory must perform quality control sampling and testing at the specified frequency for the following quality characteristics:

**Parking Area Seal Requirements**

| □uality characteristic | Test method | □requency |
|---|---|---|
| Mass per liter □□g□ | ASTM D2□□ | One per pro□ect |
| □one penetration □mm□ | □alifornia Test □1□ | |
| □onvolatile □□ □ | ASTM D20□2[a] | |
| □onvolatile soluble in trichloroethylene □□ □ | | |
| Wet trac□ abrasion □g□m$^2$□ | ASTM D□□10 | |
| Dried film color | □□ | |
| □iscosity □□□ □[b] | ASTM D□□2 | |

[a]Weigh 10 g of homogenous material into a previously tarred, small can. □lace in a constant temperature oven at 1□□ □ □ □□ for □0 □ □ minutes. □ool, reweigh, and calculate nonvolatile components as a percent of the original weight.
[b]□rebs units

### 37-5.01D(3) Department Acceptance

□ar□ing area seal acceptance is based on:

1. □isual inspection for:
   1.1. □niform surface te□ture throughout the wor□ limits
   1.2 Mar□s in the surface:
      1.2.1. □p to □ mar□s in the completed par□ing area seal that are up to 1 inch wide and up to □ inches long per 1,000 square feet of par□ing area seal placed.
      1.2.2. □o mar□s in the completed par□ing area seal surface that are over 1 inch wide or □ inches long.

1.2. Raveling consisting of the separation of the aggregate from the asphaltic emulsion
1.□. □leeding consisting of the occurrence of a film of asphaltic material on the surface of the par□ing area seal
1.□ Delaminating of the par□ing area seal from the e□isting pavement
1.□ Rutting or wash□boarding

2. The Department's sampling and testing of aggregate for compliance with 100 percent passing no. 1□ sieve under □alifornia Test 202

□. The Department's sampling and testing for compliance with the requirements shown in the following table:

**Parking Area Seal Acceptance Criteria**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Mass per liter □min, □g□ | ASTM D2□□ | 1.1 |
| □one penetration □mm□ | □alifornia Test □1□ | □□0–□00 |
| □onvolatile □min, □ □ | ASTM D20□2[a] | □0 |
| □onvolatile soluble in trichloroethylene □□ □ | | 10–□□ |
| Wet trac□abrasion □ma□, g□m$^2$□ | ASTM D□□10 | □□0 |
| Dried film color | □□ | □lac□ |
| □iscosity □min, □□□[b] | ASTM D□□2 | □□ |

[a]Weigh 10 g of homogenous material into a previously tared, small ointment can. □lace in a constant temperature oven at 1□□ □ □ □□ for □0 □ □ minutes. □ool, reweigh, and calculate nonvolatile components as a percent of the original weight.
[b]□rebs units

## 37-5.02 MATERIALS

### 37-5.02A General

Aggregate must be clean, hard, durable, uncoated, and free from organic and deleterious substances. One hundred percent of the aggregate must pass the no. 1□ sieve.

Asphaltic emulsion must be either □rade SS1h or □SS1h, e□cept the values for penetration at 2□ degrees □ for tests on residue from distillation must be from 20 to □0.

□olymer must be either neoprene, ethylene vinyl acetate, or a blend of butadiene and styrene.

Oil seal primer must be a quic□□drying emulsion with admi□tures. Oil seal primer must be manufactured to isolate the par□ing area seal from pavement with residual oils, petroleum grease, and spilled gasoline.

□rac□sealant must comply with section □□□□.

Water must be potable and not separate from the emulsion before the material is placed.

### 37-5.02B Mix Design

The proposed mi□design for a par□ing area seal must comply with the requirements shown in the following table:

**Parking Area Seal Mix Design Requirements**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| Mass per liter □min, □g□ | ASTM D2□□ | 1.1 |
| □one penetration □mm□ | □alifornia Test □1□ | □□0–□00 |
| □onvolatile □min, □ □ | ASTM D20□2[a] | □0 |
| □onvolatile soluble in trichloroethylene □□ □ | | 10–□□ |
| Wet trac□ abrasion □ma□, g□m$^2$□ | ASTM D□□10 | □□0 |
| Dried film color | □□ | □lac□ |
| □iscosity □min, □□□[b] | ASTM D□□2 | □□ |

[a]Weigh 10 g of homogenous material into a previously tarred, small ointment can. □lace in a constant temperature oven at 1□□ □ □ □□ for □0 □ □ minutes. □ool, reweigh, and calculate nonvolatile components as a percent of the original weight.
[b]□rebs units

A par□ing area seal must contain a minimum of 2 percent polymer by volume of undiluted asphaltic emulsion.

### 37-5.02C Proportioning

□ar□ing area seal ingredients must be mi□ed at a central plant. The plant must include mechanical or electronic controls that consistently proportion the ingredients. Mi□an asphaltic emulsion with the other ingredients mechanically.

Store the par□ing area seal in a tan□ equipped with mi□ing or agitation devices. □eep stored materials thoroughly mi□ed. □rotect stored materials from free□ing conditions.

## 37-5.03 CONSTRUCTION

### 37-5.03A General

Request that the □ngineer shut off the irrigation control system at least □ days before placing the seal. Do not water plants ad□acent to the seal at least 2□ hours before and after the seal coat placement.

### 37-5.03B Surface Preparations

If crac□s in the e□isting pavement are from 1□□ to 1 inch wide, treat the crac□s under section □□□□. Do not place the par□ing area seals until the □ngineer determines that the crac□ treatments are cured.

If crac□s in the e□isting pavement are greater than 1 inch wide, the □ngineer orders the repair. This wor□ is change order wor□.

After any crac□ treatment and before placing par□ing area seals, clean the pavement surface, including removal of oil and grease spots. Do not use solvents.

If cleaning the pavement with detergents, thoroughly rinse with water. Allow all water to dry before placing par□ing area seals.

□ou must seal oil and grease spots that remain after cleaning. □se an oil seal primer and comply with the manufacturer□s instructions.

If the e□isting pavement has oil and grease spots that do not come clean and sealing is insufficient, the □ngineer orders the repair of the pavement. This wor□ is change order wor□.

□efore placing the par□ing area seals, dampen the pavement surface using a distributor truc□. □lace the seal on the damp pavement but do not place it with standing water on the pavement.

### 37-5.03C Placement

If adding water at the □ob site based on the manufacturer□s instructions for consistency and spreadability, do not e□ceed 1□ percent by volume of undiluted asphaltic emulsion.

□lace the par□ing area seals in 1 or more application. The seals must be uniform and smooth, free of ridges or uncoated areas.

If placing in multiple applications, allow the last application to thoroughly dry before the subsequent application.

Do not allow traffic on the par□ing area seals for at least 2□ hours after placement.

Do not stripe over the par□ing area seals until it is dry.

### 37-5.04 PAYMENT

The payment quantity for par□ing area seal is the weight determined by combining the weights of the aggregate and asphaltic emulsion. The payment quantity for par□ing area seal does not include the added water and set□control additive.

## 37-6 CRACK TREATMENTS

### 37-6.01 GENERAL

### 37-6.01A Summary

Section □□□□ includes specifications for treating crac□s in asphalt concrete pavement.

### 37-6.01B Definitions

Reserved

### 37-6.01C Submittals

If your selected crac□ treatment material is on the Authori□ed Material List for fle□ible pavement crac□ treatment material, submit a certificate of compliance including:

1. Manufacturer□s name
2. □roduction location
□. □rand or trade name
□. Designation
□. □atch or lot number
□. □rac□ treatment material type
□. □ontractor or subcontractor name
□. □ontract number
□. Lot si□e
10. Shipment date
11. Manufacturer□s signature

If your selected crac□ treatment material is not on the Authori□ed Material List for fle□ible pavement crac□ treatment material, submit a sample and test results from each batch or lot 20 days before use. Testing must be performed by an authori□ed laboratory and test results must show compliance with the specifications. Test reports must include the information specified for the certificate of compliance submittal. □ach hot□applied crac□ treatment material sample must be a minimum of □lb and submitted in a silicone release container. □ach cold□applied crac□ treatment material sample must be a minimum of 2 quarts and submitted in a plastic container.

At least 10 days before the start of wor□, submit sand gradation test results under □alifornia Test 202.

Submit the following with each delivery of crac□ treatment material to the □ob site:

1. Manufacturer□s heating and application instructions
2. Manufacturer□s SDS
□. □ame of the manufacturer□s recommended detac□ifying agent

### 37-6.01D Quality Assurance

#### 37-6.01D(1) General

□ot□applied crac□ treatment material must be sampled at least once per pro□ect in the □ngineer□s presence. □ollect two □□pounds□minimum samples of crac□ treatment material from the dispensing wand into silicone release bo□es.

□old□applied crac□treatment material must be sampled at least once per pro□ect in the □ngineer's presence. □ollect 2 samples of crac□treatment material from the dispensing wand into 1□quart containers.

### 37-6.01D(2) Quality Control

Reserved

### 37-6.01D(3) Department Acceptance

□rac□treatment acceptance is based on:

1. □isual inspection for uniform filling of crac□s throughout the wor□limits including:
   1.2. □rac□treatment is not more than a 1□□ inch below the specified level
   1.□. Sealant failures
   1.□. □rac□re□opening
   1.□. □rac□overbanding is less than □inches wide
2. The Department's sampling and testing for compliance with the requirements shown in the following table:

**Crack Treatment Acceptance Criteria**

| □uality characteristic[a] | Test method[b] | Requirement | | | | |
|---|---|---|---|---|---|---|
| | | Type 1 | Type 2 | Type □ | Type □ | Type □ |
| Softening point □min, □□ | ASTM D□□ | 102 | □□ | □0 | □□ | □□ |
| □one penetration at □□ □□ □ma□□ | ASTM D□□2□ | □□ | □0 | □0 | □0 | □0 |
| Resilience at □□ □□, unaged □□ □ | ASTM D□□2□ | 20–□0 | 2□–□□ | □0–□0 | □□–□□ | □0–□0 |
| □le□ibility □□□ □[c] | ASTM D□111 | 0 | 0 | 0 | □11 | □2□ |
| Tensile adhesion □min, □ □ | ASTM D□□2□ | □00 | □00 | □00 | □00 | □00 |
| Specific gravity □ma□□ | ASTM D□0 | 1.2□ | 1.2□ | 1.2□ | 1.2□ | 1.2□ |
| Asphalt compatibility | ASTM D□□2□ | □ass | □ass | □ass | □ass | □ass |
| Sieve test □□ passing□ | See note d | 100 | 100 | 100 | 100 | 100 |

[a] □old□applied crac□treatment material residue collected under ASTM D□□□□, Method □ and sampled under ASTM D1□0 must comply with the grade specified.

[b] □□cept for viscosity, cure each specimen at a temperature of 2□ □2 □□ and a relative humidity of □0 □ 10 percent for 2□ □2 hours before testing.

[c] □or the fle□ibility test, the specimen si□e must be □.□ □0.2 mm thic□ by 2□ □0.2 mm wide by 1□0 □0.□ mm long. The test mandrel diameter must be □.□ □0.2 mm. The bend arc must be 1□0 degrees. The bend rate must be 2 □1 seconds. At least □of □test specimens must pass at the specified test temperature without fracture, cra□ing, or crac□ing.

[d] □or hot□applied crac□treatment, dilute with toluene and sieve through a no. □sieve. □or cold□applied crac□treatment, sieve the material as□received through a no. □sieve. If the manufacturer provides a statement that added components passed the no. 1□ sieve before blending, this requirement is void.

## 37-6.02 MATERIALS

### 37-6.02A General

Reserved

### 37-6.02B Crack Treatment Material

A crac□treatment material must comply with the requirements shown in the following table:

**Crack Treatment Material**

| □uality characteristic[a] | Test method[b] | Requirement | | | | |
|---|---|---|---|---|---|---|
| | | Type 1 | Type 2 | Type □ | Type □ | Type □ |
| Softening point □min, □□ □ | ASTM D□□ | 102 | □□ | □0 | □□ | □□ |
| □one penetration at □□ □□ □ma□□ | ASTM D□□2□ | □□ | □0 | □0 | □0 | □0 |
| Resilience at □□ □□, unaged □□ □ | ASTM D□□2□ | 20–□0 | 2□–□□ | □0–□0 | □□–□□ | □0–□0 |
| □le□ibility □□□ □[c] | ASTM D□111 | 0 | 0 | 0 | □11 | □2□ |
| Tensile adhesion □min, □ □ | ASTM D□□2□ | □00 | □00 | □00 | □00 | □00 |
| Specific gravity □ma□□ | ASTM D□0 | 1.2□ | 1.2□ | 1.2□ | 1.2□ | 1.2□ |
| Asphalt compatibility | ASTM D□□2□ | □ass | □ass | □ass | □ass | □ass |
| Sieve test □□ passing□ | See note d | 100 | 100 | 100 | 100 | 100 |

[a] □old□applied crac□treatment material residue collected under ASTM D□□□□, Method □ and sampled under ASTM D1□0 must comply with the grade specifications.

[b] □□cept for viscosity, cure each specimen at a temperature of 2□ □2 □□ and a relative humidity of □0 □ 10 percent for 2□ □2 hours before testing.

[c] □or the fle□ibility test, the specimen si□e must be □.□ □0.2 mm thic□ by 2□ □0.2 mm wide by 1□0 □0.□ mm long. The test mandrel diameter must be □.□ □0.2 mm. The bend arc must be 1□0 degrees. The bend rate must be 2 □1 seconds. At least □ of □ test specimens must pass at the specified test temperature without fracture, cra□ing, or crac□ing.

[d] □or hot□applied crac□treatment, dilute with toluene and sieve through a no. □ sieve. □or cold□applied crac□treatment, sieve the material as□received through a no. □ sieve. If the manufacturer provides a statement that added components passed the no. 1□ sieve before blending, this requirement is void.

A crac□treatment material must be delivered to the □ob site with the information listed below. If crac□ treatment material is delivered to the □ob site in containers, each container must be mar□ed with the following information.

1. Manufacturer□s name
2. □roduction location
□. □rand or trade name
□. Designation
□. □rac□treatment trade name
□. □atch or lot number
□. Ma□imum heating temperature
□. □□piration date for cold application only

□ot□applied crac□treatment must be delivered to the □ob site premi□ed in cardboard containers with meltable inclusion liners or in a fully meltable pac□age.

□old□applied crac□treatment must have a minimum shelf life of □ months from the date of manufacture.

**37-6.02C Sand**

Sand applied to tac□y crac□treatment material must be clean, free of clay, and comply with the gradation shown in the following table:

**Sand Gradation**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □radation □□ passing by weight□ Sieve si□e: | □alifornia Test 202 | |
| □o. □ | | 100 |
| □o. □0 | | 0–□0 |
| □o. 200 | | 0–□ |

**37-6.03 CONSTRUCTION**

Treat crac□s from 1□□ to 1 inch in width for the entire length of the crac□. □ill or repair crac□s wider than 1 inch as ordered. □illing crac□s wider than 1 inch is change order wor□.

If treating crac□s on a traffic lane ad□acent to a shoulder, treat the crac□s on the shoulder.

□or hot□applied crac□ treatment material, rout crac□s or saw cut to form a reservoir.

□rac□s must be clean and dry before treating. □efore treating, blast crac□s with oil□free compressed air at a pressure of at least □0 psi.

If the pavement temperature is below □0 degrees □ or if there is evidence of moisture in the crac□, use a hot air lance immediately before applying crac□ treatment. The hot air lance must not apply flame directly on the pavement.

□eat and apply hot□applied crac□ treatment material under with the manufacturer□s instructions.

Apply cold□applied crac□ treatment material with a distributor □ettle, a piston, or a diaphragm barrel pump that can deliver from □0 to □□ psi. The application line must have a pressure gauge and a filter. The pressure in the application line must not e□ceed 20 psi. The pressure gauge must have a regulator. □se a high□pressure hose with a 1□2□inch □□T swivel connection and a dispensing wand.

Apply crac□ treatment with a no□□le inserted into the crac□. □ill the crac□ flush. If after 2 days the crac□ treatment is more than 1□□ inch below the specified level, the sealant fails, or the crac□ re□opens, re□treat the crac□.

Immediately remove crac□ treatment material that is spilled or deposited on the pavement surface.

□efore opening to traffic, apply sand or the manufacturer□s recommended detac□ifying agent to tac□y crac□ treatment material on the traveled way.

Sweep up e□cess sand before opening to traffic.

**37-6.04 PAYMENT**

The payment quantity for crac□ treatment is the length measured in lane miles along the edge of each paved lane parallel to the pavement□s centerline. The payment for a lane includes crac□ treatment of the ad□acent shoulder.

**37-7–37-10 RESERVED**

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 39 ASPHALT CONCRETE

0□□1□□1□

**Replace *SP-2* at each occurrence in section 39 with:**

01□1□□1□

MS□2

**Replace the 3rd paragraph of section 39-2.01A(1) with:**

0□□1□□1□

WMA technologies must be on the Authori□ed Material List for WMA authori□ed technologies.

**Add between the 3rd and 4th paragraphs of section 39-2.01A(1):**

0□□1□□1□

□or □MA that uses asphalt binder containing crumb rubber modifier, submit a □rumb Rubber □sage Report form monthly and at the end of the pro□ect.

**Add to the table in the 4th paragraph of section 39-2.01A(1):**

01□1□□1□

| | |
|---|---|
| Asphalt Institute MS□2 | □th edition □201□□ |

**Add to item 8 in the 4th paragraph of section 39-2.01A(3)(b)(i):**

0□□1□□1□

, e□cept lime supplier and source

**Replace the headings and paragraphs of section 39-2.01A(3)(i) with:**

01□1□□1□

**39-2.01A(3)(i) Reserved**

**Replace the 2nd sentence in the 3rd paragraph of section 39-2.01A(4)(b) with:**

01□1□□1□

Submit □ parts and □eep 1 part.

**Add between *single* and *test* in the 7th paragraph of section 39-2.01A(4)(i)(i):**

0□□1□□1□

aggregate or □MA

**Replace the 1st paragraph of section 39-2.01B(2)(b) with:**

0□□1□□1□

If the proposed □M□ indicates that the aggregate is being treated with dry lime or lime slurry with marination, or the □MA with liquid antistrip, then testing the untreated aggregate under AAS□TO T 2□□ and AAS□TO T □2□ is not required.

If □MA treatment is required or being used by the □ontractor, determine the plasticity inde□ of the aggregate blend under □alifornia Test 20□.

**Add between *aggregate* and *with dry lime* in the 3rd and 4th paragraphs of section 39-2.01B(2)(b):**

0□□1□□1□

blend

**Replace the 9th through 11th paragraphs of section 39-2.01B(8)(a) with:**

0□□1□□1□

□MA must be produced at the temperatures shown in the following table:

**HMA Production Temperatures**

| □MA compaction | Temperature □□□□ |
|---|---|
| □MA | |
| Density based Method | ≤ □2□ □0□–□2□ |
| □MA with WMA technology | |
| Density based Method | 2□0–□2□ 2□0–□2□ |

0□1□1□

**Delete the 1st paragraph of section 39-2.01B(11).**

**Add after the 2nd paragraph of section 39-2.01B(11):**

0□1□1□

□or miscellaneous areas and di□es:

1. □hoose the aggregate gradation from:
   1.1. □□□inch Type A □MA aggregate gradation
   1.2. 1□2□inch Type A □MA aggregate gradation
   1.□. 1□2□inch di□e mi□aggregate gradation
2. □hoose asphalt binder □rade □□ □□10, □□ □□1□ or □□ □0□10.
□. Minimum asphalt binder content must be:
   □.1. □.□0 percent for □□□inch Type A □MA aggregate gradation
   □.2. □.□0 percent for 1□2□inch Type A □MA aggregate gradation
   □.□. □.□0 percent for 1□2□inch di□e mi□aggregate gradation

If you request and the □ngineer authori□es, you may reduce the minimum asphalt binder content.

Aggregate gradation for 1□2□inch di□e mi□must be within the T□ limits for the specified sieve si□e shown in the following table:

**Aggregate Gradation for 1/2-inch Dike Mix**
**(Percentage Passing)**

| Sieve si□e | Target value limit | Allowable tolerance |
|---|---|---|
| □□□" | 100 | □□ |
| 1□2" | □0–□□ | T□ □ □ |
| □o. □ | □0–□□ | T□ □ □ |
| □o. □ | 2□–2□ | T□ □ □ |
| □o. □0 | 1□–□□ | T□ □ □ |
| □o. 200 | □.0–1□.0 | T□ □2.0 |

**Replace item 4 in the 2nd paragraph of section 39-2.01C(1) with:**

0□1□1□

□. □or method compaction:
   □.1. The temperature of the □MA and the □MA produced with WMA water in□ection technology in the windrow does not fall below 2□0 degrees □
   □.2. The temperature of the □MA produced using WMA additive technology in the windrow does not fall below 2□0 degrees □

0□1□1□

**Delete item 3 in the 8th paragraph of section 39-2.01C(1).**

**Replace *39-2.01A(3)(m)(iv)* in the 6th paragraph of section 39-2.01C(3)(e) with:**

01□1□1□

□□□□.01□□□□

**Replace *2.06* in the 4th paragraph of section 39-2.01C(3)(f) with:**

0□1□1□

2.0□

**Add to the end of section 39-2.01C(15)(b):**

0□1□1□

The compacted lift thic□ness must not e□ceed 0.2□ foot.

**Add between *rectangles* and *with* in the 4th paragraph of section 39-2.01C(16):**

0□1□1□

, half the lane width,

**Add between *to* and *the* in item 1 of the 4th paragraph of section 39-2.01C(16):**

0□1□1□

and along

0□1□1□

**Delete *coat* in the 5th paragraph of section 39-2.01C(16).**

**Replace *37* in the 5th paragraph of section 39-2.01C(16) with:**

0□1□1□

□□□□.02

**Replace section 39-2.02A(3)(b) with:**

01□1□1□

The □M□ must be based on the superpave □MA mi□design as described in *MS-2 Asphalt Mix Design Methods* by the Asphalt Institute.

**Add between the 1st and 2nd paragraphs of section 39-2.02C:**

0□1□1□

If the ambient air temperature is below □0 degrees □, cover the loads in truc□s with tarpaulins. If the time for □MA discharge to truc□at the □MA plant until transfer to paver□s hopper is □0 minutes or greater and if the ambient air temperature is below □0 degrees □, cover the loads in truc□s with tarpaulins, unless the time from discharging to the truc□until transfer to the paver□s hopper or the pavement surface is less than □0 minutes. The tarpaulins must completely cover the e□posed load until you transfer the mi□ture to the paver□s hopper or the pavement surface.

**Replace the table in the 2nd paragraph of section 39-2.02C with:**

0□1□1□

**Minimum Ambient Air and Surface Temperatures**

| Lift thic□ness □feet□ | Ambient air □°□□ | | Surface □°□□ | |
|---|---|---|---|---|
| | □nmodified asphalt binder | Modified asphalt binder | □nmodified asphalt binder | Modified asphalt binder |
| Type A □MA and Type A □MA produced with WMA water in□ection technology | | | | |
| <0.1□ | □□ | □0 | □0 | □□ |
| ≥0.15 | □□ | □□ | □0 | □0 |
| Type A □MA produced with WMA additive technology | | | | |
| <0.1□ | □□ | □□ | □0 | □□ |
| ≥0.15 | □0 | □0 | □0 | □0 |

0□1□1□

**Delete the 3rd paragraph of section 39-2.02C.**

**Add between *HMA* and *placed* in the 1st sentence of the 4th paragraph of section 39-2.02C:**

0□1□1□

and Type A □MA produced with WMA water in□ection technology

**Add between the 4th and the 5th paragraphs of section 39-2.02C:**

0□1□1□

□or Type A □MA produced with WMA additive technology placed under method compaction, if the asphalt binder is:

1. □nmodified, complete:
   1.1 1st coverage of brea□down compaction before the surface temperature drops below 2□0 degrees □
   1.2. □rea□down and intermediate compaction before the surface temperature drops below 1□0 degrees □
   1.□. □inish compaction before the surface temperature drops below 1□0 degrees □
   1.□ □ou may continue static rolling below 1□0 degrees □ to remove roller mar□s.
2. Modified, complete:
   2.1. 1st coverage of brea□down compaction before the surface temperature drops below 2□0 degrees □
   2.2. □rea□down and intermediate compaction before the surface temperature drops below 1□0 degrees □
   2.□. □inish compaction before the surface temperature drops below 1□0 degrees □
   2.□. □ou may continue static rolling below 1□0 degrees □ to remove roller mar□s.

**Replace the 2nd paragraph of section 39-2.03A(3)(b) with:**

01□1□1□

The □M□ must be based on the superpave □MA mi□design as described in *MS-2 Asphalt Mix Design Methods* by the Asphalt Institute.

**Replace the requirement in the row for *Voids in mineral aggregate on plant produced HMA* in the 2nd table in section 39-2.03A(4)(e)(i) with:**

01□1□1□

1□.0□2□.0

**Add before the 1st paragraph of section 39-2.03A(4)(e)(ii)(C):**

0□1□1□

□RM used must be on the Authori□ed Materials List for □rumb Rubber Modifier.

□RM must be a ground or granulated combination of scrap tire crumb rubber and high natural scrap tire crumb rubber, □RM must be □□.0 □2.0 percent scrap tire crumb rubber and 2□.0 □2.0 percent high natural scrap tire crumb rubber by total weight of □RM. Scrap tire crumb rubber and high natural scrap tire crumb rubber must be derived from waste tires described in □ub Res □ode □ □2□0□.

**Replace the row for *Hamburg wheel track* in the table in section 39-2.03B(2) with:**

01□1□□1□

| | | |
|---|---|---|
| □amburg wheel trac□ □min, number of passes at the inflection point□<br>□inder grade:<br>□□ □□<br>□□ □□<br>□□ □0 | AAS□TO T □2□ □Modified□[d] | <br><br>10,000<br>12,□00<br>1□,000 |

**Replace *RHMA-G* in the 3rd and 5th paragraphs of section 39-2.03C with:**

0□□1□□1□

R□MA□□ and R□MA□□ produced with WMA water in□ection technology

**Add between the 5th and 6th paragraphs of section 39-2.03C:**

0□□1□□1□

□or R□MA□□ produced with WMA additive technology placed under method compaction:

1. □omplete the 1st coverage of brea□down compaction before the surface temperature drops below 2□0 degrees □
2. □omplete brea□down and intermediate compaction before the surface temperature drops below 2□0 degrees □
□. □omplete finish compaction before the surface temperature drops below 1□0 degrees □
□. □ou may continue static rolling below 1□0 degrees □ to remove roller mar□s

**Replace the 6th and 7th paragraphs of section 39-2.04C with:**

0□□1□□1□

□or □MA□O and □MA□O produced with WMA water in□ection technology:

1. With unmodified asphalt binder:
   1.1. Spread and compact only if the atmospheric temperature is at least □□ degrees □ and the surface temperature is at least □0 degrees □.
   1.2. □omplete the 1st coverage using 2 rollers before the surface temperature drops below 2□0 degrees □.
   1.□. □omplete all compaction before the surface temperature drops below 200 degrees □.
2. With modified asphalt binder, e□cept asphalt rubber binder:
   2.1. Spread and compact only if the atmospheric temperature is at least □0 degrees □ and the surface temperature is at least □0 degrees □.
   2.2. □omplete the 1st coverage using 2 rollers before the surface temperature drops below 2□0 degrees □.
   2.□. □omplete all compaction before the surface temperature drops below 1□0 degrees □.

□or □MA□O produced with WMA additive technology:

1. With unmodified asphalt binder:
   1.1. Spread and compact only if the atmospheric temperature is at least □□ degrees □ and the surface temperature is at least □0 degrees □.
   1.2. □omplete the 1st coverage using 2 rollers before the surface temperature drops below 2□0 degrees □.
   1.□. □omplete all compaction before the surface temperature drops below 1□0 degrees □.
2. With modified asphalt binder, e□cept asphalt rubber binder:
   2.1. Spread and compact only if the atmospheric temperature is at least □0 degrees □ and the surface temperature is at least □0 degrees □.
   2.2. □omplete the 1st coverage using 2 rollers before the surface temperature drops below 2□0 degrees □.

2. Complete all compaction before the surface temperature drops below 100 degrees F.

**Replace *RHMA-O and RHMA-O-HB* in the 8th paragraph of section 39-2.04C with:**

01-1.01

RHMA-O and RHMA-O produced with WMA water injection technology, and RHMA-O-xx and RHMA-O-xx produced with WMA water injection technology

**Add between the 8th and 9th paragraphs of section 39-2.04C:**

01-1.01

For RHMA-O produced with WMA additive technology and RHMA-O-xx produced with WMA additives technology:

1. Spread and compact if the ambient air temperature is at least 55 degrees F and the surface temperature is at least 60 degrees F
2. Complete the 1st coverage using 2 rollers before the surface temperature drops below 250 degrees F
3. Complete all compaction before the surface temperature drops below 250 degrees F

**Add to the 2nd paragraph of section 39-2.05A(3)(b):**

01-1.01

The material transfer vehicle must receive HMA directly from the truck.

**Replace *Table 6.1* at each occurrence in the table in section 39-2.05B(2) with:**

01-1.01

Table 6.1

**Replace *SP-2 Asphalt Mixture* in the 1st footnote in the table in the 2nd paragraph of section 39-2.05B(2)(b) with:**

01-1.01

*MS-2 Asphalt Mix Design Methods*

**Replace *Manual Series No. 2 (MS-2)* in the 1st footnote in the table in the 2nd paragraph of section 39-2.05B(2)(b) with:**

01-1.01

*MS-2 Asphalt Mix Design Methods*

**Replace *39-3.05* in the 1st paragraph of section 39-3.04A with:**

01-1.01

39-3.06

**Add to the end of section 39-3.04A:**

01-1.01

Schedule cold planing activities such that the pavement is cold planed, the HMA is placed, and the area is opened to traffic during the same work shift.

01-1.01

**Delete the 2nd sentence of the 1st paragraph in section 39-3.04C(4).**

**Replace *39-3.06* in the 1st paragraph of section 39-3.05A with:**

01□1□□1□

□□□□.0□

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# DIVISION VI STRUCTURES

## 47 EARTH RETAINING SYSTEMS

0□□1□□1□

**Replace the 6th paragraph in section 47-2.02A with:**

0□□1□□1□

Roc□for roc□slope protection at drain pipe outlets must be small□roc□slope protection and must comply with the gradation specified for □□inch□thic□layer in section □2□□.02.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

## 49 PILING

0□□1□□1□

0□□1□□1□

**Delete the 2nd paragraph of section 49-1.01A.**

**Replace the 1st sentence in the 5th paragraph of section 49-1.01D(3) with:**

0□□1□□1□

Load test and anchor piles must comply with the specifications for piling as described and □lass □ steel pipe piling.

**Add to the list in 7th paragraph of section 49-1.01D(3):**

0□□1□□1□

□. Welds that connect the anchor pile and the anchor pile head must be tested under section □□□ 2.02A□□□□b□iii□□□.□

**Replace the 10th paragraph of section 49-1.01D(3) with:**

0□□1□□1□

□urnish labor, materials, tools, equipment, and incidentals as required to assist the Department in the transportation, installation, operation, and removal of Department□furnished steel load test beams, □ac□s, bearing plates, drills, and other test equipment. This is change order wor□.

**Replace the 7th paragraph of section 49-1.01D(4) with:**

0□□1□□1□

□iles to be dynamically monitored must:

1. □ave an additional length of 2 times the pile diameter plus 2 feet.
2. □e available to the Department at least 2 business days before driving.
□. □e safely supported at least □ inches off the ground in a hori□ontal position on at least 2 support bloc□s. If requested, rotate the piles on the bloc□s.
□. □e positioned such that the Department has safe access to the entire pile length and circumference for the installation of anchorages and control mar□s for monitoring.

0□1□1□

**Delete *business* in item 6 in the list in the 8th paragraph of section 49-1.01D(4).**

**Add to the list in 9th paragraph of section 49-1.01D(4):**

0□1□1□

□. □ut pile to the specified cut□off elevation after bearing acceptance criteria is provided by the Department

0□1□1□

**Delete the 3rd paragraph of section 49-1.03.**

0□1□1□

**Delete the 2nd paragraph of section 49-1.04.**

01□1□1□

**Delete the 4th paragraph of section 49-2.01C(5).**

**Replace item 3 in the list in the 2nd paragraph of section 49-3.01A with:**

0□1□1□

□. □ISS concrete piles

**Add between *undisturbed material* and *in a dry* in the 1st paragraph of section 49-3.01C:**

0□1□1□

, casing, or steel shell

**Replace the 2nd and 3rd paragraphs of section 49-3.01C with:**

0□1□1□

□lace and secure reinforcement. Securely bloc□ the reinforcement to provide the minimum clearance shown between the reinforcing steel cage and the sides of the drilled hole, casing, or steel shell.

Steel shells, casings, and drilled holes must be clean and free of debris before reinforcement and concrete are placed.

**Replace *dewatered* in the 4th paragraphs of section 49-3.01C with:**

0□1□1□

drilled

**Add to section 49-3.02A(1):**

0□1□1□

□ermanent steel casing and driven steel shell must comply with section □□2.02.

**Replace the paragraph of section 49-3.02A(2) with:**

0□1□1□

**dry hole:** A drilled hole that requires no wor□ to □eep it free of water.

**dewatered hole:** A drilled hole that:

1. Accumulates no more than 12 inches of water at the bottom during a 1 hour period without any pumping from the hole.

2. □as no more than □ inches of water at the bottom immediately before placing concrete.
□. Does not require temporary casing to control the groundwater.

**Replace item 8 in the list in the 1st paragraph of section 49-3.02A(3)(b) with:**

0□□1□□1□

□. Drilling plan and sequence
□. □oncrete sequence and placement plan
10. If inspection pipes are required, methods for ensuring the inspection pipes remain straight, undamaged, and properly aligned during concrete placement

**Replace *1 business day* in the paragraph of section 49-3.02A(3)(d) with:**

0□□1□□1□

2 business days

**Add to section 49-3.02A(3)(d):**

0□□1□□1□

The log must:

1. Show the pile location, tip elevation, cutoff elevation, dates of e□cavation and concrete placement, total quantity of concrete placed, length and tip elevation of any casing, and details of any hole stabili□ation method and materials used.
2. Include an □□1□2 by 11 inch graph of concrete placed versus depth of hole filled as follows:
   2.1. □lot the graph continuously throughout concrete placement. □lot the depth of drilled hole filled vertically with the pile tip at the bottom and the quantity of concrete placed hori□ontally.
   2.2. Ta□e readings at each □ feet of pile depth, and indicate the time of the reading on the graph.

**Add after the sentence in the paragraph of section 49-3.02A(3)(e):**

0□□1□□1□

Allow 10 days for the review.

**Replace the 3rd sentence in the paragraph of section 49-3.02A(3)(f) with:**

0□□1□□1□

Allow 10 days for the review and analysis of this report.

**Add after *rejected pile* in the 1st sentence in the 1st paragraph of section 49-3.02A(3)(g):**

0□□1□□1□

to be mitigated

0□□1□□1□

**Delete the 2nd paragraph of section 49-3.02A(3)(g).**

**Replace item 3 in the list in the 3rd paragraph of section 49-3.02A(3)(g) with:**

0□□1□□1□

□. Step by step description of the mitigation wor□ to be performed, including drawings if necessary. If the *ADSC Standard Mitigation Plan* is an acceptable mitigation method, include the most recent version. □or the most recent version of the *ADSC Standard Mitigation Plan*, go to:
http:□□www.dot.ca.gov□hq□esc□geotech□ft□adscmitplan.htm

**Replace the 2nd sentence in the paragraph of section 49-3.02A(3)(i) with:**

0□1□1□

Allow 10 days for the review.

**Add to section 49-3.02A(3):**

0□1□1□

**49-3.02A(3)(j) Certifications**

If synthetic slurry is used, submit as an informational submittal the names and certifications of your employees who are trained and certified by the synthetic slurry manufacturer.

**Add after *excavated hole* in the 1st sentence in the 3rd paragraph of section 49-3.02A(4)(c):**

0□1□1□

lined with plastic

**Replace the 1st paragraph of section 49-3.02A(4)(d)(i) with:**

0□1□1□

Section □□□□.02A□□□d□applies to □ID□ concrete piles e□cept for piles □1□less than 2□ inches in diameter or □2□constructed in dry or dewatered holes.

**Replace *gamma-gamma logging* in the 2nd paragraph of section 49-3.02A(4)(d)(i) with:**

0□1□1□

□□L

**Replace the 1st sentence in the 3rd paragraph of section 49-3.02A(4)(d)(i) with:**

0□1□1□

After notification by the □ngineer of pile acceptance, fill the inspection pipes and cored holes with grout.

**Replace *gamma-gamma logging* in section 49-3.02A(4)(d)(ii) with:**

0□1□1□

□□L

**Replace the 3rd and 4th paragraphs of section 49-3.02A(4)(d)(iii) with:**

0□1□1□

The Department may perform □SL to determine the e□tent of the anomalies identified by □□L and to further evaluate a re□ected pile for the presence of anomalies not identified by □□L. The pile acceptance test report will indicate if the Department intends to perform □SL and when the testing will be performed. Allow the Department 20 additional days for a total of □0 days to perform □SL and to provide supplemental results.

If authori□ed, you may perform testing on the re□ected pile.

0□1□1□

**Delete the 8th paragraph of section 49-3.02A(4)(d)(iii).**

**Add to the end of section 49-3.02A(4)(d)(iii):**

0□1□1□

If the □ngineer determines it is not feasible to repair the re□ected pile, submit a mitigation plan for replacement or supplementation of the re□ected pile.

**Add to section 49-3.02A(4):**

07-15-16

**49-3.02A(4)(e) Certifications**

If synthetic slurry is used, your employees who will be providing technical assistance in the slurry activities must be trained and certified by the synthetic slurry manufacturer to show their competency to perform inspection of slurry operations.

**Replace section 49-3.02B(4) with:**

07-15-16

**49-3.02B(4) Reserved**

**Replace *near* in the 3rd, 4th, and 5th paragraphs of section 49-3.02B(6)(b) with:**

07-15-16

within 2 feet of

**Replace *twice per shift* in item 2 in the 3rd paragraph of section 49-3.02B(6)(b) with:**

07-15-16

every 4 hours

07-15-16

**Delete the 7th and 8th paragraphs of section 49-3.02B(6)(b).**

07-15-16

**Delete the 3rd paragraph of section 49-3.02B(6)(c).**

**Replace *near* in item 2 in the 4th paragraph of section 49-3.02B(6)(c) with:**

07-15-16

within 2 feet of

**Replace item 5 in the 4th paragraph of section 49-3.02B(6)(c) with:**

07-15-16

5. After final cleaning and immediately before placing concrete.

**Replace section 49-3.02B(9) with:**

07-15-16

**49-3.02B(9) Inspection Pipes**

Inspection pipes must be schedule 40 PVC pipe complying with ASTM D1785 with a nominal pipe size of 2 inches.

Watertight PVC couplers complying with ASTM D2466 are allowed to facilitate pipe lengths in excess of those commercially available.

**Add to the beginning of section 49-3.02C(1):**

07-15-16

Unless otherwise authorized, drilling the hole and placing reinforcement and concrete in the hole must be performed in a continuous operation.

**Replace the 5th paragraph of section 49-3.02C(2) with:**

0□1□1□

If slurry is used during e□cavation, maintain the slurry level at a height required to maintain a stable hole, but not less than 10 feet above the pie□ometric head.

**Replace the 1st sentence in the 9th paragraph of section 49-3.02C(2) with:**

0□1□1□

Remove water that has infiltrated the dewatered hole before placing concrete, as required for dewatered hole.

**Replace the 1st sentence in the 10th paragraph of section 49-3.02C(2) with:**

0□1□1□

If authori□ed, to control caving or water seepage, you may enlarge portions of the hole, bac□fill the hole with slurry cement bac□fill, concrete, or other material, and redrill the hole to the diameter shown.

**Replace the 4th paragraph of section 49-3.02C(3) with:**

0□1□1□

Remove the temporary casing during concrete placement. Maintain the concrete in the casing at a level required to maintain a stable hole, but not less than □feet above the bottom of the casing, to prevent displacement of the concrete by material from outside the casing.

**Replace the 5th paragraph of section 49-3.02C(4) with:**

0□1□1□

□or a single □ID□ concrete pile supporting a column:

1. If the pile and the column share the same reinforcing cage diameter, this cage must be accurately placed as shown
2. If the pile reinforcing cage is larger in diameter than the column cage:
   2.1. Maintain a clear hori□ontal distance of at least □.□ inches between the two cages, if the concrete is placed under dry conditions
   2.2. Maintain a clear hori□ontal distance of at least □ inches between the two cages if the concrete is placed under slurry
   2.□. The offset between the centerlines of the two cages must not e□ceed □ inches

**Replace the paragraphs in section 49-3.02C(5) with:**

0□1□1□

□or acceptance testing, install and test vertical inspection pipes as follows:

1. Log the location of the inspection pipe couplers with respect to the plane of pile cutoff.
2. □ap each inspection pipe at the bottom. □□tend the pipe from □feet above the pile cutoff to the bottom of the reinforcing cage. □rovide a temporary top cap or similar means to □eep the pipes clean before testing. If pile cutoff is below the ground surface or wor□ing platform, e□tend inspection pipes to □feet above the ground surface or wor□ing platform.
□. If any changes are made to the pile tip, e□tend the inspection pipes to the bottom of the reinforcing cage.
□. Install inspection pipes in a straight alignment and parallel to the main reinforcement. Securely fasten inspection pipes in place and provide protective measures to prevent misalignment or damage to the inspection pipes during installation of the reinforcement and placement of concrete in the hole. □onstruct □ID□ concrete piles such that the relative distance of inspection pipes to vertical steel reinforcement remains constant.
□. After concrete placement is complete, fill inspection pipes with water to prevent debonding of the pipe.
□. □rovide safe access to the tops of the inspection pipes.

□. After placing concrete and before requesting acceptance testing, test each inspection pipe in the □ngineer□s presence by passing a rigid cylinder through the length of pipe. The rigid cylinder must be 1□1 □□□inch diameter by □.□□foot long, weigh 12 pounds or less, and be able to freely pass down through the entire length of the pipe under its own weight and without the application of force.
□. When performing acceptance testing, inspection pipes must provide a 2□inch□diameter clear opening and be completely clean, unobstructed, and either dry or filled with water as authori□ed.
□. After acceptance testing is complete, completely fill the inspection pipes with water.

If the rigid cylinder fails to pass through the inspection pipe:

1. □ompletely fill the inspection pipes in the pile with water immediately.
2. □ore a nominal 2□inch□diameter hole through the concrete for the entire length of the pile for each inspection pipe that does not pass the rigid cylinder. □oring must not damage the pile reinforcement.
□. Locate cored holes as close as possible to the inspection pipes they are replacing and no more than □inches clear from the reinforcement.

□ore holes using a double wall core barrel system with a split tube type inner barrel. □oring with a solid type inner barrel is not allowed.

□oring methods and equipment must provide intact cores for the entire length of the pile.

□hotograph and store concrete cores as specified for roc□ cores in section □□□1.01D□□□.

The coring operation must be logged by an engineering geologist or civil engineer licensed in the State and e□perienced in core logging. □oring logs must comply with the Department□s *Soil and Rock Logging, Classification, and Presentation Manual* for roc□ cores. □oring logs must include core recovery, roc□ quality designation of the concrete, locations of brea□s, and complete descriptions of inclusions and voids encountered during coring.

The Department evaluates the portion of the pile represented by the cored hole based on the submitted coring logs and concrete cores. If the Department determines a pile is anomalous based on the coring logs and concrete cores, the pile is re□ected.

**Replace item 2 in the list in the 2nd paragraph of section 49-3.02C(7) with:**

0□□1□□1□

2. □□tend at least □feet below the construction □oint. If placing casing into roc□ or a dry hole, the casing must e□tend at least 2 feet below the construction □oint.

**Add to the beginning of section 49-3.02C(9):**

0□□1□□1□

**49-3.02C(9)(a) General**

**Replace the 2nd sentence of the 3rd paragraph of section 49-3.02C(9) with:**

0□□1□□1□

Do not vibrate the concrete.

**Add after *concrete pump* in the 8th paragraph of section 49-3.02C(9):**

0□□1□□1□

and slurry pump

**Replace item 3 in the list in the 11th paragraph of section 49-3.02C(9) with:**

0□□1□□1□

□. Maintain the slurry level at a height required to maintain a stable hole, but not less than 10 feet above the pie□ometric head.

**Replace the 13th paragraph of section 49-3.02C(9) with:**

0□1□1□

Maintain a log of concrete placement for each drilled hole.

**Replace 14th and 15th paragraphs of section 49-3.02C(9) with:**

0□1□1□

If a temporary casing is used, maintain concrete placed under slurry at a level required to maintain a stable hole, but not less than □ feet above the bottom of the casing. The withdrawal of the casing must not cause contamination of the concrete with slurry.

The equivalent hydrostatic pressure inside the casing must be greater than the hydrostatic pressure on the outside of the casing to prevent intrusion of water, slurry, or soil into the column of freshly placed concrete.

Remove scum, laitance, and slurry□contaminated concrete from the top of the pile.

**Add to section 49-3.02C(9):**

0□1□1□

**49-3.02C(9)(b) Mineral Slurry**

Remove any ca□ed slurry on the sides or bottom of hole before placing reinforcement.

If concrete is not placed immediately after placing reinforcement, the reinforcement must be removed and cleaned of slurry, the sides of the drilled hole must be cleaned of ca□ed slurry, and the reinforcement again placed in the hole for concrete placement.

**49-3.02C(9)(c) Synthetic Slurry**

A manufacturer□s representative must:

1. □rovide technical assistance for the use of their material
2. □e at the □ob site before introduction of the synthetic slurry into the drilled hole
□. Remain at the □ob site until released by the □ngineer

After the manufacturer□s representative has been released by the □ngineer, your employee certified by the manufacturer must be present during the construction of the pile under slurry.

**Replace the heading of section 49-3.03 with:**

0□1□1□

**CAST-IN-STEEL SHELL CONCRETE PILING**

**Replace the 1st paragraph of section 49-3.03A(1) with:**

0□1□1□

Section □□□□.0□ includes specifications for constructing □ISS concrete piles consisting of driven open□ ended or closed□ended steel shells filled with reinforcement and concrete.

**Add to the end of section 49-3.03A(1):**

0□1□1□

□ISS concrete piles include □lass □0 Alternative □ and □lass 1□0 Alternative □ piles.

**Add to section 49-3.03A(3):**

01□1□1□

Submit a □ile and Driving Data □orm under section □□2.01A□□□a□if specified in the special provisions.

**Replace the paragraph of section 49-3.03D with:**

0□1□□1□

□urnish piling is measured along the longest side of the pile from the specified tip elevation shown to the plane of pile cutoff.

**Replace section 49-4.03 with:**

01□1□□1□

**49-4.03 CONSTRUCTION**

**49-4.03A General**

Reserved

**49-4.03B Drilled Holes**

Drill holes for steel soldier piles into natural foundation material. Drilled holes must be accurately located, straight, and true.

□urnish and place temporary casings or tremie seals where necessary to control water or to prevent caving of the hole.

□efore placing the steel soldier pile, remove loose materials e□isting at the bottom of the hole after drilling operations have been completed.

Do not allow surface water to enter the hole. Remove all water in the hole before placing concrete.

If temporary casings are used, they must comply with section □□□□.02□ □□□.

**49-4.03C Steel Soldier Piles**

□lumb and align the pile before placing concrete bac□fill and lean concrete bac□fill. The pile must be at least 2 inches clear of the sides of the hole for the full length of the hole to be filled with concrete bac□fill and lean concrete bac□fill. Ream or enlarge holes that do not provide the clearance around steel piles.

Maintain alignment of the pile in the hole while placing bac□fill material.

□lean and prepare piles in anticipated heat affected areas before splicing steel piles or welding concrete anchors.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 50 PRESTRESSING CONCRETE

0□□1□□1□

**Add to the end of section 50-1.01C:**

0□□1□□1□

**50-1.01C(8) Post-tensioning Jack Calibration Chart**

Submit the post□tensioning □ac□ calibration plot.

**50-1.01C(9) Pretensioning Jack Calibration Chart**

□or any pretensioning □ac□ calibrated by an authori□ed laboratory, submit a certified calibration plot.

**Replace section 50-1.01D(2)(b) with:**

0□□1□□1□

**50-1.01D(2)(b) Equipment and Calibration**

**50-1.01D(2)(b)(i) General**

□ach □ac□ body must be permanently mar□ed with the ram area.

□ach pressure gauge must be fully functional and have an accurately reading, clearly visible dial or display. The dial must be at least □ inches in diameter and graduated in 100 psi increments or less.

□ach load cell must be calibrated and have an indicator that can be used to determine the force in the prestressing steel.

The range of each load cell must be such that the lower 10 percent of the manufacturer□s rated capacity is not used in determining the □ac□ing force.

□ach □ac□ must be calibrated equipped with its gauges.

Mechanically calibrate the gauges with a dead weight tester or other authori□ed means before calibration of the □ac□ing equipment.

**50-1.01D(2)(b)(ii) Post-tensioning**

□quip each hydraulic □ac□ used to tension prestressing steel with 2 pressure gauges or 1 pressure gauge and a load cell. Only 1 pressure gauge must be connected to the □ac□ during stressing.

□ach □ac□ used to tension prestressing steel permanently anchored at 2□ percent or more of its specified minimum ultimate tensile strength must be calibrated by M□TS within 1 year of use and after each repair. □ou must:

1. Schedule the calibration of the □ac□ing equipment with M□TS.
2. □erify that the □ac□ and supporting systems are complete, with proper components, and are in good operating condition.
□. □rovide labor, equipment, and material to □1□install and support the □ac□ing and calibration equipment and □2□remove the equipment after the calibration is complete.
□. □lot the calibration results.

□ach □ac□ used to tension prestressing steel permanently anchored at less than 2□ percent of its specified minimum ultimate tensile strength must be calibrated by an authori□ed laboratory within 1□0 days of use and after each repair.

**50-1.01D(2)(b)(iii) Pretensioning**

□ach □ac□ used to pretension prestressing steel must be calibrated, equipped with its gauges, by a laboratory on the Authori□ed Laboratory List within 1 year of use and after each repair.

□alibrate pretensioning □ac□s:

1. □nder ASTM □□ using an authori□ed laboratory. □ertification that the calibration is performed to ASTM accuracy is not required.
2. In the presence of the □ngineer. □otify the □ngineer at least 2 business days before calibrating the □ac□.
□. □sing □ test cycles. Average the forces from each test cycle at each increment.
□. To cover the load range used in the wor□.

□auges for pretensioning □ac□s may:

1. □e electronic pressure indicators that display either:
   1.1. □ressure in 100 psi increments or less
   1.2. Load to 1 percent of the ma□imum sensor□indicator capacity or 2 percent of the ma□imum load applied, whichever is smaller
2. □ave a dial less than □ inches in diameter

□auges displaying pressure must have been calibrated within 1 year of the □ac□ calibration.

□ach hydraulic □ac□ used for pretensioning must be equipped with either 2 gauges or 1 gauge and a load cell or you must have a calibrated standby □ac□ with its gauge present on site during stressing.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 51 CONCRETE STRUCTURES

0□□1 □□1 □

**Add to the list in the 2nd paragraph of section 51-1.01A:**

0□□1 □□1 □

□. □ile e□tensions

0□□1 □□1 □

□. Drainage inlets

**Add to the list in the 6th paragraph of section 51-1.01A:**

0□□1 □□1 □

□. Drainage inlets

**Add to section 51-1.02I:**

0□□1 □□1 □

Metal frames, covers, grates, and other miscellaneous iron and steel used with drainage inlets must comply with section □□□2.

**Add to section 51-1.03B:**

0□□1 □□1 □

□ou may use □□ drainage inlets as an alternative to □I□ drainage inlets.

**Add between the 10th and 11th paragraphs of section 51-1.03C(2)(a):**

0□□1 □□1 □

□or drainage inlets, e□tend the outside forms at least 12 inches below the top of the inlet. □ou may place concrete against e□cavated earth below this depth e□cept:

1. □ou must use full□depth outside forms or other protection when wor□ activities or unstable earth may cause ha□ardous conditions or contamination of the concrete.
2. □ou must increase the wall thic□ness 2 inches if placing concrete against the e□cavated surface. The interior dimensions must be as shown.

**Add to section 51-1.03C(2)(b):**

0□□1 □□1 □

□or drainage inlets, remove e□terior forms to at least 12 inches below the final ground surface. □□terior forms below this depth may remain if their total thic□ness is not more than 1 inch.

**Add to the list in the 2nd paragraph of section 51-1.03F(2):**

0□□1 □□1 □

□. Interior and top surfaces of drainage inlets

**Add to section 51-1.04:**

0□□1 □□1 □

The payment quantity for structural concrete, drainage inlet is the volume determined from the dimensions shown for □I□ drainage inlets.

**Add to section 51-4.01C(1):**

0□□1 □□1 □

□or □□ drainage inlets, submit field repair procedures and a patching material test sample before repairs are made. Allow 10 days for the Engineer’s review.

**Add to section 51-4.01C(2)(a):**

0□1□1□

□or drainage inlets with oval or circular cross sections, submit shop drawings with calculations. Shop drawings and calculations must be sealed and signed by an engineer who is registered as a civil engineer in the State. Allow 1□ days for the □ngineer□s review.

**Add to section 51-4.01D(3):**

0□1□1□

The □ngineer may re□ect □□ drainage inlets e□hibiting any of the following:

1. □rac□s more than 1□□2 inch wide
2. □onrepairable honeycombed or spalled areas of more than □ square inches
□. □oncompliance with reinforcement tolerances or cross sectional area shown
□. Wall, inlet floor, or lid less than minimum thic□ness
□. Internal dimensions less than dimensions shown by 1 percent or 1□2 inch, whichever is greater
□. Defects affecting performance or structural integrity

**Add to section 51-4.02C:**

0□1□1□

Materials for □□ drainage inlets must comply with the following:

1. □reformed fle□ible □oint sealant must be butyl□rubber complying with ASTM □□□0
2. Resilient connectors must comply with ASTM □□2□
□. Sand bedding must comply with section 1□□□.02□□2□
□. □onding agents must comply with ASTM □10□□□□10□□, Type II

**Add to section 51-4.02D:**

0□1□1□

**51-4.02D(8) Drainage Inlets**

□□ units for drainage inlets must be rectangular, round, or oval in cross section, or any combination. Transitions from a rectangular grate opening to a round or oval basin must be made in not less than □ inches. □rovide means for field ad□ustment to meet final grade, paving, or surfacing.

If oval or circular shape cross□sections are furnished, they must comply with *AASHTO LRFD Bridge Design Specifications, Sixth Edition with California Amendments*.

Wall and slab thic□nesses may be less than the dimensions shown by at most □ percent or □□1□ inch, whichever is greater.

Reinforcement placement must not vary more than 1□2 inch from the positions shown.

**Add to section 51-4.03:**

0□1□1□

**51-4.03H Drainage Inlets**

Repair □□ drainage inlet sections to correct damage from handling or manufacturing imperfections before installation.

□enter pipes in openings to provide a uniform gap. Seal gaps between the pipe and the inlet opening with nonshrin□ grout under the grout manufacturer□s instructions. □or systems designated as watertight, seal these gaps with resilient connectors.

Match fit □eyed □oints to ensure uniform alignment of walls and lids. □eys are not required at the inlet floor level if the floor is precast integrally with the inlet wall. Seal □eyed □oint locations with preformed butyl rubber □oint sealant. □ou may seal the upper lid and wall □oint with nonshrin□ grout.

□lean □eyed □oint surfaces before installing sealant. □oint surfaces must be free of imperfections that may affect the □oint. □se a primer if surface moisture is present. □se a sealant si□e recommended by the sealant manufacturer. Set □oints using sealant to create a uniform bearing surface.

□lat drainage inlet floors must have a field□cast topping layer at least 2 inches thic□ with a slope of □:1 □hori□ontal:vertical□toward the outlet. □se a bonding agent when placing the topping layer. Apply the bonding agent under the manufacturer□s instructions.

**Replace the 2nd paragraph of section 51-7.01A with:**

0□1□1□1□

Minor structures include structures described as minor structures.

0□1□1□1□

**Delete the 4th paragraph of section 51-7.01B.**

0□1□1□1□

**Delete the 1st and 3rd paragraphs of section 51-7.01C.**

0□1□1□1□

**Delete the heading and paragraph of section 51-7.02.**

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

## 52 REINFORCEMENT

01□1□□1□

**Replace the 3rd paragraph of section 52-6.03B with:**

01□1□□1□

□or uncoated and galvani□ed reinforcing bars complying with ASTM A□1□□A□1□M, □rade □0, ASTM A□0□□A□0□M, or ASTM A□□□□A□□□M, □lass 1, the length of lap splices must be at least:

1. □□ diameters of the smaller bar spliced for reinforcing bars no. □ or smaller
2. □0 diameters of the smaller bar spliced for reinforcing bars nos. □, 10, and 11

□or epo□y□coated reinforcing bars and alternatives to epo□y□coated reinforcing bars complying with ASTM A□□□□A□□□M, ASTM A□□□□A□□□M, ASTM A10□□□A10□□M, or ASTM A10□□□A10□□M, the length of lap splices must be at least:

1. □□ diameters of the smaller bar spliced for reinforcing bars no. □ or smaller
2. □□ diameters of the smaller bar spliced for reinforcing bars nos. □, 10, and 11

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

## 53 SHOTCRETE

01□1□□1□

**Replace *632* in item 1 in the list in the 3rd paragraph of section 53-1.02 with:**

01□1□□1□

□□□

**Replace item 2 in the list in the 3rd paragraph of section 53-1.02 with:**

01□1□□1□

2. □ou may substitute a ma□imum of □0 percent coarse aggregate for the fine aggregate. □oarse aggregate must comply with section □0□1, e□cept section □0□1.02□ □□□□d□does not apply. The gradation for the coarse aggregate must comply with the gradation specified in section □0□1.02□ □□□□b□ for the 1□2 inch □ □o. □or the □□□ inch □ □o. □primary aggregate nominal si□e.

**Replace *shotcrete* in the 2nd sentence of the 4th paragraph of section 53-1.02 with:**

01□1□□1□

concrete

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 56 OVERHEAD SIGN STRUCTURES, STANDARDS, AND POLES

0□□1□□1□

**Replace section 56-1.01 with:**

0□□1□□1□

## 56-1.01 GENERAL

### 56-1.01A Summary

Section □□□1 includes general specifications for constructing overhead sign structures, standards, and poles.

### 56-1.01B Definitions

Reserved

### 56-1.01C Submittals

Reserved

### 56-1.01D Quality Assurance

#### 56-1.01D(1) General

Reserved

#### 56-1.01D(2) Quality Control

#### 56-1.01D(2)(a) General

Reserved

#### 56-1.01D(2)(b) Nondestructive Testing

#### 56-1.01D(2)(b)(i) General

□erform □DT of steel members under AWS D1.1 and the requirements shown in the following table:

**Nondestructive Testing for Steel Standards and Poles**

| Weld location | Weld type | Minimum required NDT |
|---|---|---|
| Circumferential splices around the perimeter of tubular sections, poles, and arms | CJP groove weld with backing ring | 100% UT or RT |
| Longitudinal seam | CJP or PJP groove weld | Random 25% MT |
| Longitudinal seam within 6 inches of a circumferential splice | CJP groove weld | 100% UT or RT |
| Welds attaching base plates, flange plates, pole plates, or mast arm plates to poles or arm tubes | CJP groove weld with backing ring and reinforcing fillet | t≥ 5/16 inch: 100% UT and 100% MT<br>t< 5/16 inch: 100% MT after root weld pass and final weld pass |
| | External (top) fillet weld for socket type connections | 100% MT |
| Hand holes and other appurtenances | Fillet and PJP welds | MT full length on random 25% of all standards and poles |

NOTE: t = pole or arm thickness

**Nondestructive Testing for Overhead Sign Structures**

| Weld location | Weld type | Minimum required □DT |
|---|---|---|
| □ase plate to post | □□□ groove weld with bac□ing ring and reinforcing fillet | 100□ □T and 100□ MT |
| □ase plate to gusset plate | □□□ groove weld | 100□ □T |
| □ircumferential splices of pipe or tubular sections | □□□ groove weld with bac□ing ring | 100□ □T or RT |
| Split post filler plate welds | □□□ groove weld with bac□ing bar | 100□ □T or RT |
| Longitudinal seam weld for pipe posts | □□□ groove weld | t □ 1□□ inch: 100□ MT<br>t ≥ 1□□ inch: 100□ □T or RT |
| | □□□ groove weld | Random 2□□ RT |
| □hord angle splice weld | □□□ groove weld with bac□ing bar | 100□ □T or RT |
| Truss vertical, diagonal, and wind angles to chord angles | □illet weld | Random 2□□ MT |
| □pper □unction plate to chord □cantilever type truss□ | □illet weld | Random 2□□ MT |
| □olted field splice plates □tubular frame type□ | □□□ groove weld | 100□ □T and 100□ MT |
| □ross beam connection plates □lightweight e□tinguishable message sign□ | □illet weld | Random 2□□ MT |
| Arm connection angles □lightweight e□tinguishable message sign□ | □illet weld | 100□ MT |
| Mast arm to arm plate □lightweight e□tinguishable message sign□ | □□□ groove weld with bac□ing ring | t ≥ □□1□ inch: 100□ □T and 100□ MT<br>t □ □□1□ inch: 100□ MT after root weld pass and final weld pass |
| □ost angle to post □lightweight e□tinguishable message sign□ | □illet weld | 100□ MT |
| □and holes and other appurtenances | □illet and □□□ welds | MT full length on random 2□□ of all sign structures |

□OT□: t □ pole or arm thic□ness

**56-1.01D(2)(b)(ii) Ultrasonic Testing**

□or □T of welded □oints with any members less than □□1□ inch thic□ or tubular sections less than 1□ inches in diameter, the acceptance and repair criteria must comply with □lause □.1□.□.1 of AWS D1.1.

□or □T of other welded □oints, the acceptance and repair criteria must comply with Table □.□ of AWS D1.1 for cyclically loaded nontubular connections.

After galvani□ation, perform additional inspection for toe crac□s along the full length of all □□□ groove welds at tube□to□transverse plate connections using □T.

When performing □T, use an authori□ed procedure under AWS D1.1, Anne□S.

**56-1.01D(2)(b)(iii) Radiographic Testing**

The acceptance criteria for radiographic or real time image testing must comply with AWS D1.1 for tensile stress welds.

**56-1.01D(2)(b)(iv) Longitudinal Seam Welds**

The □ngineer selects the random locations for □DT.

□rind the cover pass smooth at the locations to be tested.

If repairs are required in a portion of a tested weld, perform □DT on the repaired portion and on 2□ percent of the untested portions of the weld. If more repairs are required, perform □DT on the entire weld.

**56-1.01D(3) Department Acceptance**

Reserved

**Replace section 56-2.01D(2)(b) with:**

0□1□1□

Reserved

**Replace the 2nd sentence of the 1st paragraph of section 56-2.02F with:**

0□1□1□

Manufactured pipe posts must comply with one of the following:

**Add to the list in the 1st paragraph of section 56-2.02F:**

0□1□1□

□. ASTM A10□□, □rade A

**Replace the 2nd paragraph of section 56-2.02F with:**

0□1□1□

□ou may fabricate pipe posts from structural steel complying with ASTM A□□A□□M, ASTM A□0□A□0□M, □rade □□, or ASTM A□□2□A□□2M, □rades □2 or □0.

0□1□1□

**Delete the last sentence in the 1st paragraph of section 56-2.02K(2).**

0□1□1□

**Delete the 3rd paragraph of section 56-2.02K(2).**

**Replace the 2nd paragraph of section 56-2.02K(4) with:**

0□1□1□

Safety cable at wal□ways must not be □in□ed, □notted, deformed, frayed, or spliced.

**Replace the 1st sentence of the paragraph in section 56-2.02K(5) with:**

0□1□1□

The edges of handholes and other large post and arm openings must be ground smooth.

**Replace the heading of section 56-3 with:**

0□1□1□

**56-3 STANDARDS, POLES, PEDESTALS, AND POSTS**

**Replace the paragraph in section 56-3.01A with:**

0□1□1□

Section □□□□ includes general specifications for fabricating and installing standards, poles, pedestals, and posts.

**Replace section 56-3.01B(2)(b) with:**

0□1□1□

Standards with handholes must comply with the following:

1. Include a □L□listed lug and □1□□inch or larger brass or bron□e bolt for attaching the bonding □umper for non□slip□base standards.
2. Attach a □L□listed lug to the bottom slip base plate with a □□1□□inch or larger brass or bron□e bolt for attaching the bonding □umper for slip□base standards.

**Replace the 1st sentence of the 3rd paragraph of section 56-3.01C(2)(a) with:**

0□1□1□

After each standard, pole, pedestal, and post is properly positioned, place mortar under the base plate.

**Replace the 2nd sentence of the 4th paragraph of section 56-3.01C(2)(a) with:**

0□1□1□

The top of the foundation at curbs or sidewal□s must be finished to curb or sidewal□ grade.

**Replace the 10th paragraph of section 56-3.01C(2)(a) with:**

0□1□1□

□□cept when located on a structure, construct foundations monolithically.

**Replace the 13th paragraph of section 56-3.01C(2)(a) with:**

0□1□1□

Do not erect standards, poles, pedestals, or posts until the concrete foundation has cured for at least □ days.

**Replace the 14th paragraph in section 56-3.01C(2)(a) with:**

0□1□1□

The □ngineer selects either the plumbing or ra□ing technique for standards, poles, pedestals, and posts. □lumb or ra□e by ad□usting the leveling nuts before tightening nuts. Do not use shims or similar devices. After final ad□ustments of both top nuts and leveling nuts on anchorage assemblies have been made and each standard, pole, pedestal, and post on the structure is properly positioned, tighten nuts as follows:

1. Tighten leveling nuts and top nuts, following a crisscross pattern, until bearing surfaces of all nuts, washers, and base plates are in firm contact.
2. □se an indelible mar□er to mar□the top nuts and base plate with lines showing relative alignment of the nut to the base plate.
□. Tighten top nuts following a crisscross pattern:
   □.1. Additional 1□□ turn for anchor bolts greater than 1□1□2 inches in diameter.
   □.2. Additional 1□□ turn for other anchor bolts.
   □.□. Tightening tolerance for all top nuts is □1□□ turn.

**Replace the 1st sentence of the 4th paragraph of section 56-3.01C(2)(b) with:**

0□1□1□

If shown, use sleeve nuts on Type 1 standards.

**Add to section 56-3.01C(2)(b):**

0□1□1□

Spiral reinforcement must be continuous above the bottom of the anchor bolts. The top termination must be either:

1. 1'-6" lap beyond the end of pitch with a 90-degree hook extending to the opposite side of the cage, or
2. 1'-6" lap beyond the end of pitch with 2 evenly spaced authorized mechanical couplers

**Replace the 1st sentence of the paragraph in section 56-3.02A(4)(b) with:**

07-15-16

For cast slip bases for standards and poles with shaft lengths of 15 feet or more, perform RT on 1 casting from each lot of a maximum of 50 castings under ASTM E94.

**Replace the 2nd paragraph of section 56-3.02B(1) with:**

07-15-16

Material for push button posts, pedestrian barricades, and guard posts must comply with ASTM A53/A53M or ASTM A500/A500M.

**Add to section 56-3.02B(1):**

07-15-16

Steel pipe standards and mast arms must be hot dip galvanized after manufacturing. Remove spikes from galvanized surfaces.

**Replace the 2nd paragraph of section 56-3.02B(2) with:**

07-15-16

HSS anchor bolts, nuts, and washers must comply with section 55-1.02D(1) and the following:

1. Bolt threads must be rolled
2. Hardness of HSS anchor bolts must not exceed 34 HRC when tested under ASTM F606
3. Galvanization must be by mechanical deposition
4. Nuts must be heavy hex type
5. Each lot of nuts must be proof load tested

**Replace the 2nd sentence of the 9th paragraph of section 56-3.02B(2) with:**

07-15-16

During manufacturing, properly locate the position of the luminaire arm on the arm plate to avoid interference with the cap screw heads.

**Add to section 56-3.02B(3)(a):**

07-15-16

Steel having a nominal thickness greater than 2 inches that is used for tube-to-transverse plate connections must have a minimum CVN impact value of 20 ft-lb at 20 degrees F when tested under ASTM E23.

**Add to section 56-3.02B(3)(c):**

07-15-16

The length of telescopic slip-fit splices must be at least 1.5 times the inside diameter of the exposed end of the female section.

For welds connecting reinforced handholes or box-type pole plate connections to a tubular member, the start and stop points must be at points located on a longitudinal axis of symmetry of the tube coinciding with the axis of symmetry of the hand hole or pole plate.

**Replace the table in the 1st paragraph of section 56-3.02C with:**

0□1□1□

**Slip Base Bolt Tightening Requirements**

| Standard type | Torque □ft□lb□ |
|---|---|
| 1□□S□ | 1□0 |
| 1□□S□□ | 1□0 |
| □0 | 1□0 |
| □1 | 200 |

**Replace the 1st sentence of the 2nd paragraph of section 56-3.02C with:**

0□1□1□

□olted connections attaching signal or luminaire arms to standards, poles, and posts are considered slip critical.

**Add to section 56-3.06B:**

0□1□1□

Manufacture the mast arm from standard pipe, free from burrs. □ach mast arm must have an insulated wire inlet and wood pole mounting brac□ets for the mast arm and tie□rod cross arm. Manufacture tie rod from structural steel and pipe.

0□1□1□

**Delete the 2nd paragraph of section 56-3.06C.**

**Replace the 1st sentence of the 3rd paragraph of section 56-3.06C with:**

0□1□1□

Mount the mast arm for luminaires to provide a □□□foot mounting height for a 1□□W L□D luminaire and a □0□foot mounting height for a 2□□W L□D luminaire.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

## 59 STRUCTURAL STEEL COATINGS

0□□1□□1□

**Replace *Type S* in the 2nd paragraph of section 59-1.02A with:**

01□1□□1□

Type M or Type S

**Add to the list in the 2nd paragraph of section 59-1.02B:**

0□1□□1□

□. Manufactured abrasives.

**Replace *Mineral and slag* in the 3rd paragraph of section 59-1.02B with:**

0□1□□1□

Mineral, manufactured, and slag

0□□1□□1□

**Delete the 4th paragraph of section 59-2.01C(1).**

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 60 EXISTING STRUCTURES

0□□1□□1□

0□□1□□1□

**Delete the 2nd sentence in the 11th paragraph of section 60-3.04B(3)(c).**

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 64 PLASTIC PIPE

0□□1□□1□

**Replace *Reserved* in section 64-3 with:**

0□□1□□1□

## 64-3.01 GENERAL

### 64-3.01A Summary

Section □□□□ includes specifications for constructing slotted plastic pipe.

Slotted plastic pipe includes structure e□cavation, concrete bac□fill, connecting new pipe to new or e□isting facilities, concrete collars, reinforcement, and other connecting devices.

### 64-3.01B Definitions

Reserved

### 64-3.01C Submittals

If an *or* equal slotted plastic pipe is being considered, it must be submitted □0 days before installation for approval.

If RS□ is used for concrete bac□fill for slotted plastic pipe, submit the concrete mi□design and test data from an authori□ed laboratory 10 days before e□cavating the pipe trench. The laboratory must specify the cure time required for the concrete mi□to attain 2,000 psi compressive strength when tested under □alifornia Test □21.

□eel□resistant grates if specified must be submitted □0 days before installation for approval. Anchorage details must be included in the submittal.

### 64-3.01D Quality Assurance

Reserved

## 64-3.02 MATERIALS

### 64-3.02A General

□ot □sed

### 64-3.02B Slotted Plastic Pipes

Slotted plastic pipe must be one of the following or equal:

**Slotted Plastic Pipe**

| 12" diameter | 1□" diameter |
|---|---|
| □urn □□□□12 | □urn □□□□1□ |
| A□O □ma□ □□0 | A□O □ma□ □□□ |
| ADS Duraslot□12 | ADS Duraslot□1□ |

### 64-3.02C Concrete Backfill

□oncrete for concrete bac□fill for slotted plastic pipe must comply with the specifications for minor concrete. □ou may use RS□ instead of minor concrete for concrete bac□fill.

If RS□ is used for concrete bac□fill, the RS□ must:

1. □ontain at least □□0 pounds of cementitious material per cubic yard
2. □omply with section □0□□.02A, e□cept section □0□1 does not apply
□. □omply with section □0□2

### 64-3.02D Heel-Resistant Grates

□eel□resistant grate must:

1. □e designed to carry traffic loadings
2. □omply with ADA requirements
□. □e constructed of steel or cast iron
□. □e provided by the same manufacturer of the slotted plastic pipe
□. □omply with the manufacturer□s instructions

### 64-3.02E Bar Reinforcement

□ar reinforcement must comply with ASTM A□1□□A□1□M, □rade □0 or ASTM A□0□□A□0□M, □rade □0.

### 64-3.02F Miscellaneous Metal

Ductile iron, nuts, bolts, and washers must comply with section □□.

### 64-3.02G Grout

□rout must be non□shrin□ grout complying with ASTM □110□□□110□M.

### 64-3.02H Curing Compound

□on□pigmented curing compound must comply with ASTM □□0□, Type 1, □lass □.

### 64-3.02I End Caps

□nd cap must:

1. □e provided by the same manufacturer of the slotted plastic pipe
2. □revent concrete bac□fill from entering the pipe

## 64-3.03 CONSTRUCTION

### 64-3.03A General

□over the grate slots with heavy□duty tape or other authori□ed covering during paving and concrete bac□filling activities to prevent material from entering the slots.

### 64-3.03B Preparation

□ave ad□acent traffic lanes before installing slotted plastic pipes.

□□cavation must comply with section 1□□□.

### 64-3.03C Installation

Lay and □oin slotted plastic pipes under the pipe manufacturer's instructions.

Lay pipes to line and grade with sections closely □ointed and adequately secured to prevent separation during placement of the concrete bac□fill. If the pipes do not have a positive interloc□ing mechanism li□e a slot and tongue connection, secure the sections together with nuts, bolts, and washers before bac□filling.

The top of slotted plastic pipes must not e□tend above the completed surface. □osition the pipes so that the concrete bac□fill is flush with the surrounding grade and above the top of the grate from 1□□ to 1□□ inch.

□lace channels with the male and female ends facing each other.

□lace lateral support bar reinforcement on both sides of the grate slots. The support bar reinforcement must run the full length of the slots.

Anchor heel□resistant grates to the concrete bac□fill under the manufacturer's instructions.

**64-3.03D Concrete Backfill**

Wherever minor concrete is used for concrete bac□fill for slotted plastic pipe, do not allow traffic on top of the bac□fill within □ days of placement.

Wherever RS□ is used for concrete bac□fill for slotted plastic pipe, do not allow traffic on top of the bac□fill before the required cure time of 2,000 psi is achieved.

□lace concrete bac□fill where shown.

□onsolidate the concrete bac□fill with high□frequency internal vibrators.

Te□ture the concrete bac□fill surface with a broom or burlap drag to produce a durable s□id□resistant surface.

Apply a non□pigmented curing compound to the e□posed concrete bac□fill surface whenever the atmospheric temperature is □0 degrees □ or greater after placement.

**64-3.03E Transition Fittings**

□se transition fittings to connect slotted plastic pipes to drainage inlets. The transition fittings must be supplied by the same pipe manufacturer.

Where welds are required in transition fittings, welds must comply with the pipe manufacturer's instructions. The completed welds must not have visible pinholes. □ill the gaps around the pipes in the inlet structure wall with non□shrin□ grout where the pipes connect to an e□isting drainage structure. Install the grout under the pipe manufacturer□s instructions.

□ut the pipes as shown after the grout used to seal the transition fitting has cured for at least 2□ hours.

**64-3.04 PAYMENT**

Slotted plastic pipe is measured along the centerline of the pipe and parallel with the slope line. If the pipe is cut to fit a structure or slope, the payment quantity is the length of pipe necessary to be placed before cutting, measured in 2□foot increments.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# DIVISION VII DRAINAGE FACILITIES

## 71 EXISTING DRAINAGE FACILITIES

01□1□□1□

**Replace items 5 and 6 in the list in the 1st paragraph of section 71-3.01D with:**

01□1□□1□

□. □erforming postrehabilitation inspection

**Add after the 4th paragraph of section 71-3.01D:**

01□1□□1□

Record the quantity of grout that is installed and submit this quantity. The Department does not pay for grout that lea□s through to the inside of the culvert. The Department does not pay for grout material that is wasted, disposed of, or remaining on hand after the completion of the wor□.

**Replace the 2nd heading in section 71-5.03 with:**

01□1□□1□

**71-5.03B Frames, Covers, Grates, and Manholes**

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# DIVISION VIII MISCELLANEOUS CONSTRUCTION

## 72 SLOPE PROTECTION

0□□1□□1□

**Replace the 1st and 2nd paragraphs of section 72-2.02B with:**

0□□1□□1□

□or method A and □ placement and the class of RS□ described, comply with the roc□gradation shown in the following table:

**Rock Gradation**

| □ominal RS□ class by median particle diameter[b] | | □ominal median particle weight $W_{□0}$[c,d] | $d_{1□}$[c] □inches□ | | $d_{□0}$[c] □inches□ | | $d_{100}$[c] □inches□ | □lacement |
|---|---|---|---|---|---|---|---|---|
| □lass[a] | Diameter □inches□ | | Min | Ma□ | Min | Ma□ | Ma□ | Method |
| I | □ | 20 lb | □.□ | □.2 | □.□ | □.□ | 12.0 | □ |
| II | □ | □0 lb | □.□ | □.□ | □.□ | 10.□ | 1□.0 | □ |
| III | 12 | 1□0 lb | □.□ | 10.□ | 11.□ | 1□.0 | 2□.0 | □ |
| I□ | 1□ | □00 lb | □.2 | 1□.0 | 1□.□ | 1□.□ | □0.0 | □ |
| □ | 1□ | 1□□ ton | 11.0 | 1□.□ | 1□.0 | 20.□ | □□.0 | □ |
| □I | 21 | □□□ ton | 1□.0 | 1□.□ | 20.0 | 2□.0 | □2.0 | A or □ |
| □II | 2□ | 1□2 ton | 1□.□ | 21.0 | 2□.0 | 2□.□ | □□.0 | A or □ |
| □III | □0 | 1 ton | 1□.□ | 2□.0 | 2□.□ | □□.□ | □□.0 | A or □ |
| I□ | □□ | 2 ton | 22.0 | □1.□ | □□.0 | □1.□ | □2.□ | A |
| □ | □2 | □ ton | 2□.□ | □□.□ | □0.0 | □□.□ | □0.□ | A |
| □I | □□ | □ ton | 2□.0 | □□.□ | □□.□ | □□.1 | □□.□ | A |

[a] □or RS□ □lasses I–□III, use □lass □RS□ fabric. □or RS□ □lasses I□–□I, use □lass 10 RS□ fabric.
[b] Intermediate or □ dimension □i.e., width□where A dimension is length and □ dimension is thic□ness.
[c] d□ , where □ denotes the percentage of the total weight of the graded material.
[d] □alues shown are based on the minimum and ma□imum particle diameters shown and an average specific gravity of 2.□□. Weight will vary based on specific gravity of roc□available for the pro□ect.

**Replace the table in section 72-2.02C with:**

0□1□□1□

**Fabric Class**

| □lass | Largest roc□gradation class used in slope protection |
|---|---|
| □ | □lasses I–□III |
| 10 | □lasses I□–□I |

**Replace the table in the 1st paragraph of section 72-3.02C with:**

0□1□1□

**Concreted-Rock Gradation**

| □ominal RS□ class by median particle diameter[b] | | □ominal median particle weight $W_{□0}$[c,d] Weight[a] | $d_{1□}$[c] | | $d_{□0}$[c] | | $d_{100}$[c] |
|---|---|---|---|---|---|---|---|
| □lass[a] | Si□e □inches□ | | Min | Ma□ | Min | Ma□ | Ma□ |
| I | □ | 20 lb | □.□ | □.2 | □.□ | □.□ | 12.0 |
| II | □ | □0 lb | □.□ | □.□ | □.□ | 10.□ | 1□.0 |
| III | 12 | 1□0 lb | □.□ | 10.□ | 11.□ | 1□.0 | 2□.0 |
| □ | 1□ | 1□□ ton | 11.0 | 1□.□ | 1□.0 | 20.□ | □□.0 |
| □II | 2□ | 1□2 ton | 1□.□ | 21.0 | 2□.0 | 2□.□ | □□.0 |

[a] □se □lass □RS□ fabric.
[b] Intermediate or □ dimension □i.e., width□where A dimension is length and □ dimension is thic□ness.
[c] d□ , where □ denotes the percentage of the total weight of the graded material.
[d] □alues shown are based on the minimum and ma□imum particle diameters shown and an assumed specific gravity of 2.□□. Weight will vary based on specific gravity of roc□ available for the pro□ect.

**Replace the table in section 72-3.03E with:**

0□1□1□

**Minimum Concrete Penetration**

| | Roc□ class | | | | |
|---|---|---|---|---|---|
| | □II | □ | III | II | I |
| □enetration □inches□ | 1□ | 1□ | 10 | □ | □ |

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 73 CONCRETE CURBS AND SIDEWALKS

0□□1□□1□

**Replace section 73-3.01A with:**

0□1□1□

Section □□□□ includes specifications for constructing sidewal□s, gutter depressions, island paving, curb ramps, and driveways.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 74 PUMPING EQUIPMENT AND CONTROLS

0□□1□□1□

**Replace *87-1.03K* in the 4th paragraph of section 74-3.03B(2) with:**

0□1□1□

□□

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# 80 FENCES

0□□1□□1□

**Replace section 80-4 with:**

0□□1□□1□

## 80-4 WILDLIFE EXCLUSION FENCES

### 80-4.01 GENERAL

#### 80-4.01A General

Section □0□□ includes specifications for constructing wildlife e□clusion fences.

□onstructing a wildlife e□clusion fence includes the installation of any signs specified in the special provisions.

#### 80-4.01B Materials

□ach T post must:

1. □omply with ASTM A□02
2. □e metal and have an anchor plate
□. □e painted blac□ or galvani□ed

#### 80-4.01C Construction

□ot □sed

#### 80-4.01D Payment

□ot □sed

### 80-4.02 DESERT TORTOISE FENCES

#### 80-4.02A General

Section □0□□.02 includes specifications for constructing desert tortoise fences.

#### 80-4.02B Materials

#### 80-4.02B(1) Permanent Desert Tortoise Fences

#### 80-4.02B(1)(a) General

□ach wire tie and hog ring for a permanent desert tortoise fence must comply with section □0□2.02□.

□ach hold down pin must:

1. □e □□shaped, with 2 minimum □□inch long legs
2. □ave pointed ends
□. □e at least 11□gauge wire
□ □e galvani□ed
□. □e commercial quality

#### 80-4.02B(1)(b) Hardware Cloth

The hardware cloth must:

1. □omply with ASTM A□□0
2. □e welded or woven galvani□ed steel wire fabric
□. □e made of at least 1□□gauge wire
□. □e □□ inches wide

#### 80-4.02B(1)(c) Barbless Wire

The barbless wire must:

1. □omply with ASTM A□□1□A□□1M
2. □e at least 1□□gauge wire
□. □ave a □lass 1 □inc coating

### 80-4.02B(1)(d) Posts

□ach post must:

1. □omply with ASTM □10□□
2. □e standard weight, schedule □0 steel pipe with a nominal pipe si□e of 1 inch
□. □e galvani□ed steel fence post conforming to ASTM A□02

### 80-4.02B(2) Temporary Desert Tortoise Fences

The materials for a temporary desert tortoise fence must comply with section □0□□.02□□1□, e□cept the hardware cloth must be made of at least 1□□gauge wire.

### 80-4.02C Construction

### 80-4.02C(1) General

□□tend the hardware cloth a minimum of 2□ inches above the ground.

□lumb the posts and pull the hardware cloth taut. □orrect any alignment issues.

### 80-4.02C(2) Permanent Desert Tortoise Fences

□□cavate the ground to form a trench before installing the posts and hardware cloth. □mbed the posts at ma□imum □□foot intervals into the ground. If T posts are used, use □□foot lengths and embed the posts to match the above□ground height shown for the posts.

Securely fasten the hardware cloth to the posts with wire ties and to barbless wire with hog rings as shown. □ass the wire ties through the hardware cloth. □ncircle the posts and barbless wire with the ties and tie them by twisting a minimum of □ complete turns.

□end the twisted ends of the ties down to prevent possible snagging. □lose hog rings with their ends overlapping.

□ury the hardware cloth a minimum of 12 inches into the ground. Install the cloth in 1 continuous piece. □ou may cut the cloth into shorter segments if authori□ed.

Overlap the hardware cloth segments at posts, with a minimum overlap of □ inches centered at a post. Wire tie the overlapped cloth to posts as shown. □revent fraying by threading barbless wire along the vertical edges of the hardware cloth on either side of the post or use □ equally spaced hog rings □□ hog rings per location□along each wire cloth edge.

Where bedroc□ or caliche substrate is encountered, use the bent hardware cloth detail if authori□ed. Transitions from buried□to□bent or bent□to□buried configuration must occur at a post location with a minimum □□inch overlap of the hardware cloth as shown. The ma□imum spacing for hold down pins is 2□ inches on center. Anchor in place with hold down pins the beginning and end corners of the hardware cloth placed on the ground.

□ac□fill the removed earth material into the trench created to install the hardware cloth and posts. □se an □ lb or heavier hand tamper to compact the bac□fill around the posts and hardware cloth. Install a post at each corner of the cloth segments.

If a gate must be installed, attach the hardware cloth to the gate frame such that there is contact along the entire length of the gate between the finished ground surface and the lower edge of the cloth. Install the gate under section □0□10.

### 80-4.02C(3) Temporary Desert Tortoise Fences

□old the hori□ontal edge of the hardware cloth at a □0□angle toward the tortoise habitat area. □nsure the clearance to the ground at the bend is from 0 to 2 inches.

Where the hardware cloth overlaps, secure the bend piece with one of the following:

1. □arbless wire threaded along the width of the cloth
2. Minimum of □ hog rings equally spaced along the edge

□asten the bent piece to the ground with hold down pins pushed completely into the ground.

When the temporary fence is no longer needed, compact soil into post holes with an □lb or heavier hand tamper.

**80-4.02D Payment**

□ot □sed

**80-4.03–80-4.09 RESERVED**

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# DIVISION IX TRAFFIC CONTROL DEVICES

## 83 RAILINGS AND BARRIERS

0□□1 □□1 □

0□□1 □□1 □

**Delete *to* in the 4th paragraph of section 83-1.02B.**

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

## 84 MARKINGS

0□□1 □□1 □

**Add to the beginning of section 84-8.03A:**

0□□1 □□1 □

Select the method and equipment for constructing ground□in indentations.

**Replace the 1st paragraph of section 84-8.03A with:**

0□□1 □□1 □

Do not construct rumble strips:

1. On structures, approach slabs, or concrete weigh□in□motion slabs
2. At intersections
□. □ordering two□way left turn lanes, driveways, or other high□volume turning areas
□. Within □inches of any concrete pavement □oint

**Add between the 2nd and 3rd paragraphs of section 84-8.03A:**

0□□1 □□1 □

Modify rumble strip spacing to avoid locating a groove on a concrete pavement □oint.

**Replace the 3rd paragraph of section 84-8.03A with:**

0□□1 □□1 □

Indentations must comply with the dimensions shown and not vary more than:

1. 10 percent in length
2. 0.0□inch in depth
□. 10 percent in width
□. 1 inch in center□to□center spacing between rumble strips

**Add to the end of section 84-8.03A:**

0□1□1□

The noise level created by the combined grinding activities must not e□ceed □□ d□A when measured at a distance of □0 feet at right angles to the direction of travel.

□rea□rumble strips before and after intersections, driveways, railroad crossings, freeway gore areas, and freeway ramps. □lace brea□s and brea□ distances as shown. □ou may ad□ust brea□s and the brea□ distances as needed at low□volume driveways or other locations if authori□ed.

0□1□1□

**Delete *new* in the 1st paragraph of section 84-8.03B.**

0□1□1□

**Add to the end of section 84-8.03B:**

Remove grinding residue under section 1□□□.0□□ □□□.

**Replace the 1st paragraph of section 84-8.03C with:**

0□1□1□

□onstruct rumble strips in the top layer of □MA and asphalt concrete surfacing by the ground□in method.

**Add between the 2nd and 3rd paragraphs of section 84-8.03C:**

0□1□1□

Dispose of the removed material.

0□1□1□

**Delete the 2nd paragraph of section 84-8.03C.**

**Replace *37-2* in the 3rd paragraph of section 84-8.03C with:**

0□1□1□

□□□□.02

**Replace section 84-8.04 with:**

0□1□1□

The payment quantity for any type of rumble strip is the length measured by the station along the length of the rumble strip without deductions for gaps between indentations.

**Replace the 2nd paragraph of section 84-9.03B with:**

0□1□1□

□ompletely remove traffic stripes and pavement mar□ings, including any paint in the gaps, by methods that do not remove pavement to a depth of more than 1□□ inch.

**Add between the 2nd and 3rd paragraphs of section 84-9.03B:**

0□1□1□

Submit your proposed method for removing traffic stripes and pavement mar□ings at least □ days before starting the removal wor□. Allow 2 business days for the review.

Remove pavement mar□ing such that the old message cannot be identified. Ma□e any area removed by grinding rectangular. Water must not puddle in the ground areas. □og seal ground areas on asphalt concrete pavement.

**Delete *materially* in the 1st paragraph of section 84-9.03D.**

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# DIVISION X ELECTRICAL WORK

**Replace section 86 with:**



## 86 GENERAL

0□□1□□1□

### 86-1.01 GENERAL

#### 86-1.01A Summary

Section □□ includes general specifications for furnishing electrical equipment and materials.

□lectrical equipment and materials must comply with part □ of the *California MUTCD* and □ □A □ode of Regs, chapter □, subchapter □, "□lectrical Safety Orders."

□alvani□ed equipment and materials must comply with section □□□1.02□.

#### 86-1.01B Definitions

**accessible pedestrian signal:** Accessible pedestrian signal as defined in the *California MUTCD*.

**accessible walk indication:** Activated audible and vibrotactile action during the wal□ interval.

**actuation:** Actuation as defined in the *California MUTCD*.

**ambient sound level:** □ac□ground sound level in d□ at a given location.

**ambient sound sensing microphone:** Microphone that measures the ambient sound level in d□ and automatically ad□usts the accessible pedestrian signal spea□er□s volume.

**audible speech walk message:** Audible prerecorded message that communicates to pedestrians which street has the wal□ interval.

**channel:** Discrete information path.

**CALiPER:** □ommercially Available L□D □roduct □valuation and Reporting. A □.S. Department of □nergy program that individually tests and provides unbiased information on the performance of commercially available L□D luminaires and lights.

**controller assembly:** Assembly for controlling a system□s operations, consisting of a controller unit and au□iliary equipment housed in a waterproof cabinet.

**controller unit:** □art of the controller assembly performing the basic timing and logic functions.

**correlated color temperature:** Absolute temperature in □elvin of a blac□body whose chromaticity most nearly resembles that of the light source.

**detector:** Detector as defined in the *California MUTCD*.

**electrolier:** Assembly of a lighting standard and luminaire.

**flasher:** Device for opening and closing signal circuits at a repetitive rate.

**flashing beacon control assembly:** Assembly of switches, circuit brea□ers, terminal bloc□s, flasher, wiring, and other necessary electrical components housed in a single enclosure for operating a beacon.

**house side lumens:** Lumens from a luminaire directed to light up areas between the fi□ture and the pole, such as sidewal□s at intersection or areas off the shoulders on freeways.

**illuminance gradient:** Ratio of the minimum illuminance on a 1□foot square of sign panel to that on an ad□acent 1□foot square of sign panel.

**inductive loop detector:** Detector capable of being actuated by an inductance change caused by a vehicle passing or standing over the loop. An inductive loop detector includes a loop or group of loops installed in the roadway and a lead□in cable installed and connected inside a controller cabinet.

**junction temperature:** Temperature of the electronic □unction of the L□D device. The □unction temperature is critical in determining photometric performance, estimating operational life, and preventing catastrophic failure of the L□D.

**L70:** □□trapolated life in hours of the luminaire when the luminous output depreciates □0 percent from the initial values.

**lighting standard:** □ole and mast arm supporting the luminaire.

**LM-79:** Test method from the Illumination □ngineering Society of □orth America specifying the test conditions, measurements, and report format for testing solid state lighting devices, including L□D luminaires.

**LM-80:** Test method from the Illumination □ngineering Society of □orth America specifying the test conditions, measurements, and report format for testing and estimating the long□term performance of L□Ds for general lighting purposes.

**luminaire:** Assembly that houses the light source and controls the light emitted from the light source.

**National Voluntary Laboratory Accreditation Program:** □.S. Department of □nergy program that accredits independent testing laboratories.

**powder coating:** □oating applied electrostatically using e□terior□grade, □□□stable, polymer powder.

**power factor:** Ratio of the real power component to the comple□ power component.

**pretimed controller assembly:** Assembly operating traffic signals under a predetermined cycle length.

**programming mechanism:** Device to program the accessible pedestrian signal operation.

**pull box:** □o□ with a cover that is installed in an accessible place in a conduit run to facilitate the pulling in of wires or cables.

**push button information message:** □ush button information message as defined in the *California MUTCD.*

**push button locator tone:** □ush button locator tone as defined in the *California MUTCD*.

**signal face:** Signal face as defined in the *California MUTCD*.

**signal head:** Signal head as defined in the *California MUTCD*.

**signal indication:** Signal indication as defined in the *California MUTCD*.

**signal section:** Signal section as defined in the *California MUTCD*.

**signal standard:** □ole with or without mast arms carrying 1 or more signal faces.

**street side lumens:** Lumens from a luminaire directed to light up areas between the fi□ture and the roadway, such as traveled ways and freeway lanes.

**surge protection device:** Subsystem or component that protects equipment against short□duration voltage transients in power line.

**total harmonic distortion:** Ratio of the rms value of the sum of the squared individual harmonic amplitudes to the rms value of the fundamental frequency of a comple□ waveform.

**traffic-actuated controller assembly:** Assembly for operating traffic signals under the varying demands of traffic as registered by detector actuation.

**traffic phase:** Traffic phase as defined in the *California MUTCD*.

**vehicle:** □ehicle as defined in the *California Vehicle Code*.

**vibrotactile pedestrian device:** □ibrotactile pedestrian device as defined in the *California MUTCD*.

### 86-1.01C Submittals

#### 86-1.01C(1) General

Within 1□ days after □ontract approval, submit a list of equipment and materials you propose to install.

Submit the list before shipping equipment and materials to the □ob site. The list must include:

1. Manufacturer□s name
2. Ma□e and model number
□. Month and year of manufacture
□. Lot and serial numbers
□. □ontract number
□. □our contact information

Submit confirmation of the vendor□s acceptance of the order for the electrical equipment and materials as an informational submittal.

Submit □ sets of computer□generated, schematic wiring diagrams for each cabinet.

Diagrams, plans, and drawings must be prepared using graphic symbols in I□□□ □1□, "□raphic Symbols for □lectrical and □lectronic Diagrams."

Submit a schedule of values within 1□ days after □ontract approval.

Do not include costs for the traffic control system in the schedule of values.

Submit a manufacturer□s maintenance manual or combined maintenance and operation manual as an informational submittal. The manual must have a master item inde□ that includes:

1. Specifications
2. Design characteristics
□. □eneral operation theory
□. □unction of all controls
□. Troubleshooting procedure
□. □arts list, descriptions, stoc□ numbers, and settings
□. □loc□ circuit diagram
□. Layout of components
□. Schematic diagrams

#### 86-1.01C(2) Pull Boxes

Submit the manufacturer□s installation instructions for pull bo□es, including:

1. □uantity and si□e of entries that can be made without degrading the strength of the pull bo□ below the load rating
2. Locations where side entries can be made
□. Acceptable method for creating the entry

Submit load□rating test reports for pull bo□es from a □RTL.

#### 86-1.01C(3) LED Luminaires

Submit for an L□D luminaire:

1. Ma□imum power in watts
2. Ma□imum designed □unction temperature
□. □eat sin□ area in square inches

□. Designed □unction□to□ambient thermal resistance calculation with thermal resistance components clearly defined
□. L□0 in hours when e□trapolated for the average nighttime operating temperature
□. Life e□pectancy based on the □unction temperature
□. Manufacturer□s data sheet for the power supply, including the rated life

Submit the manufacturer□s □□ test data for L□D luminaires as an informational submittal.

**86-1.01C(4) Low-Pressure Sodium Luminaires**

Submit the manufacturer□s □□ test data for low□pressure sodium luminaires as an informational submittal.

**86-1.01C(5) Service Equipment Enclosures**

Submit shop drawings for a service equipment enclosure to M□TS.

**86-1.01C(6) Signal Heads**

Submit a certificate of compliance and the manufacturer□s □□ test data for signal heads as an informational submittal.

**86-1.01C(7) LED Signal Modules**

Submit the manufacturer□s □□ test data for L□D signal modules as an informational submittal.

**86-1.01C(8) Visors**

Submit a certificate of compliance and the manufacturer□s □□ test data for visors as an informational submittal.

**86-1.01C(9) LED Countdown Pedestrian Signal Face Modules**

Submit the manufacturer□s □□ test data for L□D countdown pedestrian signal face modules as an informational submittal.

**86-1.01C(10) Accessible Pedestrian Signals**

Submit the manufacturer□s □□ test data for accessible pedestrian signals as an informational submittal.

**86-1.01D Quality Assurance**

**86-1.01D(1) General**

□lectrical equipment must comply with one or more of the following standards:

1. A□SI
2. ASTM
□. □IA□□□IA
□. □□MA
□. □□TA
□. □L□□RTL
□. TIA

Materials must comply with:

1. □□□ rules
2. IT□ standards
□. □□□
□. □alifornia □lectrical □ode

**86-1.01D(2) Source Quality Control**

Service equipment enclosures and cabinets must be inspected and tested at the source.

**86-1.01D(3) Department Acceptance**

Deliver material and equipment for testing to M□TS.

Allow □0 days for testing. The Department notifies you when testing is complete.

If the Department accepts the material or equipment, you must pic□ it up from the test site and deliver it to the □ob site.

If the Department re□ects material or equipment, remove it within 5 business days after you are notified it is re□ected. If it is not removed within that period, the Department may remove it and ship it to you and deduct the costs of labor, material and shipping.

Resubmit a new sample and allow □0 days for retesting. The retesting period starts when the replacement material or equipment is delivered to M□TS.

### 86-1.02 MATERIALS

#### 86-1.02A General

Anchor bolts, anchor bars or studs, and nuts and washers must comply with section 75 □1.02.

□olt threads must accept galvani□ed standard nuts without requiring tools or causing removal of protective coatings.

#### 86-1.02B Conduit and Accessories

##### 86-1.02B(1) General

□onduit and fittings must comply with the requirements shown in the following table:

**Conduit and Fitting Requirements**

| Type | Requirement |
|---|---|
| 1 | Must be hot□dip galvani□ed rigid steel complying with □L 6 and A□SI C8 0.1. The □inc coating must comply with copper sulfate test requirements in □L 6. □ittings must be electrogalvani□ed and certified under □L 514B. |
| 2 | Must comply with requirements for Type 1 conduit and be coated with PVC or polyethylene. The e□terior thermoplastic coating must have a minimum thic□ness of 35 mils. The internal coating must have a minimum thic□ness of 2 mils. □oated conduit must comply with □□MA R□ 1, or □RTL PVC □001. |
| 3 | Must be Type A, e□truded, rigid PVC conduit complying with □L 651 or must be HDPE conduit complying with □L 651A. |
| 4 | Must have an inner, fle□ible metal core covered by a waterproof, nonmetallic, sunlight□resistant □ac□et, and must be □L listed for use as a grounding conductor. □ittings must be certified under □L 514B. |
| □ | Must be intermediate steel complying with □L 1242 and A□SI C8 0.6. The □inc coating must comply with copper sulfate test requirements specified in □L 1242. □ittings must be electrogalvani□ed and certified under □L 514B. |

□onding bushings installed on metal conduit must be insulated and either a galvani□ed or □inc□alloy type.

##### 86-1.02B(2) Structures Accessories

Steel hangers, steel brac□ets, and other fittings used to support conduit in or on a wall or bridge superstructure must comply with section 75-3.

□recast concrete cradles for conduit must be made of minor concrete and commercial□quality welded wire fabric. The minor concrete must contain a minimum of 5□0 lb of cementitious material per cubic yard. The cradles must be moist cured for a minimum of 3 days.

#### 86-1.02C Pull Boxes

##### 86-1.02C(1) General

□ull bo□ cover must have a mar□ing on the top that is:

1. □learly defined
2. □niform in depth
3. □arallel to either side
4. 1 to □ inches in height

□over mar□ing must be:

1. *SERVICE* for service circuits between a service point and service disconnect
2. *SERVICE IRRIGATION* for circuits from a service equipment enclosure to an irrigation controller
3. S□R□I□□ □OOST□R □□M□ for circuits from a service equipment enclosure to the booster pump
4. *TDC POWER* for circuits from a service equipment enclosure to telephone demarcation cabinet
5. *LIGHTING* for a lighting system
6. *SIGN ILLUMINATION* for a sign illumination system
7. *SIGNAL AND LIGHTING* for a signal and lighting system
8. *RAMP METER* for a ramp metering system
9. *TMS* for a traffic monitoring station
10. *FLASHING BEACON* for a flashing beacon system
11. *CMS* for a changeable message sign system
12. *INTERCONNECT* for an interconnect conduit and cable system

The load rating must be stenciled on the inside and outside of the pull bo□ and the cover.

If a transformer or other device must be placed in the pull bo□, include recesses for a hanger.

The hardware must be stainless steel with 1□ percent chromium and □ percent nic□el content.

**86-1.02C(2) Nontraffic Pull Boxes**

A nontraffic pull bo□ and cover must comply with A□SI□S□T□ □□, "Specification for □nderground □nclosure Integrity," for Tier 22 load rating and must be gray or brown.

□ach new pull bo□ must have a cover with an electronic mar□er cast inside.

A pull bo□ e□tension must be made of the same material as the pull bo□. The e□tension may be another pull bo□ if the bottom edge of the pull bo□ fits into the opening for the cover.

The bolts, nuts, and washers must be a captive design and galvani□ed. □aptive bolts for securing the cover of nontraffic pull bo□es must be capable of withstanding a torque from □□ to □0 ft□lb and a minimum pull□out strength of □□0 lb.

**86-1.02C(3) Traffic Pull Boxes**

A traffic pull bo□ and cover must comply with ASTM □□□□ for □S20□□□ loading.

The frame must be anchored to the bo□ with 2□1□□□inch□long concrete anchors with a 1□□ inch diameter. A no. □□1□2□T□pull bo□ must have □ concrete anchors, one placed in each corner. □o. □□T□ and no. □□T□ pull bo□es must have □ concrete anchors, one placed in each corner and one near the middle of each of the longer sides.

□uts must be vibration□resistant, □inc□plated, carbon steel and have a wedge ramp at the root of the thread.

□efore galvani□ing a steel or cast iron cover, the manufacturer must apply the cover mar□ing by one of the following methods:

1. □se a cast iron strip at least 1□□ inch thic□ with letters raised a minimum of 1□1□ inch. □asten the strip to the cover with 1□□□inch, flathead, stainless steel machine bolts and nuts. □een the bolts after tightening.
2. □se a sheet steel strip at least 0.02□ inch thic□ with letters raised a minimum of 1□1□ inch. □asten the strip to the cover by spot welding, tac□ welding, or bra□ing with 1□□□inch stainless steel rivets or 1□□□ inch, roundhead, stainless steel machine bolts and nuts. □een the bolts after tightening.

The steel cover must be countersun□ appro□imately 1□□ inch to accommodate the bolt head. When tightened, the bolt head must be no more than 1□□ inch above the top of the cover.

**86-1.02C(4) Reserved**

**86-1.02D Tapes**

**86-1.02D(1) General**

Reserved

### 86-1.02D(2) Pull Tape

□ull tape must be a flat, woven, lubricated, soft□fiber, polyester tape with a minimum tensile strength of 1,□00 lb. The tape must have sequential measurement mar□ings every 3 feet.

### 86-1.02D(3) Reserved

### 86-1.02E Reserved

### 86-1.02F Conductors and Cables

### 86-1.02F(1) Conductors

### 86-1.02F(1)(a) General

Reserved

### 86-1.02F(1)(b) Reserved

### 86-1.02F(1)(c) Copper Conductors

### 86-1.02F(1)(c)(i) General

□opper wire must comply with ASTM B3 and B8.

□onductor must be clearly and permanently mar□ed the entire length of its outer surface with:

1. Manufacturer□s name or tradema□
2. Insulation□type letter designation
3. □onductor si□e
4. □oltage
5. Temperature rating
6. □umber of conductors for a cable

The minimum insulation thic□ness and color code requirements must comply with NEC.

A conductor must be □L listed or □RTL certified and rated for □00 □□ac□.

Insulation for no. 14 to no. 4 conductors must be one of the following:

1. Type TW PVC under ASTM D2219
2. Type T□W PVC
3. Type USE, RHH, or R□W cross□lin□ed polyethylene

The insulation for no. 2 and larger conductors must be one of the above or T□W□.

□onductors must be identified as shown in the following table:

**Conductor Identification**

| □ircuit | Signal phase or function | Identification | | | Si□e |
|---|---|---|---|---|---|
| | | Insulation color[d] | | | |
| | | □ase | Stripe[a] | □and symbols | |
| Signals □vehicle□[a, b] | 2, □ | Red, yel, brn | □l□ | 2, □ | 1□ |
| | □, □ | Red, yel, brn | Ora | □, □ | 1□ |
| | 1, □ | Red, yel, brn | □one | 1, □ | 1□ |
| | □, □ | Red, yel, brn | □ur | □, □ | 1□ |
| | Ramp meter 1 | Red, yel, brn | □one | □□R | 1□ |
| | Ramp meter 2 | Red, yel, brn | □l□ | □□R | 1□ |
| □edestrian signals | 2p, □p | Red, brn | □l□ | 2p, □p | 1□ |
| | □p, □p | Red, brn | Ora | □p, □p | 1□ |
| | 1p, □p | Red, brn | □one | 1p, □p | 1□ |
| | □p, □p | Red, brn | □ur | □p, □p | 1□ |
| □edestrian push buttons | 2p, □p | □lu | □l□ | □□2, □□□ | 1□ |
| | □p, □p | □lu | Ora | □□□, □□□ | 1□ |
| | 1p, □p | □lu | □one | □□1, □□□ | 1□ |
| | □p, □p | □lu | □ur | □□□, □□□ | 1□ |
| Traffic signal controller cabinet | □ngrounded circuit conductor | □l□ | □one | □O□□1 | □ |
| | □rounded circuit conductor | Wht | □one | □O□□2 | □ |
| □ighway lighting pull bo□ to luminaire | □ngrounded □line 1 | □l□ | □one | □□R | 1□ |
| | □ngrounded □line 2 | Red | □one | □□R | 1□ |
| | □rounded | Wht | □one | □□R | 1□ |
| Multiple highway lighting | □ngrounded □line 1 | □l□ | □one | ML1 | 10 |
| | □ngrounded □line 2 | Red | □one | ML2 | 10 |
| Lighting control | □ngrounded □□□□ | □l□ | □one | □1 | 1□ |
| | Switching leg from □□□ unit or SM transformer | Red | □one | □2 | 1□ |
| Service | □ngrounded □line 1 □signals□ | □l□ | □one | □□R | □ |
| | □ngrounded □line 2 □lighting□ | Red | □one | □□R | □ |
| Sign lighting | □ngrounded □line 1 | □l□ | □one | SL□1 | 10 |
| | □ngrounded □line 2 | Red | □one | SL□2 | 10 |
| □lashing beacons | □ngrounded between flasher and beacons | Red or yel | □one | □□Loc.[c] | 1□ |
| □rounded circuit conductor | □edestrian push buttons | Wht | □l□ | □□R | 1□ |
| | Signals and multiple lighting | Wht | □one | □□R | 10 |
| | □lashing beacons and sign lighting | Wht | □one | □□R | 12 |
| | Lighting control | Wht | □one | □□□ | 1□ |
| | Service | Wht | □one | □□R | 1□ |
| Railroad preemption | | □l□ | □one | R | 1□ |
| Spares | | □l□ | □one | □□R | 1□ |

□□R □□o band required □□□□□hotoelectric unit

[a]On overlaps, the insulation is striped for the 1st phase in the designation, e.g., phase □2□□□conductor is striped as for phase 2.

[b]□and for overlap and special phases as required

[c]□lashing beacons having separate service do not require banding.

[d]□olor □ode: □el□□ellow, □rn□□rown, □lu□□lue, □l□□□lac□, Wht□White, Ora□Orange, □ur□□urple

The insulation color must be homogeneous throughout the full depth of the insulation. The identification stripe must be continuous throughout the length of the conductor.

**86-1.02F(1)(c)(ii) Bonding Jumpers and Equipment Grounding Conductors**

A bonding □umper must be copper wire or copper braid of the same cross□sectional area as a no. □ conductor or larger.

An equipment grounding conductor may be bare or insulated.

**86-1.02F(1)(c)(iii) Inductive Loop Conductors**

Inductive loop conductor must comply with the requirements shown in the following table:

**Conductor Requirements for Inductive Loop Detectors**

| Loop wire | Requirement |
|---|---|
| Type 1 | Type R□W□□S□ neoprene□ac□eted or Type □S□ cross□lin□ed polyethylene, insulated, no. 12, stranded copper wire with a minimum □0□mils insulation thic□ness at any point. |
| Type 2 | Type T□W□ or Type □□□W, no. 1□, stranded copper wire in a plastic tubing. The plastic tubing must be polyethylene or vinyl rated for use at 10□ □□ and resistant to oil and gasoline. The outside diameter of the tubing must be at most 0.2□ inch with a wall thic□ness of at least 0.02□ inch. |

**86-1.02F(1)(d) Reserved**

Reserved

**86-1.02F(2) Cables**

**86-1.02F(2)(a) General**

Reserved

**86-1.02F(2)(b) Reserved**

Reserved

**86-1.02F(2)(c) Reserved**

**86-1.02F(2)(d) Copper Cables**

**86-1.02F(2)(d)(i) General**

The conductor wire si□e for a detector lead□in cable must comply with the requirements of ASTM □2□□.

□able, e□cept a detector lead□in cable, must be clearly and permanently mar□ed the entire length of its outer surface with:

1. Manufacturer□s name or trademar□
2. Insulation□type letter designation
□. □onductor si□e
□. □oltage
□. Temperature rating
□. □umber of conductors for a cable

**86-1.02F(2)(d)(ii) Conductors Signal Cables**

A conductors signal cable must have a blac□ polyethylene □ac□et with an inner polyester binder sheath. The cable □ac□et must be rated for □00 □□ac□and □□ degrees □. □iller material, if used, must be polyethylene.

The individual conductors in the cable must be solid copper complying with ASTM □2□□ with Type T□W□ insulation. The minimum thic□ness of insulation must comply with □□□ for conductor si□es no. 1□ to no.10. The minimum thic□ness of the nylon □ac□et must be □ mils.

□able must comply with the requirements shown in the following table:

| □able type[a] | □onductor quantity and type | □able □ac□et thic□ness □mils□ | | Ma□imum nominal outside diameter □inch□ | □onductor color code |
|---|---|---|---|---|---|
| | | Average | Minimum | | |
| □□S□ | □no. 1□ | □□ | □□ | 0.□0 | □lue□blac□, blue□orange, white□blac□stripe |
| □□S□ | □no. 1□ | □□ | □□ | 0.□0 | Red, yellow, brown, blac□, white |
| □□S□ | □no. 1□<br>1 no. 12 | □0 | □□ | 0.□□ | □o. 12 □white,<br>no. 1□ □red, yellow, brown, blac□, and red□blac□, yellow□blac□, brown□blac□, white□blac□ stripe |
| 12□S□ | 11 no. 1□<br>1 no. 12 | □0 | □□ | 0.□0 | □o. 12 □white,<br>no. 1□ □red, yellow, brown, red□blac□stripe, yellow□blac□stripe, brown□blac□stripe, blac□□red stripe, blac□□white stripe, blac□, red□white stripe, brown□white stripe |
| 2□□S□ | 2□no. 1□<br>1 no. 10 | □0 | □□ | 0.□0 | □o. 10 □white<br>no. 1□ □red□blac□stripe, yellow□blac□stripe, brown□blac□stripe, red□orange stripe, yellow□orange stripe, brown□orange stripe, red□silver stripe, yellow□silver stripe, brown□silver stripe, red□purple stripe, yellow□purple stripe, brown□purple stripe, red□2 blac□stripes, brown□2 blac□stripes, red□2 orange stripes, brown□2 orange stripes, red□2 silver stripes, brown□2 silver stripes, red□2 purple stripes, brown□2 purple stripes, blue□blac□stripe, blue□orange stripe, blue□silver stripe, blue□purple stripe, white□blac□stripe, blac□□red stripe, blac□ |

**86-1.02F(2)(d)(iii) Detector Lead-in Cables**

□onductors for a loop detector lead□in cable must be two no. 1□, 1□□by□2□, stranded, tinned copper wires with calculated cross□sectional areas complying with ASTM □2□□, table 1 and must comply with the requirements shown in the following table:

**Conductor Requirements for Loop Detector Lead-In Cables**

| Lead-in cable | Requirement |
|---|---|
| Type B | Insulated with 20 mils of high-density polyethylene. Conductors must be twisted together with at least 2 turns per foot, and the twisted pair must be protected with a copper or aluminum polyester shield. A minimum no. 20 copper drain wire must be connected to the equipment ground within the cabinet. Cable must have a high-density polyethylene or high-density polypropylene outer jacket with a nominal thickness of 32 mils. Include an amorphous, interior, moisture penetration barrier of nonhydroscopic polyethylene or polypropylene fillers. |
| Type C | Comply with International Municipal Signal Association Specification no. 50-?. A minimum no. 20 copper drain wire must be connected to the equipment ground within the cabinet. |

**86-1.02F(2)(d)(iv) Reserved**

**86-1.02F(2)(d)(v) Signal Interconnect Cables**

A signal interconnect cable must be a 6-pair type with stranded, tinned, copper no. 20 conductors. The insulation for each conductor must be color-coded polypropylene with a minimum 13-mils nominal thickness. The conductors must be in color-coded, twisted pairs. Each pair must be wrapped with an aluminum polyester shield and have a no. 22 or larger, stranded, tinned, copper drain wire inside the shielded pair.

The cable jacket must be black HDPE rated for a minimum of 300 Vac) and 60 degrees C. The jacket must have a minimum nominal wall thickness of 0 mils.

**86-1.02F(2)(e) Reserved**

**86-1.02G Equipment Identification Characters**

Equipment identification characters must be 2-1/2 inch, series D lettering, except on wood poles, they must be 3-inch lettering.

The characters must be self-adhesive reflective labels or paint, except on wood poles, they must be embossed on aluminum.

**86-1.02H Splicing Materials**

Splicing materials include:

1. Connectors
2. Electrical insulating coating
3. PVC electrical tape
4. Butyl rubber stretchable tape
5. PVC pressure-sensitive adhesive tape
6. Heat shrink tubing

Connectors must be C-shaped compression or butt type.

Electrical insulating coating must be a fast drying sealant with low nontoxic fumes.

PVC electrical tape must have a minimum thickness of 80 mils.

Butyl rubber stretchable tape with liner must have a minimum thickness of 120 mils.

PVC pressure-sensitive adhesive electrical tape must have a minimum thickness of 6 mils.

Electrical tapes must be self-fusing, oil- and flame-resistant, synthetic rubber and be UL listed or CRTL certified.

Heat-shrink tubing must be made of irradiated polyolefin tubing with a minimum wall thickness of 40 mils before contraction and an adhesive mastic inner wall. When heated, the inner wall must melt and fill the crevices and interstices of the covered splice area and the outer wall must shrink to form a waterproof insulation.

□eat□shrin□ tubing must comply with the requirements for e□truded, insulating tubing at □00 □□ac□ specified in □L Standard □□□D and A□SI □11□.1 and the requirements shown in the following table:

**Heat-Shrink Tubing Requirements**

| □uality characteristic | Requirement |
|---|---|
| Shrin□age ratio of supplied diameter[a] □ma□, □ □ | □□ |
| Dielectric strength □min, □□ □in□<br>Resistivity □min, Ω/in) | □□0<br>2□ □10[1□] |
| Tensile strength □min, psi□ | 2,000 |
| Operating temperature □□□ □ | □□0–□0 □1□□ □□ in emergency□ |
| Water absorption □ma□, □ □ | 0.□ |

[a]When heated to 12□ □□ and allowed to cool to 2□ □□

### 86-1.02I Connectors and Terminals

A connector and terminal must comply with SA□□AS□□2□ and be a crimp type, rated for □00 □□ac□and either □L listed or □RTL certified.

### 86-1.02J Standards, Poles, Pedestals, and Posts

Standards for signals, lighting, and flashing beacons, poles for closed circuit television, pedestals for cabinets, posts for e□tinguishable message sign and posts for pedestrian push button assemblies must comply with section □□□□.

### 86-1.02K Luminaires

#### 86-1.02K(1) General

Luminaire must be either L□D or low□pressure□sodium type.

#### 86-1.02K(2) LED Luminaires

L□D luminaire must be on the Authori□ed Material List for L□D luminaires and must:

1. □e self□contained, not requiring assembly.
2. □omply with □L 1□□□ for luminaires in wet locations.
□. □ave a power supply with:
   □.1. A□SI□I□□ rating of at least I□□□.
   □.2. 2 leads to accept standard 0□10 □□dc□.
   □.□. Dimming control compatible with I□□ □0□2□, Anne□□. If the control leads are open or the analog control signal is lost, the circuit must default to 100□percent power.
   □.□. □ase temperature self rise of □□ degrees □ or less above ambient temperature in free air with no additional heat sin□s.
□. Weigh no more than □□ lb.
□. □ave a minimum operating life of □□,000 hours when operated for an average time of 11.□ hours at an average temperature of □0 degrees □.
□. □e designed to operate over a temperature range from □□0 to 1□0 degrees □.
□. □e operationally compatible with photoelectric controls.
□. □ave a correlated color temperature range from □,□00 to □,□00 □ and a color rendering inde□of □□ or greater.
□. □ave a ma□imum□effective pro□ected area of 1.□ sq ft when viewed from either side or end.
10. □ave a housing color that matches a color no. 2□1□2 to 2□□□0, □□2□1 to □□□□□, or □□□□0 of □□D□ STD□□□□.
11. □ave an A□SI □1□□.□1□compliant, loc□ing□type, photocontrol receptacle with dimming connections and a watertight shorting cap.
12. □omply with LM□□□, LM□□0 and □alifornia Test □11.

The individual L□Ds must be connected such that a catastrophic loss or a failure of 1 L□D does not result in the loss of more than 20 percent of the luminous output of the luminaire.

The luminaire must be permanently mar□ed inside the unit and outside of its pac□aging bo□. Mar□ing consists of:

1. Manufacturer□s name or trademar□

2. Month and year of manufacture
□. Model, serial, and lot numbers
□. Rated voltage, wattage, and power in □A

An L□D luminaire□s onboard circuitry must include a surge protection device to withstand high□repetition noise transients caused by utility line switching, nearby lightning stri□es, and other interferences. The device must protect the luminaire from damage and failure due to transient voltages and currents as defined in Tables 1 and □ of A□SI□ □□□ □□□.□1.2 for location category □□□igh. The surge protection device must comply with □L 1□□□ and A□SI□ □□□ □□2.□□ based on A□SI□ □□□ □□2.□1.2 definitions for standard and optional waveforms for location category □□□igh.

An L□D luminaire and its associated onboard circuitry must comply with the □lass A emission limits under □□ □□R 1□□□□for the emission of electronic noise.

The fluctuations of line voltage must have no visible effect on the luminous output.

The operating voltage may range from 120 to □□0 □ac□, □0 □ □ □ □. Luminaire must operate over the entire voltage range or the voltage range must be selected from one of the following:

1. Luminaire must operate over a voltage range from □□ to 2□□ □ac□. The operating voltages for this option are 120 □ac□and 2□0 □ac□.
2. Luminaire must operate over a voltage range from □□□ to □□0 □ac□. The operating voltage for this option is □□0 □ac□.

L□D luminaire must have a power factor of 0.□0 or greater. The total harmonic distortion, current, and voltage induced into a power line by a luminaire must not e□ceed 20 percent. The L□0 of the luminaire must be the minimum operating life or greater. Illuminance measurements must be calibrated to standard photopic calibrations.

The ma□imum power consumption and maintained illuminance of the L□D luminaires must comply with the isofootcandle curves as shown.

L□D luminaire must not allow more than 10 percent of the rated lumens to pro□ect above □0 degrees from vertical and 2.□ percent of the rated lumens to pro□ect above □0 degrees from vertical.

Luminaire must have passive thermal management with enough capacity to ensure proper heat dissipation and functioning of the luminaire over its minimum operating life. The ma□imum □unction temperature for the minimum operating life must not e□ceed 221 degrees □.

The □unction□to□ambient thermal resistance must be □□ degrees □ per watt or less. The use of fans or other mechanical devices is not allowed for cooling the luminaire. The heat sin□ must be made of aluminum or other material of equal or lower thermal resistance. The luminaire must contain circuitry that automatically reduces the power to the L□Ds so the ma□imum □unction temperature is not e□ceeded when the ambient temperature is 100 degrees □ or greater.

The luminaire□s housing must be fabricated from materials designed to withstand a □,000□hour salt spray test under ASTM □11□. All aluminum used in housings and brac□ets must be made of a marine□grade alloy with less than 0.2 percent copper. All e□posed aluminum must be anodi□ed. A chromate conversion undercoating must be used underneath a thermoplastic polyester powder coat.

The housing must be designed to prevent the buildup of water on its top surface. □□posed heat sin□ fins must be oriented to allow water to run off the luminaire and carry dust and other accumulated debris away from the unit. The optical assembly of the luminaire must be protected against dust and moisture intrusion to at least an □L □0□2□ rating of I□□□. The power supply enclosure must be protected to at least an □L □0□2□ rating of I□□□.

The housing must have a slip fitter capable of being mounted on a 2□inch□diameter pipe tenon. Slip fitter must:

1. □it on mast arms with outside diameters from 1□□□□ to 2□□□□ inches
2. □e ad□ustable to a minimum of □□ degrees from the a□is of the tenon in a minimum of □ steps: □□, □2.□, 0, □2.□, □□
□. □ave clamping brac□ets that:

□.1. Are made of corrosion□resistant materials or treated to prevent galvanic reactions
□.2. Do not bottom out on the housing bosses when ad□usted within the designed angular range
□.□. Do not permanently set in e□cess of 1□□2 inch when tightened

□ach refractor or lens must be made of □□□inhibiting high□impact plastic, such as acrylic or polycarbonate, or heat□and impact□resistant glass. The refractor or lens must be resistant to scratching. □olymeric materials, e□cept for the lenses of enclosures containing either the power supply or electronic components of the luminaire, must be made of □L□□ □□0 flame□retardant materials.

An L□D luminaire and its internal components must be able to withstand mechanical shoc□ and vibration.

If the components are mounted on a down□opening door, the door must be hinged and secured to the luminaire□s housing separately from the refractor or flat lens frame. The door must be secured to the housing to prevent accidental opening. A safety cable must mechanically connect the door to the housing.

An L□D luminaire must have a barrier□type terminal bloc□ secured to the housing to connect field wires. The terminal screws must be captive and equipped with wire grips for conductors up to no. □.

The conductors and terminals must be identified and mar□ed.

**86-1.02K(3) Low-Pressure Sodium Luminaires**

A low□pressure sodium luminaire must be an enclosed cutoff or semi□cutoff type and be self□contained, not requiring assembly.

The housing must be either □1□a minimum 1□1 □□inch□thic□, corrosion□resistant, die□cast aluminum sheet and plate with concealed continuous welds or □2□a minimum □□□2□inch□thic□, acrylonitrile□butadiene□ styrene sheet material on a cast aluminum frame. The housing must provide mounting for all electrical components and a slip fitter. The housing must be divided into optical and power compartments that are individually accessible for service and maintenance.

The painted e□terior surface of the luminaire must be finished with a fused coating of electrostatically applied polyester powder paint or other □□□inhibiting film. The color must be aluminum gray.

A sealing ring must be installed in the pipe tenon opening to prevent the entry of water and insects into the power and optical compartments. The ring must be made of high□temperature neoprene or equal material.

The power unit assembly must be accessible through a weather□tight, hinged cover secured to the housing with spring latches or captive screws.

The luminaire□s hardware must be stainless steel or cadmium plated. Removable components must be secured with machine screws or bolts instead of sheet metal screws.

A semi□cutoff luminaire or a molded refractor□style cutoff luminaire must include a refractor. Other cutoff luminaires must include a flat lens. The refractor assembly and flat lens assembly must be designed to rigidly maintain their shape and be hinged and secured to the housing with spring latches.

The refractor must be either a 1□piece in□ection□molded polycarbonate with a minimum thic□ness of □□□2 inch or a 1□piece in□ection□molded acrylic with a minimum thic□ness of 1□□ inch. Alternate methods of manufacturing the refractor may be authori□ed provided minimum specified thic□nesses are maintained.

The flat lens must be a 1□piece polycarbonate with a minimum thic□ness of □□□2 inch, mounted to a metal frame.

The lamp soc□et must be made of high□temperature, flame□retardant, thermoset material with self□wiping contacts or an equal. The soc□et must be rated for □□0 W and 1,000 □□ac□. The position of the soc□et and support must maintain the lamp in the correct relationship with the reflector and refractor for the designed light distribution pattern. The reflector may be an integral part of the housing.

The luminaire must comply with the isofootcandle curves as shown.

Low□pressure sodium lamp must:

1. □e a 1□0 W, single□ended, bayonet□base, tubular, gas□discharge lamp

2. Maintain a minimum of □□ percent of its initial lumens over its rated life
□. Reach □0 percent of its light output within 10 minutes
□. Restri□e within 1 minute after a power outage or voltage drop at the lamp soc□et
□. □ave A□SI L□□□□ designation

The lamp operating position must be at □20 degrees from the hori□ontal.

Lamp must comply with the minimum performance requirements shown in the following table:

**Minimum Performance Requirements**

| □uality characteristic | Requirement |
|---|---|
| Initial lumens □lm□ | □□,000 |
| Rated average life at 10 h□start □h□ | 1□,000 |

The low□pressure sodium lamp ballast must be an autotransformer or high□reactance type. The power factor must be not less than □0 percent when the ballast is operated at the nominal line voltage with a nominally□rated reference lamp. The lamp wattage regulation spread must not vary by more than □□ percent for □10 percent input voltage variation from nominal through life.

At the line voltage, the ballast must have a lamp current crest factor not e□ceeding 1.□ and ballast loss not e□ceeding 2□ percent for a 1□0 W ballast.

The ballast must include a multi□circuit connector for quic□disconnection.

**86-1.02K(4) Reserved**

**86-1.02L Reserved**

**86-1.02M Photoelectric Controls**

□hotoelectric control types are as shown in the following table:

**Photoelectric Control Types**

| □ontrol type | Description |
|---|---|
| I | □ole□mounted photoelectric unit. Test switch housed in an enclosure. |
| II | □ole□mounted photoelectric unit. □ontactor and test switch located in a service equipment enclosure. |
| III | □ole□mounted photoelectric unit. □ontactor and a test switch housed in an enclosure. |
| I□ | A photoelectric unit that plugs into a □□MA twist□loc□ receptacle, integral with the luminaire. |
| □ | A photoelectric unit, contactor, and test switch located in a service equipment enclosure. |

The pole□mounted adaptor for Type I, II, and III photoelectric controls must include a terminal bloc□ and cable supports or clamps to support the wires.

The enclosure for Type I and III photoelectric controls must be a □□MA □R type. The enclosure must have a factory□applied, rust□resistant prime coat and finish coat. The enclosure must be hot□dip galvani□ed or painted to match the color of the lighting standard.

□hotoelectric unit must:

1. □ave a screen to prevent artificial light from causing cycling.
2. □ave a rating of □0 □□, 10□1□0 □□ac□, 210□2□0 □□ac□, or 10□2□0 □□ac□.
□. Operate at a temperature range from □20 to □□ degrees □.
□. □onsume less than 10 W.
□. □e a □□prong, twist□loc□ type with a □□MA I□ □□ rating, A□SI □1□□.10□compliant
□. □ave a fail□on state
□. □it into a □□MA□type receptacle
□. Turn on from 1 to □ footcandles and turn off from 1.□ to □ times the turn□on level. Measurements must be made by procedures in *EEI-NEMA Standards for Physical and Electrical Interchangeability of Light-Sensitive Control Devices Used in the Control of Roadway Lighting.*

Type I, II, III, and □ photoelectric controls must have a test switch to allow manual operation of the lighting circuit. Switch must be:

1. Single□hole mounting, toggle type
2. Single pole and single throw
□. Labeled *Auto-Test* on a nameplate

□hotoelectric control□s contactor must be:

1. □ormally open
2. Mechanical□armature type with contacts of fine silver, silver alloy, or equal or better material
□. Installed to provide a minimum space of 2□1□2 inches between the contactor terminals and the enclosure□s sides

The terminal bloc□s must be rated at 2□□ A, □00 □□ac□, molded from phenolic or nylon material, and be the barrier type with plated□brass screw terminals and integral mar□ing strips.

### 86-1.02N Fused Splice Connectors

The fused splice connector for 2□□0 and □□0 □□ac□circuits must simultaneously disconnect both ungrounded conductors. The connector must not have e□posed metal parts e□cept for the head of the stainless steel assembly screw. The head of the assembly screw must be recessed a minimum of 1□□2 inch below the top of the plastic boss that surrounds the head.

The connector must protect the fuse from water or weather damage. □ontact between the fuse and fuse holder must be spring loaded.

□uses must:

1. □e standard, midget, ferrule type
2. □ave a nontime□delay feature
□. □e □□□2 by 1□1□2 inches

### 86-1.02O Grounding Electrodes

□rounding electrode must be:

1. 1 piece
2. Minimum 10□foot length of one of the following:
   2.1. □alvani□ed steel rod or pipe not less than □□□ inch in diameter
   2.2. □opper clad steel rod not less than □□□ inch in diameter

### 86-1.02P Enclosures

#### 86-1.02P(1) General

The enclosures must be rated □□MA □R and include a dead front panel and a hasp with a □1□□inch□ diameter hole for a padloc□.

The enclosure□s machine screws and bolts must not protrude outside the cabinet wall.

The fasteners on the e□terior of an enclosure must be vandal resistant and not be removable. The e□terior screws, nuts, bolts, and washers must be stainless steel.

#### 86-1.02P(2) Service Equipment Enclosures

A service equipment enclosure must be factory wired and manufactured from steel and galvani□ed or have factory□applied, rust□resistant prime and finish coats, e□cept Types II and III.

Type II and III service equipment enclosures must:

1. □e made of 0.12□□inch minimum thic□ness □0□2□□□2 aluminum sheet complying with ASTM □20□.
2. □e manufactured using gas metal arc welding with bare aluminum welding electrodes. The electrodes must comply with AWS A□.10 □lass □R□□□□.

□. □e manufactured using welding procedures, welders, and welding operators that comply with the requirements for welding procedures, welders, and welding operators in in AWS □2.1, "Specification for Welding □rocedure and □erformance □ualification."
□. □ave full□seal weld e□terior seams.
□. □□terior welds must be ground smooth and edges filed to a radius of at least 0.0□ inch.
□. □ave a surface finish that complies with MIL□A□□□2□ for a Type II, □lass I coating, e□cept the anodic coating must have a minimum thic□ness of 0.000□ inch and a minimum coating weight of 0.001 o□sq in.

If a Type III enclosure houses a transformer of more than 1 □□A, the enclosure must have effective screened ventilation louvers of no less than □0 sq. in for each louver. The framed screen must be stainless no. □0□ with a no. 10 si□e mesh and secured with at least □ bolts.

The dead front panel on a Type III service equipment enclosure must have a continuous stainless steel or aluminum piano hinge. The panel must be secured with a latch or captive screws. □o live part must be mounted on the panel.

The enclosure must be watertight and mar□ed as specified in □□□ to warn of potential electric□arc flash ha□ards.

Internal conductors for the photoelectric control unit must be □00 □□ac□ 1□ AW□ □T□□□□stranded machine tool wire. Where sub□ect to fle□ing, 1□ stranded wire must be used.

The meter area must be have a sealable, loc□able, weather□tight cover that can be removed without the use of tools.

□or Type III□A, III□□, and III□□ enclosures, the meter soc□et must be a □□clip type, and the landing lug must be suitable for multiple conductors.

□or a Type III□D enclosure, the meter soc□et must be a □□clip type, and the landing lug must be suitable for multiple conductors. The pedestal must comply with the □lectric □tility Service □quipment Requirements □ommittee drawing no. □0□ or □0□.

Landing lugs must be □1□si□ed for the incoming service utility conductors, □2□compatible with either copper or aluminum conductors, and □□□made of copper or tin□plated aluminum. Live parts of the electrical equipment must be guarded against accidental contact.

The main and neutral busses of the enclosure must be made of tin□plated copper, be rated for 12□ A, and be suitable for copper or aluminum conductors.

□ach service equipment enclosure must have up to 2 main circuit brea□ers that will simultaneously disconnect ungrounded service□entrance conductors.

□ircuit brea□er for a service equipment enclosure must:

1. □e quic□□brea□on either automatic or manual operation
2. □e trip indicating
□. □e internal□trip type
□. □e □L listed or □RTL certified and comply with □L □□□ or equal
□. □e clearly mar□ed with the frame si□e
□. □ave an operating mechanism that is enclosed and trip□free from the operating handle on overload
□. □ave the trip rating clearly mar□ed on the operating handle
□. □ave an interior made of copper

□ircuit brea□ers used as disconnects must have a minimum interrupting capacity of 10,000 A, rms.

The interior of the enclosure must accept plug□in circuit brea□ers. A minimum of □ standard single□pole circuit brea□ers, □□□" nominal, must be provided for branch circuits.

Identify each circuit brea□er and component by description using an engraved phenolic nameplate attached with stainless steel rivets or screws.

□ameplate must be installed:

1. Adjacent to the breaker on the dead front panel. The characters must be a minimum of 1/4 inch high.
2. Adjacent to the component on the back panel. The characters must be a minimum of 1/4 inch high.
3. At the top exterior of the door panel. The nameplate must include the system number, voltage, and number of phases engraved in minimum 1/16 inch high characters.

A plastic laminated wiring diagram must be attached inside the enclosure with brass eyelets by a UL listed or RTL certified method.

### 86-1.02P(3) Lighting and Sign Illumination Enclosures

A lighting and sign illumination enclosure must be manufactured from steel and either galvanized, cadmium plated, or powder coated.

## 86-1.02Q Cabinets

### 86-1.02Q(1) General

Cabinets must be factory wired except for battery back-up system cabinets.

The fasteners on the exterior of a cabinet, except for battery back-up system cabinets, must be removable and vandal resistant. The exterior screws, nuts, bolts, and washers must be stainless steel.

Terminal blocks, circuit breakers, and a power supply must be UL approved.

### 86-1.02Q(2) Department-Furnished Controller Cabinets

A Department-furnished controller assembly consists of a Model 170 or 2070 controller unit, a wired controller cabinet, and all auxiliary equipment required to operate the system. The Department does not furnish anchor bolts.

### 86-1.02Q(3) Controller Cabinets

The controller cabinet must be a Model 332L, comply with TS2, and be on the Authorized Material List for traffic signal control equipment. The cabinet must have 2 drawer shelves. Each shelf must be attached to the tops of 2 supporting angles with 4 screws.

### 86-1.02Q(4) Telephone Demarcation Cabinets

### 86-1.02Q(4)(a) General

The doors of a telephone demarcation cabinet must be attached using continuous stainless steel piano hinges.

### 86-1.02Q(4)(b) Type A Telephone Demarcation Cabinets

Reserved

### 86-1.02Q(4)(c) Type B Telephone Demarcation Cabinets

A Type B telephone demarcation cabinet consists of a mounting panel, outlets, circuit breaker, fan, dead front plates, and fuse.

The mounting panel must be made of 3/4 inch thick A-A grade plywood.

The mounting panel must be fastened to the cabinet with nuts, lock washers, and flat washers to 10 welded studs.

The cabinet must be made of 0.125 inch thick anodized aluminum.

The cabinet door must be hung and secured with drawn latches, lockable with a padlock. The padlock latches must each have a minimum 1/4 inch diameter hole.

Ventilation louvers must be located on the door.

The fan must be located in a ventilator housing and be controlled thermostatically. The thermostat control must have a range from 70 to 100 degrees F.

The thermostat and fan circuit must be protected with a fuse rated for 125 percent of the motor capacity. The fan capacity must be a minimum 200 cfm.

### 86-1.02Q(4)(d) Type C Telephone Demarcation Cabinets

Reserved

### 86-1.02Q(5) Battery Backup System Cabinets

The cabinet for a battery bac□up system must comply with T□□S and be on the Authori□ed Material List for traffic signal control equipment.

### 86-1.02R Signal Heads

### 86-1.02R(1) General

A signal head consists of a signal mounting assembly, bac□plate, and signal face.

The head must have a terminal bloc□ attached to the bac□ of one housing. The terminal bloc□ must have enough positions to accommodate all indications. □ach position must be permanently labeled for the indications used.

The metal signal heads must not fracture or deflect more than half the lens diameter when tested under □alifornia Test □□□.

The plastic signal heads must not fracture or deflect when tested under □alifornia Test □0□.

The deflection must not be more than 10 degrees in either the vertical or hori□ontal plane after the wind load has been removed from the front of the signal face or more than □ degrees in either the vertical or hori□ontal plane after the wind load has been removed from the bac□ of the signal face.

### 86-1.02R(2) Signal Mounting Assemblies

Signal mounting assembly must include:

1. 1□1□2□inch□diameter steel pipe or galvani□ed conduit
2. □ipe fitting made of ductile iron, galvani□ed steel, bron□e, or aluminum alloy, Type A□□□□□, no. □□0
□. Mast arm and post□top slip fitters and terminal compartments made of cast bron□e or hot□dip galvani□ed ductile iron

The hori□ontal distance between the vertical centerlines of the terminal compartment or slip fitter and of each signal face must not e□ceed 11 inches e□cept where required for proper signal face alignment or to allow programming of programmed visibility signal sections.

The mounting assembly must be watertight and free of sharp edges or protrusions that might damage conductor insulation. The assembly must have positive□loc□ing serrated fittings that prevent signal faces from rotating when the fittings are mated with similar fittings on the faces.

□ach terminal compartment must be fitted with a terminal bloc□ having a minimum of 12 positions, each with 2 screw□type terminals. □ach terminal must accommodate at least five no. 1□ conductors. The terminal compartment must have a cover for easy access to the terminal bloc□.

### 86-1.02R(3) Backplates

The bac□plate material must be a homogeneous blac□ color with a lusterless finish.

A metal bac□plate must be made of a minimum 1□1□□inch□thic□□001□1□ aluminum.

A plastic bac□plate must have a minimum thic□ness of 1□1□ inch and be formed from sheet plastic or assembled from e□truded, molded, or cast plastic sections. Sections must be factory □oined using one of the following:

1. Appropriate solvent cement.
2. Aluminum rivets and washers painted or permanently colored to match the bac□plate.
□. □o. 10 machine screws with flat washers, loc□ washers, and nuts painted to match the bac□plate.

□ach plastic bac□plate must be secured to the plastic signal face such that it resists removal or permanent deformation.

### 86-1.02R(4) Signal Faces

Signal face consists of signal sections with signal housings, L□D modules, and visors.

Signal face must:

1. □e ad□ustable and allow for □□0□degree rotation about the vertical a□is
2. □omply with IT□ publications ST□0□2□□, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement* and ST□0□□, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement*
□. □e sealed with a neoprene gas□et at the top opening

A metal signal face must have a metal bac□plate and visor.

A plastic signal face must have a plastic bac□plate and visor.

If a signal face is supported by a Type MAS slip fitter, spacers are required between the 2 sections. The spacers must be made of the same material as the housing. The vertical dimension of the spacers must allow proper seating of the serrations between the slip fitter and the 2 sections. The 2 sections must be □oined with at least two no. 10 minimum machine screws through holes near the front of the housing and the spacers and matching holes in a reinforcing plate installed in the housing.

**86-1.02R(4)(a) Signal Sections**

**86-1.02R(4)(a)(i) General**

Signal section must have:

1 Opening at the top and bottom for a 1□1□2□inch pipe
2. Ma□imum height of 10□1□□ inches for an □□inch section and 1□□□□□ inches for a 12□inch section
□. □inge pins, door□latching devices, and other e□posed hardware manufactured of Type □0□□□0□L or □0□stainless steel
□. Interior screws and fittings manufactured of stainless steel or steel with a corrosion□resistant plating or coating
□. □as□ets made of a material that is not degraded if installed in a section with metal or plastic housing

Sections must be capable of being □oined together to form a signal face in any combination. This interchangeability is not required between metal and plastic sections.

□ach section must be □oined to an ad□acent section by one of the following:

1. Minimum of □machine screws for □□inch sections and □machine screws for 12□inch sections, installed through holes near the front and bac□of the housing. □ach screw must be a no. 10 and have a nut, flat washer, and loc□washer.
2. 2 machine screws, each with a nut, flat washer, and loc□washer, installed through holes near the front of the housing and a fastener through the 1□1□2□inch pipe opening. The fastener must have 2 large, flat washers to distribute the load around the pipe□s opening and □carriage bolts, each with a nut and loc□washer. The minimum screw si□e must be no. 10, and the carriage bolt si□e must be 1□□ inch.

The holes for the machine screws must be either cast or drilled during signal section fabrication. □ach hole must be surrounded by a minimum 1□□□inch□wide boss to allow contact between signal sections about the a□is of the hole.

A serrated nylon washer must be inserted between each plastic signal section and the metal mounting assembly. □ach serrated nylon washer must be from □1□□ to 1□□ inch thic□. The serrations must match those on the signal section and the mounting assembly.

**86-1.02R(4)(a)(ii) Programmed Visibility Signal Sections**

□rogrammed visibility signal section must have:

1. □ominal 12□inch□diameter circular or arrow indication
2. □ap visor
□. Ad□ustable connection that:
   □.1. □rovides incremental tilting from 0 to 10 degrees above or below the hori□ontal
   □.2. Maintains a common vertical a□is through couplers and mountings

The terminal connection must allow e□ternal ad□ustment about the mounting a□is in □□degree increments.

The visibility of each signal section must be capable of ad□ustment or programming within the section.

The ad□ustment for the section must be preset at □ degrees below the hori□ontal.

**86-1.02R(4)(a)(iii) Signal Housings**

The signal housing must:

1. □e die□cast aluminum, permanent mold□cast aluminum, or if specified, structural plastic
2. □omply with IT□ publications ST□0□2□□, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement* and ST□0□□, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement* if made of die□cast or permanent mold□cast aluminum
□. □ave a 1□piece, hinged, square□shaped door that is:
   □.1. Designed to allow access for replacement of modules without the use of tools
   □.2. Secured such that it remains closed during loading tests
□. □ave a watertight module or lens mounted in the door
□. □ave a terminal bloc□ attached to the bac□, with the terminals permanently labeled for conductors to facilitate field wiring

□ach housing must have reinforcement plates. Reinforcement plates must be either sheet aluminum, galvani□ed steel, or cast aluminum. □ach plate must have a minimum thic□ness of 0.11 inch and a hole concentric with a 1□1 □2□inch pipe□mounting hole in the housing. Reinforcement plates must be placed as specified in the following table:

**Reinforcement Plate Placement**

| Material | □lacement |
|---|---|
| Sheet aluminum | Inside and outside of housing |
| □alvani□ed steel | Inside of housing |
| □ast aluminum | Outside of housing |

Reinforcement plates placed outside of the housing must be finished to match the signal housing color and be designed to allow a proper serrated coupling between the signal face and the mounting hardware. A minimum of three no. 10 machine screws must be installed through holes in each plate and matching holes in the housing. □ach screw must have a round or binder head, a nut, and a loc□ washer.

A metal housing must have a metal visor.

□lastic housing must:

1. □e molded in a single piece or fabricated from 2 or more pieces □oined into a single piece
2. □e a blac□ color throughout, including the door, matching color no. 1□0□□, 2□0□□, or □□0□□ of □□D□ STD□□□□
□. □ave □□ stability
□. □e self□e□tinguishing

If reinforcing webs are used to connect the bac□ of the housing to the top, bottom, and sides of the ad□acent housing, reinforcement plates are not required.

The e□terior of the housing must be painted as specified in sections □□□□.0□ and □□.

**86-1.02R(4)(b) LED Signal Modules**

An L□D signal module must be on the Authori□ed Material List for L□D traffic signal modules.

An L□D signal module must comply with IT□ publications ST□0□2□□, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Circular Signal Supplement* and ST□0□□, *Vehicle Traffic Control Signal Heads: Light Emitting Diode (LED) Vehicle Arrow Traffic Signal Supplement*, e□cept:

1. Ma□imum module weight must be □ lb
2. Module must be a sealed unit with:

2.1. 2 color-coded conductors for the power connection except lane control modules must use 3 color-coded conductors
2.2. Printed circuit board that complies with TS, chapter 1, section 3
2.3. Lens that is:
2.3.1. Convex or flat with a smooth outer surface
2.3.2. Made of UV stabilized plastic or glass
2.4. 1-piece EPDM gasket
3. Module must include 12-foot-long conductors with attached quick-disconnect terminals
4. Identification must include:
4.1. Month and year of manufacture
4.2. 1-inch-diameter symbol of the module type with the module color written adjacent to the symbol in 0.50-inch-high letters
5. LED must be the ultra-bright type rated for 100,000 hours of continuous operation
6. Module must have an integral power supply

Individual LEDs must be wired such that a loss or failure of 1 LED will not result in a loss of more than 3 percent of the module's light output. Failure of an individual LED in a string must not result in a loss of an entire string or other indication.

The symbol for a 12-inch 3-section must be a 11.1-inch-wide inverted *U* with an arrow on the left end.

A lane control section must be a combination module with a red *X* and green arrow. The conductor function and color code must be as shown in the following table:

**Conductor Function and Color Code**

| Function | Color |
|---|---|
| Neutral | White |
| Red *X* | Red |
| Green arrow | Brown |

The minimum power consumption for an LED signal module must be 3 W.

The maximum power consumption for an LED signal module must be as shown in the following table:

**Maximum Power Consumption**

| LED signal module type | Power consumption (W) | | | | | |
|---|---|---|---|---|---|---|
| | Red | | Yellow | | Green | |
| | 25 °C | 74 °C | 25 °C | 74 °C | 25 °C | 74 °C |
| 8-inch circular | 9 | 15 | 15 | 15 | 12 | 12 |
| 12-inch circular | 11 | 15 | 22 | 25 | 15 | 15 |
| 12-inch arrow | 9 | 12 | 10 | 12 | 11 | 11 |
| 12-inch 3-turn | 9 | 12 | 10 | 12 | 11 | 11 |
| Bicycle | 11 | 15 | 22 | 25 | 15 | 15 |
| Programmed visibility | 11 | 15 | 22 | 25 | 15 | 15 |
| Lane control (*X*) | 9 | 12 | [illegible] | [illegible] | [illegible] | [illegible] |
| Lane control (*Arrow*) | [illegible] | [illegible] | [illegible] | [illegible] | 11 | 11 |

Red and green LED signal modules operating over a temperature range from 30 to 74 degrees 3 and yellow LED signal modules operating at 25 degrees 3 must maintain the minimum illumination values for 36 months as shown in the following tables:

**Minimum Maintained Intensities for Circular Indications**

| Angle (v,h) | Intensities (cd) | | | | | |
|---|---|---|---|---|---|---|
| | 8 inch | | | 12 inch | | |
| | Red | Yellow | Green | Red | Yellow | Green |
| 2.5, 2.5 | 1000 | 2000 | 2000 | 3000 | 6000 | 6000 |
| 2.5, 5.0 | 700 | 1400 | 1400 | 2100 | 4201 | 4201 |
| 2.5, 7.5 | 500 | 1100 | 1100 | 1500 | 3301 | 3301 |
| 2.5, 10.0 | 200 | 400 | 400 | 600 | 1200 | 1200 |
| 5.0, 2.5 | 1010 | 2020 | 2020 | 3030 | 6060 | 6060 |
| 5.0, 5.0 | 700 | 1400 | 1400 | 2100 | 4201 | 4201 |
| 5.0, 7.5 | 500 | 1100 | 1100 | 1500 | 3301 | 3301 |
| 5.0, 10.0 | 200 | 400 | 400 | 600 | 1200 | 1200 |
| 7.5, 2.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 7.5, 5.0 | 100 | 200 | 200 | 300 | 600 | 600 |
| 7.5, 7.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 7.5, 10.0 | 100 | 200 | 200 | 300 | 600 | 600 |
| 10.0, 2.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 10.0, 5.0 | 100 | 200 | 200 | 300 | 600 | 600 |
| 10.0, 7.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 10.0, 10.0 | 100 | 200 | 200 | 300 | 600 | 600 |
| 12.5, 2.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 12.5, 5.0 | 100 | 200 | 200 | 300 | 600 | 600 |
| 12.5, 7.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 12.5, 10.0 | 100 | 200 | 200 | 300 | 600 | 600 |
| 15.0, 2.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 15.0, 5.0 | 100 | 200 | 200 | 300 | 600 | 600 |
| 15.0, 7.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 15.0, 10.0 | 100 | 200 | 200 | 300 | 600 | 600 |
| 17.5, 2.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 17.5, 5.0 | 100 | 200 | 200 | 300 | 600 | 600 |
| 17.5, 7.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 17.5, 10.0 | 100 | 200 | 200 | 300 | 600 | 600 |
| 20.0, 2.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 20.0, 5.0 | 100 | 200 | 200 | 300 | 600 | 600 |
| 20.0, 7.5 | 100 | 200 | 200 | 300 | 600 | 600 |
| 20.0, 10.0 | 100 | 200 | 200 | 300 | 600 | 600 |

**Minimum Maintained Luminance for Indications**

| Indication type | Luminance (fL) | | |
|---|---|---|---|
| | Red | Yellow | Green |
| Arrow | 1,510 | 3,210 | 3,210 |
| Left turn | 1,510 | 3,210 | 3,210 |
| Bicycle | 1,510 | 1,510 | 1,510 |
| Lane control (X) | 1,510 | 0 | 0 |
| Lane control (Arrow) | 0 | 0 | 1,510 |

**Minimum Maintained Luminance for Programmed Visibility Indications**

| Indication type | Luminance (cd) | | |
|---|---|---|---|
| | Red | Yellow | Green |
| 0 at angle v 2.5, h ±2.5 | 151 | 151 | 151 |

Conductors must be prewired to the terminal block.

**86-1.02R(4)(c) Visors and Directional Louvers**

The visor must be a tunnel type.

The visor must have a downward tilt from 5 to 5 degrees with a minimum length of 10 12 inches for nominal 12 inch round lenses and 8 inches for nominal 8 inch round lenses.

A metal visor must be formed from minimum 0.080 inch thick aluminum alloy sheet.

A plastic visor must be either formed from sheet plastic or blow molded. The plastic must be a black homogeneous color with a lusterless finish. A visor must withstand a wind load applied to its side for 2

hours without permanent deformation or removal from its door when tested under □alifornia Test □0□ for plastic visors and □alifornia Test □□□ for metal visors.

If directional louvers are used, the louvers must fit into full□circular signal visors. Louvers must consist of one of the following:

1. Outside cylinder constructed of sheet steel with a minimum nominal thic□ness of 0.0□0 inch and vanes constructed of sheet steel with a minimum nominal thic□ness of 0.01□ inch.
2. Outside cylinder and vanes constructed of □0□2□□ □2 aluminum alloy of equal thic□ness.

### 86-1.02S Pedestrian Signal Heads

#### 86-1.02S(1) General

A pedestrian signal head consists of a pedestrian signal mounting assembly and a pedestrian signal face comprising of a pedestrian signal housing, an L□D countdown pedestrian signal face module, and a front screen.

#### 86-1.02S(2) Pedestrian Signal Mounting Assemblies

A pedestrian signal mounting assembly must comply with the specifications for a signal mounting assembly in section □□□1.02R, e□cept mast arm slip fitters are not required.

#### 86-1.02S(3) Pedestrian Signal Faces

#### 86-1.02S(3)(a) General

□ach pedestrian signal face must include a light□duty terminal bloc□ rated at □A and have 12 positions with no. □□by□1 □□□inch binder head screws. □ach position must have 1 screw□type terminal.

The wiring and terminal bloc□ must comply with IT□ publication ST□0□□□□, *Pedestrian Traffic Control Signal Indicators: Light Emitting Diode (LED) Signal Modules*.

#### 86-1.02S(3)(b) Pedestrian Signal Housings

□edestrian signal housing must comply with the specifications for a signal housing in □□□1.02R□□□a□iii□, e□cept the ma□imum overall dimensions must be 1□□1□2 inches wide, 1□ inches high, and 11□1□2 inches deep and without:

1. □isor
2. Watertight module or lens mounted in the door
3. Reinforcement plates

The housing must have a terminal bloc□ attached to the bac□. The terminal bloc□ must have enough positions to accommodate all indications. □ach position must be permanently labeled for the indications used.

#### 86-1.02S(3)(c) LED Countdown Pedestrian Signal Face Modules

An L□D countdown □S□ module must comply with IT□ publication ST□0□□□□, *Pedestrian Traffic Control Signal Indicators: Light Emitting Diode (LED) Signal Modules*, e□cept the material must comply with ASTM D□□□□ and the module must have:

1. □ltra□bright□type L□D rated for 100,000 hours of continuous operation.
2. Lot number and month and year of manufacture permanently mar□ed on the bac□ of the module
3. □rominent and permanent vertical mar□ings for accurate inde□ing and orientation within the pedestrian signal housing if a specific mounting orientation is required. Mar□ings must be a minimum of 1 inch in height and include an up arrow and the word *up* or *top.*
4. □ircuit board complying with T□□S, chapter 1, section □.

Individual L□Ds must be wired such that a loss or failure of 1 L□D will not result in a loss of more than □ percent of the module□s light output. □ailure of an individual L□D in a string must not result in a loss of an entire string or other indication.

□ach symbol must be at least □ inches high and □□1□□ inches wide. The 2□digit countdown timer, *Upraised Hand*, and *Walking Person* indications must be electronically isolated from each other. The □ indications must not share a power supply or interconnect circuitry.

The module must operate over the specified ambient temperature and voltage range and be readable both day and night at distances up to the full width of the area to be crossed. □pon initial testing at 2□ degrees □, the module must have at least the luminance values shown in the following table:

**Luminance Values**

| □S□ module symbol | Luminance |
|---|---|
| □praised hand and 2□ digit countdown timer □fL□ | 1,0□□ |
| Wal□ing person □fL□ | 1,□□□ |

The module must not e□ceed the power consumption requirements shown in the following table:

**Maximum Power Consumption Requirements**

| □S□ module display | At 2□ □□ | At □□ □□ |
|---|---|---|
| *Upraised Hand* | 10.0 W | 12.0 W |
| *Walking Person* | □.0 W | 12.0 W |
| 2□digit countdown timer | □.0 W | □.0 W |

### 86-1.02S(3)(d) Front Screen

□edestrian signal face must have a front screen that is one of the following types:

1. □□□inch□thic□aluminum honeycomb screen with 0.2□inch□wide cells or a 1□2□inch□thic□plastic screen with □□□inch□wide squares with 1□1□□inch wall thic□ness that:
   1.1. Is installed so it tilts downward at an angle of 1□ □2 degrees from the top and completely covers the message plate.
   1.2. Includes a clear front cover made of either a minimum 1□□inch□thic□acrylic plastic sheet or a minimum 1□1□□inch□thic□polycarbonate plastic.
   1.□. Is held firmly in place, including the cover, with stainless steel or aluminum clips or stainless steel metal screws.
2. □olycarbonate screen that:
   2.1. □as a nominal thic□ness of 1□□2 inch.
   2.2. Is a 1□1□2□inch□deep eggcrate or □□crate type.
   2.□. Is mounted in a frame constructed of aluminum alloy or polycarbonate with a minimum thic□ness of 0.0□0 inch.
   2.□. Is held in place with stainless steel screws.

The screen and frame of a pedestrian signal face must be made of either □1□plastic that is a flat blac□ color or □2□anodi□ed aluminum that is a flat blac□ color or finished with lusterless, blac□, e□terior□grade late□ paint formulated for application to metal surfaces.

### 86-1.02T Accessible Pedestrian Signals

Accessible pedestrian signal must comply with the *California MUTCD*, chapter □□, and have:

1. Audible speech message that plays when the push button is actuated. The message must include the name of the street to be crossed. The accessible pedestrian signal must have at least □ audible message options.
2. □ush button locator tone that clic□s or beeps.
□. □eature that activates the pedestrian phase during a failure of the audible message, locator tone, or vibrotactile device.

An accessible pedestrian signal must function with the Department□furnished Model 1□0□□20□0□ controller assembly.

□o part of the accessible pedestrian signal must be installed inside the controller cabinet.
□ower for the accessible pedestrian signal must be from the pedestrian signal housing terminal bloc□.

The housing for the signal assembly must be made of corrosion□resistant material. Theft□proof bolts used for mounting the housing to the standard must be stainless steel with a content of 1□ percent chromium and □ percent nic□el. The housing must be shaped to fit the pole□s curvature.

The color of a metallic housing must match color no. □□□□□ of □□D□STD□□□□.

The color of a plastic housing must match color no. 1□0□□, 2□0□□, or □□0□□ of □□D□STD□□□□.

Accessible pedestrian signal must:

1. □ave electronic switches, a potentiometer, or an access port for a device for controlling and programming the volume level and messaging
2. □e weatherproof and shoc□proof

□nclosure for the accessible pedestrian signal must:

1. Weigh less than □ lb
2. Measure less than 1□ by □ by □ inches
3. □ave a wiring hole with a diameter not e□ceeding 1□1□□ inches
4. □ave a switch for a push button
5. □ave a vibrotactile device on the push button or on the arrow
6. □ave an internal weatherproof spea□er and microphone that senses the ambient sound level

The separation between ad□acent holes used for conductors and mounting must be at least twice the diameter of the larger hole.

The spea□er grills must be located on the surface of the enclosure. The spea□ers must not interfere with the housing or its mounting hardware.

The conductor cable between the accessible pedestrian signal assembly and the pedestrian signal head must be a □ no. 20 conductor cable complying with MIL□W□1□□□□D.

**86-1.02U Push Button Assemblies**

The housing for a push button assembly must be made of die□cast aluminum, permanent mold□cast aluminum, or □□□stabili□ed self□e□tinguishing structural plastic. The plastic housing must have a color throughout that matches color no. 1□0□□, 2□0□□, or □□0□□ of □□D□STD□□□□.

If the push button is to be attached to a pole, the housing must be shaped to fit the pole□s curvature.

The assembly must be waterproof and shoc□proof.

The push button□s switch must be a single□pole, double□throw switching unit with screw□type terminals rated 1□A at 12□ □□ac□.

Switch for the push button must have:

1. □lunger actuator and a □ frame to allow recessed mounting in the push button housing
2. Operating force of □.□ lb
3. Ma□imum pretravel of □□□□ inch
4. Minimum overtravel of 1□□2 inch
5. Differential travel from 0.002 to 0.0□ inch
6. Minimum 2□inch diameter actuator

**86-1.02V Reserved**

**86-1.02W Loop Detector Sealants**

**86-1.02W(1) General**

Sealant for filling loop detector slots must be one of the following:

1. Asphaltic emulsion
2. □lastomeric sealant
3. □po□y sealant for inductive loops
4. □ot□melt rubberi□ed asphalt

**86-1.02W(2) Asphaltic Emulsion Sealant**

Asphaltic emulsion sealant must comply with the State Specification □0□0□□1A□1□.

### 86-1.02W(3) Elastomeric Sealant

□lastomeric sealant must be a polyurethane material that cures only in the presence of moisture if used within the stated shelf life. The sealant must be suitable for use in both asphalt concrete and concrete pavement.

The cured elastomeric sealant must comply with the requirements shown in the following table:

**Cured Elastomeric Sealant Requirements**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □ardness | ASTM D22□0[a] | □□–□□ |
| Tensile strength □min, M□a□ | ASTM D□12[b] | □.□□ |
| □longation □min, □ □ | | □00 |
| □le□at □□0 □□[c] | □□ | □o crac□s |
| Weathering resistance | ASTM D□22[d] | Slight chal□ing |
| Salt spray resistance: | ASTM □11□[e] | |
| Tensile strength □min, M□a□ | | □.□□ |
| □longation □min, □ □ | | □00 |
| Dielectric constant □□ □ | ASTM D1□0[f] | □2□ |

[a]Indentation at 2□ □□ and □0□ relative humidity □Re□. Type A, Model 1□00 only□
[b]Die □ pulled at □0□ mm□minute
[c]0.□□mm free film bend □1□0□□over 1□□mm mandrel
[d]Weatherometer □□0 h, cured □days at 2□ □□ and □0□ relative humidity
[e]2□days at □□ □□ with □□ □a□l, Die □, and pulled at □0□mm□minute□
[f]□hange over a temperature range from □□0 to □0 □□

### 86-1.02W(4) Hot-Melt Rubberized Asphalt Sealant

□ot□melt rubberi□ed asphalt sealant must:

1. □e in solid form at room temperature and fluid at an application temperature range from 1□0 to 20□ degrees □
2. □ot produce to□ic fumes
□. □e suitable for use in both asphalt concrete and concrete pavement
□. □e pac□aged in containers clearly mar□ed *Detector Loop Sealant* with the manufacturer□s batch and lot number.

The cured hot□melt rubberi□ed asphalt sealant must comply with the requirements shown in the following table:

**Cured Hot-Melt Rubberized Asphalt Sealant Requirements**

| □uality characteristic | Test method | Requirement |
|---|---|---|
| □one penetration □ma□, 1□10 mm□ | ASTM D□□2□, sec. □[a] | □□ |
| □low □ma□, mm□ | ASTM D□□2□, sec. □[b] | □ |
| Resilience □min, □ □ | ASTM D□□2□, sec. 12[c] | 2□ |
| Softening point □min, □□□ | ASTM D□□ | □2 |
| Ductility □min, cm□ | ASTM D11□[d] | □0 |
| □lash point, □leveland Open □up □min, □□□ | ASTM D□2 | 2□□ |
| □iscosity □□a□s□ | ASTM D□□02[e] | 2.□–□.□ |

[a]At 2□ □□, 1□0 g, □s
[b]At □0 □□
[c]At 2□ □□
[d]At 2□ □□, □cm□minute
[e]□roo□field Thermosel, no. 2□spindle, 20 rpm, 1□0 □□

### 86-1.02X Reserved

### 86-1.02Y Transformers

A transformer must be single□phase and may be a nonsubmersible or submersible type.

A transformer must be a dry type designed for operation on a □0 □□supply. The transformer must have a decal showing a connection diagram. The diagram must show either color coding or wire tagging with primary □□1, □2□or secondary □□1, □2□mar□ers and the primary and secondary voltage and volt□ampere rating. A transformer must comply with the electrical requirements shown in the following table:

**Transformer Electrical Requirements**

| □uality characteristic | Requirement |
|---|---|
| Rating □□□ac□□ | 120□□□0, 120□2□0, 2□0□□□0, or □□0□120 |
| □fficiency □□ □ | □ □□ |
| Secondary voltage regulation and tolerance from half load to full load □□ □ | □□ |

Secondary 2□0 and □□0 □□ac□windings must be center tapped.

The transformer must withstand the application of 2,200 □□ac□from core to coils and from coil to coil for a 1□minute period when tested immediately after operation of the transformer at full load for 2□ hours.

The e□ternal leads for the secondary connections must be no. 10 Type □S□ rated for □00 □□ac□.

The transformer□s leads must e□tend a minimum of 12 inches from the case.

The transformer□s insulation must be □□MA 1□□ □ or better.

□ach transformer must:

1. Include metal half□shell coil protection.
2. □ave moisture□resistant, synthetic□varnish□impregnated windings.
□. □e waterproof and suitable for outdoor operation.

□ach submersible transformer must:

1. Include a handle and a hanger.
2. □e securely encased in a rugged, corrosion□resistant, watertight case.
□. □ave leads that e□tend out through 1 or more sealed hubs.
□. □e manufactured to withstand a □□day test with 12□hour on and off periods submerged in 2 feet of salt water that is 2 percent salt by weight. The operating periods must be at full load.

### 86-1.02Z Batteries

□attery must:

1. □e deep□cycle, sealed, prismatic, lead□calcium□based, absorbed□glass□mat, valve□regulated, lead□acid type
2. □e rated for 12 □
□. □e rated for a temperature range from □2□ to □0 degrees □
□. □e group si□e 2□
□. □e commercially available and stoc□ed locally
□. □e mar□ed with a date code, ma□imum recharge data, and recharge cycles
□. □e new and fully charged when furnished
□. □e free from damage or deformities
□. □ave a carrying handle
10. □ave 2 top□mounted, threaded□stud posts that include all washers and nuts
11. Include insulating rubber covers for protecting the lugs, posts, and wiring: red for the positive terminal and blac□for the negative terminal

If a battery is used for a battery bac□up system, it must accommodate □□□inch ring lugs of a Department□ furnished battery harness.

### 86-1.03 CONSTRUCTION

□ot □sed

**86-1.04 PAYMENT**

□ot □sed

**Replace section 87 with:**



# 87 ELECTRICAL SYSTEMS

0□□1 □□1 □

## 87-1 GENERAL

### 87-1.01 GENERAL

### 87-1.01A Summary

Section □□ includes general specifications for constructing and installing electrical systems.

The Department deducts the cost for maintenance performed by the Department on new or portions of e□isting systems modified under the □ontract.

### 87-1.01B Definitions

Reserved

### 87-1.01C Submittals

Reserved

### 87-1.01D Quality Assurance

#### 87-1.01D(1) General

Reserved

#### 87-1.01D(2) Quality Control

□efore shipping the material to the □ob site, submit to M□TS test samples of:

1. Accessible pedestrian signals
2. L□D countdown pedestrian signal face modules
□. L□D signal modules
□. L□D luminaires

Submit a sample si□e as shown in the following table:

**Electrical Material Sampling**

| □ontract quantity | Test sample si□e |
|---|---|
| 1–□ | 1 |
| □–1□ | 2 |
| 1□–2□ | □ |
| 2□–□0 | □ |
| □1–1□0 | □ |
| 1□1–2□0 | 1□ |
| 2□1–□00 | 20 |
| □01–1200 | □2 |

□efore starting operation of an electrical system, perform a conductor test in the presence of the □ngineer.

□onductor test consists of testing each conductor and the conductors in cables for:

1. □ontinuity.
2. □rounds.
□. Insulation resistance at □00 □□dc□between the circuit and ground. The insulation resistance must be a minimum of 10 MΩ on circuits, e□cept it must be a minimum of 100 MΩ for inductive loop detector circuits.

Start the operational test of the system on any day e□cept □riday or the day before a holiday. The operational test for signals must start from □:00 a.m. to 2:00 p.m. □otify the □ngineer □□ hours before starting the test.

An operational test consists of a minimum of □ business days of continuous, satisfactory operation of the system. If the system fails, correct the problem and retest the system. A shutdown of the system caused by traffic, a power interruption, or unsatisfactory performance of Department□furnished materials does not constitute discontinuity of the test.

### 87-1.02 MATERIALS

□ot □sed

### 87-1.03 CONSTRUCTION

#### 87-1.03A General

The □ngineer determines the final locations of electrical systems.

□erify the locations of electrical systems and the depths of e□isting detectors, conduits, and pull bo□es.

□otify the □ngineer before performing wor□on the e□isting system.

□ou may shut down the system for alteration or removal.

Where an e□isting Department underground facility is shown within 10 feet of any e□cavation, locate and field mar□the facility before performing wor□that could damage or interfere with the e□isting facility.

If an e□isting facility is within 2 feet of an e□cavation, determine the e□act location of the facility by e□cavating with hand tools before using any power□operated or power□driven e□cavating or boring equipment. A vacuum e□cavator may be used if authori□ed.

□otify the □ngineer immediately if an e□isting facility is damaged by your activities.

If e□isting underground conduit is to be incorporated into a new system, clean it with a mandrel or cylindrical wire brush and blow it clean with compressed air.

Limit the shutdown of traffic signal systems to normal wor□ing hours. □otify the local traffic enforcement agency before shutting down the signal.

□lace temporary W□□1 and R1□1 signs in each direction to direct traffic through the intersection during shutdown of the signal. □lace two R1□1 signs for 2□lane approaches. The signs must comply with part 2 of the *California MUTCD*.

□over signal faces when the system is shut down overnight. □over temporary W□□1 and R1□1 signs when the system is turned on.

If you wor□on an e□isting lighting system and the roadway is to remain open to traffic, ensure the system is in operation by nightfall.

Replace detectors you damage within □2 hours, or the Department replaces them and deducts the cost.

Wor□performed on an e□isting system not described is change order wor□.

Do not use electrical power from e□isting highway facilities unless authori□ed.

Maintain a minimum □□□inch clearance for a pedestrian pathway when placing equipment.

□□cept for service installation or wor□on service equipment enclosures, do not wor□above ground until all materials are on hand to complete the electrical wor□at each location.

□ond all metal components to form a continuous grounded system as specified in NEC .

□round metallic equipment mounted less than 8 feet above the ground surface on a wood pole.

If you damage any portion of a concrete curb, sidewal□, curb ramp, driveway, or gutter depression, replace the entire section between contraction or e□pansion □oints under section 73.

Apply equipment identification characters.

Orient louvers, visors, and signal faces such that they are clearly visible to approaching traffic from the direction being controlled.

Test loops and the detector lead□in cable circuit for continuity, ground, and insulation resistance at the controller cabinet before connecting detector lead□in cable to the terminal bloc□.

□erform an operational test of the systems.

□efore starting the operational test for systems that impact traffic, the system must be ready for operation, and all signs, pavement delineation, and pavement mar□ings must be in place at that location.

### 87-1.03B Conduit Installation

#### 87-1.03B(1) General

The installation of conduit includes installing caps, bushings, and pull tape and terminating the conduit in pull bo□es, foundations, poles, or a structure.

Limit the number of bends in a conduit run to no more than 360 degrees between pull points.

□se conduit to enclose conductors e□cept where they are installed overhead or inside standards or posts.

□ou may use a larger si□e conduit than specified for the entire length between termination points. Do not use a reducing coupling.

□□tend an e□isting conduit using the same material. Terminate conduits of different materials in a pull bo□.

Install 2 conduits between a controller cabinet and the ad□acent pull bo□.

□se a minimum trade si□e of conduit of:

1. 1-1□2 inches from an electrolier to the ad□acent pull bo□
2. 1 inch from a pedestrian push button post to the ad□acent pull bo□
3. 2 inches from a signal standard to the ad□acent pull bo□
4. 3 inches from a controller cabinet to the ad□acent pull bo□
5. 2 inches from an overhead sign to the ad□acent pull bo□
6. 2 inches from a service equipment enclosure to the ad□acent pull bo□
7. 1-1□2 inches if unspecified

□se Type 1 conduit:

1. On all e□posed surfaces
2. In concrete structures
3. □etween a structure and the nearest pull bo□

Ream the ends of shop□cut and field□cut conduit to remove burrs and rough edges. Ma□e the cuts square and true. Do not use slip □oints and running threads to couple conduit. If a standard coupling cannot be used for metal□type conduit, use a threaded union coupling. Tighten the couplings for metal conduit to maintain a good electrical connection.

□ap the ends of conduit to prevent debris from entering before installing the conductors or cables. □se a plastic cap for Type 1, 2, and 5 conduits and a standard pipe cap for all other types of conduit.

□or Type 1, 2, and 5 conduits, use threaded bushings and bond them using a □umper. □or other types of conduit, use nonmetallic bushings.

Do not install new conduit through foundations.

□ut Type 2 conduit with pipe cutters; do not use hac□saws. □se standard conduit□threading dies for threading conduit. Tighten conduit into couplings or fittings using strap wrenches or approved groove □oint pliers.

□ut Type 3 conduit with tools that do not deform the conduit. □se a solvent weld for connections.

□rotect shop□cut threads from corrosion under the standards shown in the following table:

**Shop-Cut Thread Corrosion Protection**

| □onduit | Standard |
|---|---|
| Types 1 and 2 | A□SI C□0.1 |
| Type 5 | A□SI C□0.6 |

Apply 2 coats of unthinned, organic □inc□rich primer to metal conduit before painting. □se a primer on the Authori□ed Material List for organic □inc□rich primers. Do not use aerosol cans. Do not remove shop-installed conduit couplings.

□or conduits, paint:

1. All e□posed threads
2. □ield□cut threads, before installing conduit couplings to metal conduit
3. Damaged surfaces on metal conduit

If a Type 2 conduit or conduit coupling coating is damaged:

1. □lean the conduit or fitting and paint it with 1 coat of rubber□resin□based adhesive under the manufacturer□s instructions
2. Wrap the damaged coating with at least 1 layer of 2□inch□wide, 20 mils□minimum□thic□ness, PVC tape under ASTM D1000 with a minimum tape overlap of 1□2 inch

□ou may repair damaged spots of 1/ □inch or less in diameter in the thermoplastic coating by painting with a brushing□type compound supplied by the conduit manufacturer.

If factory bends are not used, bend the conduit to a radius no less than 6 times its inside diameter without crimping or flattening it. □omply with the bending requirements shown in the following table:

**Conduit-Bending Requirements**

| Type | Requirement |
|---|---|
| 1 | □se equipment and methods under the conduit manufacturer□s instructions. |
| 2 | □se a standard bending tool designed for use on thermoplastic□coated conduit. The conduit must be free of burrs and pits. |
| 3 | □se equipment and methods under the conduit manufacturer□s instructions. Do not e□pose the conduit to a direct flame. |
| 5 | □se equipment and methods under the conduit manufacturer□s instructions. |

Install pull tape with at least 2 feet of slac□in each end of the conduit that will remain empty. Attach the tape□s ends to the conduit.

Install conduit terminating in a standard or pedestal from 2 to 3 inches above the foundation. Slope the conduit toward the handhole opening.

Terminate conduit installed through the bottom of a nonmetallic pull bo□2 inches above the bottom and 2 inches from the wall closest to the direction of the run.

### 87-1.03B(2) Conduit Installation for Structures

### 87-1.03B(2)(a) General

□aint e□posed Type 1 conduit the same color as the structure.

Install galvani□ed steel hangers, steel brac□ets, and other fittings to support conduit in or on a wall or bridge.

### 87-1.03B(2)(b) New Structures

Seal and ma□e watertight the conduits which lead to soffits, wall□mounted luminaires, other lights, and fi□tures located below the pull bo□ grade.

If you place a conduit through the side of a nonmetallic pull bo□, terminate the conduit 2 inches from the wall and 2 inches above the bottom. Slope the conduit toward the top of the bo□ to facilitate pulling conductors.

□or ease of installation and if authori□ed, you may use Type □ conduit instead of Type 1 conduit for the final 2 feet of conduit entering a pull bo□ in a reinforced concrete structure.

Install an e□pansion fitting where a conduit crosses an e□pansion □oint in a structure. □ach e□pansion fitting for metal conduit must include a copper bonding □umper having the ampacity as specified in □□□.

Install an e□pansion□deflection fitting for an e□pansion □oint with a 1□1□2□inch movement rating. The fitting must be watertight and include a molded neoprene sleeve, a bonding □umper, and 2 silicon bron□e or □inc□plated iron hubs.

□or an e□pansion □oint with a movement rating greater than 1□1□2 inches, install the e□pansion□deflection fitting as shown.

□or conduit installed inside of bridge structures, you must:

1. Install precast concrete cradles made of minor concrete and commercial□quality welded wire fabric. The minor concrete must contain a minimum of □□0 lb of cementitious material per cubic yard. The cradles must be moist cured for a minimum of □ days.
2. □ond precast concrete cradles to a wall or bridge superstructure with one of the following:
   2.1. □po□y adhesive for bonding freshly□mi□ed concrete to hardened concrete.
   2.2. Rapid□set epo□y adhesive for pavement mar□ers.
   2.□. Standard□set epo□y adhesive for pavement mar□ers.
□. □se a pipe sleeve or form an opening for a conduit through a bridge superstructure. The sleeve or opening through a prestressed member or conventionally reinforced precast member must be:
   □.1. Oriented transverse to the member.
   □.2. Located through the web.
   □.□. □o more than □ inches in si□e.
□. Wrap the conduit with 2 layers of asphalt felt building paper and securely tape or wire the paper in place for a conduit passing through a bridge abutment wall. □ill the space around the conduit with mortar under section □1□1, e□cept the proportion of cementitious material to sand must be 1 to □. □ill the space around the conduits after prestressing is completed.

Thread and cap a conduit installed for future use in structures. Mar□ the location of the conduit□s end in a structure, curb, or wall directly above the conduit with a *Y* that is □ inches tall.

### 87-1.03B(2)(c) Existing Structures

Run surface□mounted conduit straight and true, hori□ontal or vertical on the wall, and parallel to walls on ceilings or similar surfaces. Support the conduit at a ma□imum of □□foot intervals where needed to prevent vibration or deflection. Support the conduit using galvani□ed, malleable□iron, conduit clamps, and clamp bac□s secured with e□pansion anchorage devices complying with section □□□.02□. □se the largest diameter of galvani□ed, threaded studs that will pass through the mounting hole in the conduit clamp.

### 87-1.03B(3) Conduit Installation Underground

### 87-1.03B(3)(a) General

Install conduit to a depth of:

1. 1□ inches for the trench□in□pavement method
2. 1□ inches, minimum, under sidewal□ and curbed paved median areas
□. □2 inches, minimum, below the bottom of the rail of railroad trac□s

4. 30 inches, minimum, everywhere else below grade

□lace conduit couplings at a minimum of 6 inches from the face of a foundation.

□lace a minimum of 2 inches of sand bedding in a trench before installing Type 2 or Type 3 conduit and 4 inches of sand bedding over the conduit before placing additional bac□fill material.

If installing conduit within the limits of ha□ardous locations as specified in NEC for □lass I, division 1, install and seal Type 1 or Type 2 conduit with e□plosion□proof sealing fittings.

### 87-1.03B(3)(b) Conduit Installation under Paved Surfaces

□ou may lay conduit on e□isting pavement within a new curbed median constructed on top.

Install conduit under e□isting pavement by the □ac□ing or drilling methods. □ou may use the trench□in-pavement method for either of the following conditions:

1. If conduit is to be installed behind the curb under the sidewal□
2. If the delay to vehicles will be less than 5 minutes

Do not use the trench□in□pavement method for conduit installations under freeway lanes or freeway□to-freeway connector ramps.

### 87-1.03B(3)(c) Reserved

### 87-1.03B(3)(d) Conduit Installation under Railroad Tracks

Install Type 1 or Type 2 conduit with a minimum diameter of 1-□2 inches under railroad trac□s. If you use the □ac□ing or drilling method to install the conduit, construct the □ac□ing pit a minimum of 13 feet from the trac□s □centerline at the near side of the pit. □over the □ac□ing pit with plan□ing if left overnight.

### 87-1.03B(4) Reserved

### 87-1.03B(5) Conduit Installation by the Jacking or Drilling Method

□eep the □ac□ing or drilling pit 2 feet away from the pavement□s edge. Do not wea□en the pavement or soften the subgrade with e□cessive use of water.

If an obstruction is encountered, obtain authori□ation to cut small holes in the pavement to locate or remove the obstruction.

□ou may install Type 2 or Type 3 conduit under the pavement if a hole larger than the conduit□s diameter is predrilled. The predrilled hole must be less than one and half the conduit□s diameter.

Remove the conduit used for drilling or □ac□ing and install new conduit for the completed wor□.

### 87-1.03B(6) Conduit Installation by the Trenching-In-Pavement Method

Install conduit by the trenching□in□pavement method using a trench appro□imately 2 inches wider than the conduit□s outside diameter but not e□ceeding 6 inches in width.

Where additional pavement is to be placed, you must complete the trenching before the final pavement layer is applied.

If the conduit shown is to be installed under the sidewal□, you may install it in the street within 3 feet of and parallel to the face of the curb. Install pull bo□es behind the curb.

□ut the trench using a roc□□cutting e□cavator. Minimi□e the shatter outside the removal area of the trench.

Dig the trench by hand to the required depth at pull bo□es.

□lace conduit in the trench.

□ac□fill the trench with minor concrete to the pavement□s surface by the end of each wor□ day. If the trench is in asphalt concrete pavement and no additional pavement is to be placed, bac□fill the top 0.10 foot of the trench with minor □MA within 3 days after trenching.

### 87-1.03C Installation of Pull Boxes

#### 87-1.03C(1) General

Install pull boxes no more than 200 feet apart.

You may install larger pull boxes than specified or shown and additional pull boxes to facilitate the work except in structures.

Install a pull box on a bed of crushed rock and grout it before installing conductors. The grout must be from 0.5 to 1 inch thick and sloped toward the drain hole. Place a layer of roofing paper between the grout and the crushed rock sump. Make a 1-inch drain hole through the grout at the center of the pull box.

Set the pull box such that the top is 1 to 1½ inches above the surrounding grade in unpaved areas and leveled with the finished grade in sidewalks and other paved areas.

Place the cover on the box when not working in it.

Grout around conduits that are installed through the sides of the pull box.

Bond and ground the metallic conduit before installing conductors and cables in the conduit.

Bond metallic conduits in a nonmetallic pull box using bonding bushings and bonding jumpers.

Do not install pull boxes in concrete pads, curb ramps, or driveways.

Reconstruct the sump of a pull box if disturbed by your activities. If the sump was grouted, remove and replace the grout.

#### 87-1.03C(2) Nontraffic Pull Boxes

If you bury a nontraffic pull box, set the box such that the top is 1 to 2 inches below the surrounding grade. Place a 20-mil-thick plastic sheet made of 100D or 200 virgin compounds to prevent water from entering the box.

Place mortar between a nontraffic pull box and a pull box extension.

Where a nontraffic pull box is in the vicinity of curb in an unpaved area, place the box adjacent to the back of the curb if practical.

Where a nontraffic pull box is adjacent to a post or standard, place the box within 1 feet upstream from traffic if practical.

If you replace the cover on a nontraffic pull box, anchor it to the box.

#### 87-1.03C(3) Traffic Pull Boxes

Place minor concrete around and under a traffic pull box.

Bolt the steel cover to the box when not working in it.

Bond the steel cover to the conduit with a jumper and bolt it down after installing the conductors and cables.

#### 87-1.03C(4) Structure Pull Boxes

Bond metallic conduit in a metal pull box in a structure using locknuts, inside and outside of the box, bonding bushings, and bonding jumpers connected to bonding wire running in the conduit system.

### 87-1.03D Reserved

### 87-1.03E Excavating and Backfilling for Electrical Systems

#### 87-1.03E(1) General

Notify the Engineer at least 72 hours before starting excavation activities.

Dispose of surplus excavated material.

Restrict closures for excavation on a street or highway to 1 lane at a time unless otherwise specified.

### 87-1.03E(2) Trenching

Dig a trench for the electrical conduits or direct burial cables. Do not e□cavate until the conduit or direct burial cable will be installed.

□lace e□cavated material in a location that will not interfere with traffic or surface drainage.

After placing the conduit or direct burial cable, bac□fill the trench with the e□cavated material. □ompact the bac□fill placed outside the hinge point of slopes and not under pavement to a minimum relative compaction of □0 percent.

□ompact the bac□fill placed within the hinge points and in areas where pavement is to be constructed to a minimum relative compaction of □□ percent.

Restore the sidewal□s, pavement, and landscaping at a location before starting e□cavation at another location.

### 87-1.03E(3) Concrete Pads, Foundations, and Pedestals

□onstruct foundations for standards, poles, metal pedestals, and posts under section □□□□.

□onstruct concrete pads, foundations, and pedestals for controller cabinets, telephone demarcation cabinets, and service equipment enclosures on firm ground.

Install anchor bolts using a template to provide proper spacing and alignment. Moisten the forms and ground before placing the concrete. □eep the forms in place until the concrete sets for at least 2□ hours to prevent damage to the surface.

□se minor concrete for pads, foundations, and pedestals.

In unpaved areas, place the top of the foundation □ inches above the surrounding grade, e□cept place the top:

1. 1 foot □ inches above the grade for Type M and □□□L cabinets
2. 1 foot □ inches above the grade for Type □ telephone demarcation cabinets
□. 2 inches above the grade for Type □ and Type A cabinets and Type III service equipment enclosures

The pad must be 2 inches above the surrounding grade.

In and ad□acent to the sidewal□ and other paved areas, place the top of the foundation □ inches above the surrounding grade, e□cept place the top:

1. 1 foot □ inches above the grade for Type M and □□□L cabinets
2. 1 foot □ inches above the grade for Type □ telephone demarcation cabinets
□. Level with the finished grade for Type □ and Type A cabinets and Type III service equipment enclosures

The pad must be level with the finished grade.

Apply an ordinary surface finish under section □1□1.0□□.

Allow the foundation to cure for at least □ days before installing any equipment.

### 87-1.03F Conductors and Cable Installations

### 87-1.03F(1) General

The installation of conductors and cables includes splicing conductors and attaching the terminals and connectors to the conductors.

□lean the conduit and pull all conductors and cables as a unit.

If new conductors or cables are to be added in an e□isting conduit:

1 Remove the content
2. □lean the conduit
□. □ull both old and new conductors and cables as a unit

Wrap conductors and secure cables to the end of the conduit in a pull bo□.

Seal the ends of conduits with a sealing compound after installing conductors or cables.

□eatly arrange conductors and cables inside pull bo□es and cabinets. Tie the conductors and cables together with self□clinching nylon cable ties or enclose them in a plastic tubing or raceway.

Identify conductors and cables by direct labeling, tags, or bands fastened in such a way that they will not move. □se mechanical methods for labeling.

□rovide band symbol identification on each conductor or each group of conductors comprising a signal phase in each pull bo□and near the end of terminated conductors.

Tape the ends of unused conductors and cables in pull bo□es to form a watertight seal.

Do not connect the push□button or accessible pedestrian signal neutral conductor to the signal neutral conductor.

**87-1.03F(2) Cables**

**87-1.03F(2)(a) General**

Reserved

**87-1.03F(2)(b) Reserved**

**87-1.03F(2)(c) Copper Cables**

**87-1.03F(2)(c)(i) General**

Reserved

**87-1.03F(2)(c)(ii) Detector Lead-in Cables**

Install a Type □ or □ detector lead□in cable in conduit.

Waterproof the ends of the lead□in cable before installing it in the conduit to prevent moisture from entering the cable.

Splice loop conductors for each direction of travel for the same phase, terminating in the same pull bo□, to a separate lead□in cable running from the pull bo□ad□acent to the loop detector to a sensor unit mounted in the controller cabinet. Install the lead□in cable without splices e□cept at the pull bo□.

□erify in the presence of the □ngineer that the loops are operational before ma□ing the final splices between loop conductors and the lead□in cable.

Identify and tag each lead□in cable with the detector designation at the cabinet and pull bo□ad□acent to the loops.

**87-1.03F(2)(c)(iii) Conductors Signal Cables**

Do not splice signal cables e□cept for a 2□□conductor cable.

□rovide identification at the ends of terminated conductors in a cable as shown.

□rovide identification for each cable in each pull bo□showing the signal standard to which it is connected e□cept for the 2□□conductor cable.

□onnect conductors in a 12□conductor cable as shown in the following table:

**12CSC Color Code and Functional Connection**

| □olor code | Termination | □hase |
|---|---|---|
| Red | Red signal | 2, □, □, or □ |
| □ellow | □ellow signal | 2, □, □, or □ |
| □rown | □reen signal | 2, □, □, or □ |
| Red□blac□stripe | Red signal | 1, □, □, or □ |
| □ellow□blac□stripe | □ellow signal | 1, □, □, or □ |
| □rown□blac□stripe | □reen signal | 1, □, □, or □ |
| □lac□□red stripe | Spare or as required for red or *DONT WALK* | □□ |
| □lac□□white stripe | Spare or as required for yellow | □□ |
| □lac□ | Spare or as required for green or *WALK* | □□ |
| Red□white stripe | □edestrian signal *DONT WALK* | □□ |
| □rown□white stripe | □edestrian signal *WALK* | □□ |
| White | Terminal bloc□ | □eutral |

□rovide identification for each 2□□conductor cable □1 or □2 in each pull bo□. The cable labeled *C1* must be used for signal phases 1, 2, □, and □. The cable labeled *C2* must be used for signal phases □, □, □, and □.

□onnect conductors in a 2□□conductor cable as shown in the following table:

**28CSC Color Code and Functional Connection**

| □olor code | Termination | □hase |
|---|---|---|
| Red□blac□stripe | Red signal | 2 or □ |
| □ellow□blac□stripe | □ellow signal | 2 or □ |
| □rown□blac□stripe | □reen signal | 2 or □ |
| Red□orange stripe | Red signal | □or □ |
| □ellow□orange stripe | □ellow signal | □or □ |
| □rown□orange stripe | □reen signal | □or □ |
| Red□silver stripe | Red signal | 1 or □ |
| □ellow□silver stripe | □ellow signal | 1 or □ |
| □rown□silver stripe | □reen signal | 1 or □ |
| Red□purple stripe | Red signal | □or □ |
| □ellow□purple stripe | □ellow signal | □or □ |
| □rown□purple stripe | □reen signal | □or □ |
| Red□2 blac□stripes | □edestrian signal *DONT WALK* | 2 or □ |
| □rown□2 blac□stripes | □edestrian signal *WALK* | 2 or □ |
| Red□2 orange stripes | □edestrian signal *DONT WALK* | □or □ |
| □rown□2 orange stripes | □edestrian signal *WALK* | □or □ |
| Red□2 silver stripes | Overlap A, □ | OLA[a], OL□[a] |
| □rown□2 silver stripes | Overlap A, □ | OLA[c], OL□[c] |
| Red□2 purple stripes | Overlap □, D | OL□[a], OLD[a] |
| □rown□2 purple stripes | Overlap □, D | OL□[c], OLD[c] |
| □lue□blac□stripe | □edestrian push button | 2 or □ |
| □lue□orange stripe | □edestrian push button | □or □ |
| □lue□silver stripe | Overlap A, □ | OLA[b], OL□[b] |
| □lue□purple stripe | Overlap □, D | OL□[b], OLD[b] |
| White□blac□stripe | □edestrian push button common | □□ |
| □lac□□red stripe | Railroad preemption | □□ |
| □lac□ | Spare | □□ |
| White | Terminal bloc□ | □eutral |

OL □Overlap; A, □, □, and D □Overlapping phase designation

[a] □or red phase designation

[b] □or yellow phase designation

[c] □or green phase designation

□se the neutral conductor only with the phases associated with that cable. Do not intermi□neutral conductors from different cables e□cept at the signal controller.

**87-1.03F(2)(c)(iv) Signal Interconnect Cable**

□or a signal interconnect cable, provide a minimum of □feet of slac□inside each controller cabinet.

Do not splice the cable unless authori□ed.

If splices are authori□ed, insulate the conductor splices with heat□shrin□tubing and overlap the insulation at least 0.□ inch. □over the splice area of the cable with heat□shrin□tubing and overlap the cable □ac□et at least 1□1□2 inches. □rovide a minimum of □feet of slac□at each splice.

**87-1.03F(3) Conductors**

**87-1.03F(3)(a) General**

Do not run conductors to a terminal bloc□on a standard unless they are to be connected to a signal head mounted on that standard.

□rovide □spare conductors in all conduits containing ramp metering and traffic signal conductors.

Install a separate conductor for each terminal of a push button assembly and accessible pedestrian signal.

□rovide conductor slac□ to comply with the requirements shown in the following table:

**Conductor Slack Requirements**

| Location | Slac□ □feet□ |
|---|---|
| Signal standard | 1 |
| Lighting standard | 1 |
| Signal and lighting standard | 1 |
| □ull bo□ | □ |
| Splice | □ |
| Standards with slip base | 0 |

**87-1.03F(3)(b) Reserved**

**87-1.03F(3)(c) Copper Conductors**

**87-1.03F(3)(c)(i) General**

Install a minimum no. □, insulated, grounding copper conductor in conduit and connect it to all□metal components.

Where conductors from different service points occupy the same conduit or standard, enclose the conductors from one of the services in fle□ible or rigid metal conduit.

**87-1.03F(3)(c)(ii) Inductive Loop Conductors**

Install a Type 1 or 2 inductive loop conductor e□cept use Type 2 for Type □ loop detectors.

Install the conductor without splices e□cept at the pull bo□.

**87-1.03F(4) Manual Installation Method**

□se an inert lubricant for placing conductors and cables in conduit.

□ull the conductors and cables into the conduit by hand using pull tape.

**87-1.03G Equipment Identification Characters**

The □ngineer provides you with a list of the equipment identification characters.

Stencil the characters or apply the reflective self□adhesive labels to a clean surface.

Treat the edges of self□adhesive characters with an edge sealant.

□lace the characters on the side facing traffic on:

1. □ront doors of cabinets and service equipment enclosures.
2. Wood poles, fastened with 1□1 □□□inch aluminum nails, for pole mounted enclosures
□. Ad□acent bent or abutment at appro□imately the same station as an illuminated sign or soffit luminaire
□. □nderside of the structure ad□acent to the illuminated sign or soffit luminaire if no bent or abutment e□ists nearby
□. □osts of overhead signs
□. Standards

□efore placing new characters on e□isting or relocated equipment, remove the e□isting characters.

**87-1.03H Conductor and Cables Splices**

**87-1.03H(1) General**

□ou may splice:

1. □rounded conductors in a pull bo□
2. Accessible pedestrian signal and push bottom conductors in a pull bo□
□. □ngrounded signal conductors in a pull bo□if signals are modified

4. □ngrounded signal conductors to a terminal compartment or a signal head on a standard with conductors of the same phase in the pull bo□ ad□acent to the standard
5. □ngrounded lighting circuit conductors in a pull bo□ if lighting circuits are modified

Solder all splices using the hot iron, pouring, or dipping method. Do not perform open□flame soldering.

### 87-1.03H(2) Splice Insulation Methods

Insulate splices in a multiconductor cable to form a watertight □oint and to prevent moisture absorption by the cable.

□se heat□shrin□ tubing or Method B to insulate a splice.

□se heat□shrin□ tubing as follows:

1. □over the splice area completely with an electrical insulating coating and allow it to dry.
2. □lace mastic around each conductor before placing them inside the tubing. □se the type of mastic specified in the tubing manufacturer□s instructions.
3. □eat the area under the manufacturer□s instructions. Do not perform open□flame heating. After contraction, each end of the heat□shrin□ tubing or the open end of the tubing□s end cap must overlap the conductor insulation at least 1□1□2 inches.
4. □over the entire splice with an electrical insulating coating and allow it to dry.

□se Method B as follows:

1. □over the splice area completely with an electrical insulating coating and allow it to dry.
2. Apply 3 layers of half□lapped, 80□mils, □VC tape.
3. Apply 2 layers of 120□mils, butyl□rubber, stretchable tape with liner.
4. Apply 3 layers of half□lapped, 6□mils, PVC , pressure□sensitive, adhesive tape.
5. □over the entire splice with an electrical insulating coating and allow it to dry.

### 87-1.03I Connectors and Terminals

Apply connectors and terminals to cables and conductors using a crimping compression tool under the manufacturer□s instructions. The tool must prevent opening of the handles until the crimp is completed.

Install crimp□style terminal lugs on stranded conductors smaller than no. 14.

Solder no. 8 and smaller conductors to connectors and terminal lugs.

### 87-1.03J Standards, Poles, Pedestals, and Posts

Install standards, poles, pedestals, and posts under section 56-3 .

□round standards with a handhole by attaching a bonding □umper from the bolt or lug inside the standard to a metal conduit or to the grounding wire in the ad□acent pull bo□. The bonding □umper must be visible when the handhole cover is removed.

□round standards without a handhole or standards with a slip base by attaching a bonding □umper to all anchor bolts using ground clamps and connecting it to a metal conduit or to the grounding wire in the ad□acent pull bo□. The bonding □umper must be visible after mortar has been placed on the foundation.

### 87-1.03K Reserved

### 87-1.03L Utility Service

### 87-1.03L(1) General

Install the service equipment early enough to allow the utility to complete its wor□ before completion of the electrical wor□.

At least 15 days before permanent electrical and telecommunication service is required, request the service connections for permanent installations. The Department arranges with the utilities for completion of the connections and pays all costs and fees required by the utilities.

### 87-1.03L(2) Electric Service

#### 87-1.03L(2)(a) General

If service equipment is to be installed on a utility□owned pole, furnish and install the conduit, conductors, pull bo□es, and other necessary material to complete the service installation. The service utility decides the position of the riser and equipment on the pole.

#### 87-1.03L(2)(b) Electric Service for Irrigation

□stablishing electric service for irrigation includes installing conduit, conductors, and pull bo□es and ma□ing connections from the service point to the irrigation controllers.

#### 87-1.03L(2)(c) Electric Service for Booster Pumps

□stablishing electric service for a booster pump includes installing conduit, conductors, and pull bo□es and ma□ing connections from the service point to the booster pump enclosure.

### 87-1.03L(3) Telecommunications Service

□stablishing telecommunication service includes installing conduit, conductors, and pull bo□es and ma□ing connections from the service point to the telephone demarcation cabinet.

### 87-1.03M Photoelectric Controls

Mount the photoelectric unit on the top of the pole for Type I, II, and III photoelectric controls. □se mounting brac□ets where pole□top mounting is not possible. Orient the photoelectric unit to face north.

Mount the enclosure at a height of 6 feet above finished grade on the same standard as the photoelectric unit.

Install a minimum 100 □A, 480/120 □□ac) transformer in the contactor enclosure to provide 120 □□ac) for the photoelectric control unit when switching 480 □□ac), 60 Hz circuits.

### 87-1.03N Fused Splice Connectors

Install a fuse splice connector in each ungrounded conductor for luminaires mounted on standards. The connector must be located in the pull bo□ ad□acent to the standard.

□rimp the connector terminals onto the ungrounded conductors using a tool under the manufacturer's instructions. Insulate the terminals and ma□e them watertight.

### 87-1.03O Grounding Electrodes

Install a grounding electrode for each cabinet, service equipment enclosure, and transformer.

Attach a grounding conductor from the electrode using either a ground clamp or e□othermic weld. □onnect the other end of the conductor to the cabinet, service equipment enclosure, and transformer.

### 87-1.03P Service Equipment Enclosures

Installing a service equipment enclosure includes constructing the foundation and pad and installing conduit, ad□acent pull bo□es, and grounding electrode.

Locate the foundation such that the minimum clearance around the front and bac□ of the enclosure complies with NEC , article 110.26, "Spaces About □lectrical □quipment, □□00 V, nominal or less□."

□ond and ground metal conduit as specified in NEC and by the service utility e□cept the grounding electrode conductor must be no. 6 or larger.

If circuit brea□ers and components do not have a description on engraved phenolic nameplates, install them using stainless steel rivets or screws under section 86□1.02P□2□.

### 87-1.03Q Cabinets

#### 87-1.03Q(1) General

Installing a cabinet includes constructing the foundation and pad and installing conduit, ad□acent pull bo□es, and grounding electrode.

Apply a mastic or caul□ing compound before installing the cabinet on the foundation to seal the openings.

□onnect the field wiring to the terminal bloc□s in the cabinet. □eatly arrange and lace or enclose the conductors in plastic tubing or raceway. Terminate the conductors with properly si□ed captive or spring spade terminals. Apply a crimp□style connector and solder them.

Install and solder a spade□type terminal on no. 12 and smaller field conductors and a spade□type or ring□ type terminal on conductors larger than no. 12.

### 87-1.03Q(2) Department-Furnished Controller Cabinets

Arrange for the delivery of Department□furnished controller cabinets.

### 87-1.03Q(3) Reserved

### 87-1.03Q(4) Telephone Demarcation Cabinets

Installing a telephone demarcation cabinet includes installing conduit, cable, and pull bo□es to the controller cabinet.

Install the cabinet with the bac□ toward the nearest lane of traffic.

## 87-1.03R Signal Heads

### 87-1.03R(1) General

Installing a signal head includes mounting the heads on standards and mast arms, installing bac□plates and visors, and wiring conductors to the terminal bloc□s.

□eep the heads covered or direct them away from traffic until the system is ready for operation.

### 87-1.03R(2) Signal Faces

□se the same brand and material for the signal faces at each location.

□rogram the programmable visibility signal faces under the manufacturer□s instructions. The indication must be visible only in those areas or lanes to be controlled.

### 87-1.03R(3) Backplates

Install bac□plates using at least si□ 10□2□ or 10□□2 self□tapping and loc□ing stainless steel machine screws and flat washers.

If a plastic bac□plate requires field assembly, attach each □oint using at least four no.10 machine screws. □ach machine screw must have an integral or captive flat washer, a he□agonal head slotted for a standard screwdriver, and either a loc□ing nut with an integral or captive flat washer or a nut, flat washer, and loc□ washer. Machine screws, nuts, and washers must be stainless steel or steel with a □inc or blac□ o□ide finish.

If a metal bac□plate has 2 or more sections, fasten the sections with rivets or aluminum bolts peened after assembly to avoid loosening.

Install the bac□plate such that the bac□ground light is not visible between the bac□plate and the signal face or between sections.

### 87-1.03R(4) Signal Mounting Assemblies

Install a signal mounting assembly such that its members are arranged symmetrically and plumb or level. Orient each mounting assembly to allow ma□imum hori□ontal clearance to the ad□acent roadway.

□or a brac□et□mounted assembly, bolt the terminal compartment or pole plate to the pole or standard.

In addition to the terminal compartment mounting, attach the upper pipe fitting of Type S□□1□T with □ sections or a S□□2□TD to the standard or pole using the mounting detail for signal heads without a terminal compartment.

□se a □□1□2□inch slip fitter and set screws to mount an assembly on a post top.

After installing the assembly, clean and paint the e□posed threads of the galvani□ed conduit brac□ets and brac□et areas damaged by the wrench or vise □aws. □se a wire brush to clean and apply 2 coats of unthinned, organic □inc□rich primer. Do not use an aerosol can to apply the primer.

Install the conductors in the terminal compartment and secure the cover.

**87-1.03S Pedestrian Signal Heads**

Installing a pedestrian signal head includes mounting the heads on standards and wiring conductors to the terminal bloc□s.

Install the pedestrian signal mounting assembly under section □□□1.0□R□□□.

□se the same brand and material for the pedestrian signal faces at each location.

Install a pedestrian signal face such that its members are arranged symmetrically and plumb or level.

**87-1.03T Accessible Pedestrian Signals**

□se the same brand for the accessible pedestrian signals at each location.

Install an accessible pedestrian signal and the R10 series sign on the crosswal□ side of the standard.

Attach the accessible pedestrian signal to the standard with self□tapping screws.

Attach the sign to the standard using 2 straps and saddle brac□ets.

□oint the arrow on the accessible pedestrian signal in the same direction as the corresponding crosswal□.

□urnish the equipment and hardware to set up and calibrate the accessible pedestrian signal.

Arrange to have a manufacturer□s representative at the □ob site to program the accessible pedestrian signal with an audible message or tone.

**87-1.03U Push Button Assemblies**

Install the push button assembly and the R10 series sign on the crosswal□ side of the standard.

Attach the sign to the assembly for Type □ assemblies.

Attach the sign to the standard using 2 straps and saddle brac□ets for Type □ assemblies.

□ou may use straps and saddle brac□ets to secure the push button to the standard.

□se a slip fitter to secure the assembly on top of a 2□1□2□inch□diameter post.

**87-1.03V Detectors**

**87-1.03V(1) General**

Installing a detector includes installing inductive loop conductors, sealant, conduit, and pull bo□es.

□enter the detectors in the traffic lanes.

Do not splice the detector conductor.

**87-1.03V(2) Inductive Loop Detectors**

Mar□ the location of the inductive loop detectors such that the distance between the side of the loop and a lead□in saw cut from an ad□acent detector is at least 2 feet. The distance between lead□in saw cuts must be at least □ inches.

Saw cut the slots under section 1□□□.0□□□□□. The bottoms of the slots must be smooth with no sharp edges. □or Type □ detector loops, saw the slots such that the sides are vertical.

Wash the slots clean using water and blow dry them with compressed air to remove all moisture and debris.

Identify the start of the conductor.

Waterproof the ends of a Type 2 loop conductor before installing it in the conduit to prevent moisture from entering the cable.

Install the loop conductor in the slots and lead□in saw cuts using a □1□□ to 1□□□inch□thic□ wood paddle. □old the conductors in place at the bottom of the slot with wood paddles during placement of the sealant.

Wind adjacent loops on the same sensor unit channel in opposite directions.

Twist the conductors for each loop into a pair consisting of a minimum of 2 turns per foot before placing them in the lead-in saw cut and the conduit leading to the pull box. Do not install more than 2 twisted pairs of conductors per lead-in saw cut.

Provide 5 feet of slack in the pull box.

Test each loop for continuity, circuit resistance, and insulation resistance before filling the slots with sealant.

Remove excess sealant from the adjacent road surface before it sets. Do not use solvents to remove the excess.

Identify the loop conductor pair in the pull box, marking the start with the letter *S* and the end with the letter *F*. Bind conductors in pairs by lane in the pull box adjacent to the loops and in the cabinet. Identify each pair with the detector designation and loop number.

Install the conductors in a compacted layer of HMA immediately below the uppermost layer if more than one layer will be placed. Install the loop conductors before placing the uppermost layer of HMA. Fill the slot with a sealant flush to the surface.

Install the conductors in the existing pavement if one layer of HMA is to be placed. Install the loop conductors before placing the layer of HMA. Fill the slot with a sealant flush to the surface.

**87-1.03V(3) Preformed Inductive Loop Detectors**

Construct a preformed inductive loop detector consisting of 3 turns in the loop and a lead-in conductor pair twisted at least 2 turns per foot all encased in conduit and sealed to prevent water penetration. The detector must be 6 foot square unless shown otherwise.

Construct the loop detector using a minimum 1/2 inch Schedule 40 or Schedule 80 PVC or polypropylene conduit and no. 12 or larger conductor with Type THW or THHN insulation.

In new roadways, place the detector in the base course with the top of the conduit flush with the top of the base. Cover with HMA or concrete pavement. Protect the detector from damage before and during pavement placement.

In new reinforced concrete bridge decks, secure the detector to the top of the uppermost layer of reinforcing steel using nylon wire ties. Hold the detector parallel to the bridge deck using PVC or polypropylene spacers where necessary. Place conduit for lead-in conductors between the uppermost 2 layers of reinforcing steel.

Do not install detectors in existing bridge decks unless authorized.

Install a detector in existing pavement before placement of concrete or HMA as follows:

1. Saw cut slots at least 1/4 1/2 inches wide into the existing pavement.
2. Place the detector in the slots. The top of the conduit must be at least 2 inches below the top of the pavement.
3. Test each loop circuit for continuity, circuit resistance, and insulation resistance.
4. Fill saw cuts with elastomeric or hot melt rubberized asphalt sealant for asphalt concrete pavement and with epoxy sealant or hot melt rubberized asphalt sealant for concrete pavement.

**87-1.03W Sealants**

**87-1.03W(1) General**

Reserved

**87-1.03W(2) Elastomeric Sealant**

Apply an elastomeric sealant with a pressure feed applicator.

**87-1.03W(3) Asphaltic Emulsion Sealant**

Asphaltic emulsion sealant must:

1. □e used for filling slots in asphalt concrete pavement of a ma□imum width of 5/8 inch
2. □ot be used on concrete pavement or where the slope causes the material to run from the slot
3. □e thinned under the manufacturer□s instructions
4. □e placed when the air temperature is at least 45 degrees F

### 87-1.03W(4) Hot-Melt Rubberized Asphalt Sealant

Melt the sealant in a □ac□eted, double□boiler□type, melting unit. The temperature of the heat transfer medium must not e□ceed 4□5 degrees F.

Apply the sealant with a pressure feed applicator or a pour pot when the surface temperature of the pavement is greater than 40 degrees F.

### 87-1.03X Reserved

### 87-1.03Y Transformers

Installing a transformer includes placing the transformer inside a pull bo□, a cabinet, or an enclosure.

Wire the transformer for the appropriate voltage.

□round the secondary circuit of the transformer as specified in the NEC .

### 87-1.03Z Reserved

### 87-1.04 PAYMENT

□ot □sed

## 87-2 LIGHTING SYSTEMS

### 87-2.01 GENERAL

### 87-2.01A Summary

Section 87□2 includes specifications for constructing lighting systems.

Lighting system includes:

1. □oundations
2. □ull bo□es
3. □onduit
4. □onductors
5. Standards
6. Luminaires
7. Service equipment enclosure
8. □hotoelectric control
9. □use splice connectors
10. □igh mast lighting assemblies

The components of a lighting system are shown on the pro□ect plans.

### 87-2.01B Definitions

Reserved

### 87-2.01C Submittals

Submit a certificate of compliance and test data for the high mast lighting luminaires.

### 87-2.01D Quality Assurance

Reserved

### 87-2.02 MATERIALS

### 87-2.02A General

Reserved

### 87-2.02B High Mast Lighting Assemblies

A high mast lighting assembly includes the foundation, pole, lowering device system, luminaires, and control pedestal.

□ach luminaire in a high mast lighting assembly must include a housing, an optical system, and a ballast.

The housing must be made of aluminum.

A painted or powder□coated housing for a high mast lighting luminaire must be able to withstand a 1,000□ hour salt spray test as specified in ASTM □11□.

The optical system, consisting of the reflector, refractor or lens, lamp soc□et, and lamp, must be in a sealed chamber. The chamber must be sealed by a gas□et between the reflector and refractor or lens and a gas□et between the reflector and lamp soc□et. The chamber must have a separate filter or filtering gas□et for flow of air.

An asymmetrical luminaire must have a refractor or reflector that is rotatable □□0 degrees around a vertical a□is to orient the distribution of light.

The luminaire must have a slip fitter for mounting on a 2□inch hori□ontal pipe tenon and must be ad□ustable □□ degrees from the a□is of the tenon.

The reflector must have a specular surface made of silvered glass or aluminum protected by either an anodi□ed finish or a silicate film. The reflector must be shaped such that a minimum of light is reflected through the arc tube of the lamp.

The refractor and lens must be made of heat□resistant glass.

The lamp soc□et must be a porcelain□enclosed, mogul□multiple type. The shell must contain integral lamp grips to ensure electrical contact under conditions of normal vibrations. The soc□et must be rated for 1,□00 W, □00 □ac□and □,000 □ac□pulse for a □00 W lamp and □,000 □ac□pulse for a 1,000 W lamp.

The luminaire must have a dual fuse holder for 2 fuses rated at □A, □□0 □ac□ The fuses must be 1□□2 inch by 1□1□2 inches, standard midget ferrule type with a nontime□delay feature.

The lamps must be vertical burning, protected from undue vibration, and prevented from bac□ing out of the soc□et by a stainless steel clamp attached to the luminaire.

A 1,000 W metal halide lamp must have an initial output of 100,000 lumens and an average rated life of 12,000 hours based on 10 hours per start.

A □00 W high□pressure sodium lamp must have an initial output of □0,000 lumens. A 1,000 W high□ pressure sodium lamp must have an initial output of 1□0,000 lumens.

The ballast for the luminaire must be a regulator type and have a core and coils, capacitors, and starting aid.

□allast must be:

1. Mounted within a weatherproof housing that integrally attaches to the top of a luminaire support brac□et and lamp support assembly
2. Readily removable without removing the luminaire from the brac□et arm
□. □lectrically connected to the optical assembly by a prewired quic□disconnect

The ballast for a metal halide luminaire must comply with luminaire manufacturer□s specifications.

The wattage regulation spread at any lamp voltage, from nominal through the life of the lamp, must vary no more than 22 percent for a 1,000 W lamp and a □10 percent input voltage variation. The ballast□s starting line current must be less than its operating current.

### 87-2.02C Soffit and Wall-Mounted Luminaires

#### 87-2.02C(1) General

Soffit and wall□mounted luminaires must be weatherproof and corrosion resistant.

□ach luminaire must include a □0 W high□pressure sodium lamp with a minimum average rated life of 2□,000 hours. The lamp soc□et must be positioned such that the light center of the lamp is located within 1□2 inch of the designed light center of the luminaire.

Luminaire wiring must be S□□2.

□lush□mounted soffit luminaire must have:

1. Metal body with two 1□inch□minimum conduit hubs and a means of anchoring the body into the concrete
2. □rismatic refractor made of heat□resistant polycarbonate:
   2.1. Mounted in a door frame
   2.2. With the street side identified
□. Aluminum reflector with a specular anodi□ed finish
□. □allast located either within the housing or in a ceiling pull bo□if shown
□. Lamp soc□et

The door frame assembly must be hinged, gas□eted, and secured to the luminaire body with at least □ machine screws.

A pendant soffit luminaire must be enclosed and gas□eted and have an aluminum finish. Luminaire must have:

1. Aluminum reflector with a specular anodi□ed finish
2. Refractor made of heat□resistant polycarbonate
□. Optical assembly that is hinged and latched for lamp access and a device to prevent dropping
□. □allast designed for operation in a raintight enclosure
□. □alvani□ed metal bo□with a gas□eted cover, 2 captive screws, and 2 chains to prevent dropping and for luminaire mounting

Wall□mounted luminaire must have:

1. □ast metal body
2. □rismatic refractor:
   2.1. Made of glass
   2.2. Mounted in a door frame
□. Aluminum reflector with a specular anodi□ed finish
□. Integral ballast
□. Lamp soc□et
□. □as□et between the refractor and the body
□. At least 2 mounting bolts of minimum □1 □inch diameter

A cast aluminum body of a luminaire to be cast into or mounted against concrete must have a thic□coat of al□ali□resistant bituminous paint on all surfaces to be in contact with the concrete.

### 87-2.02C(2) High-Pressure Sodium Lamp Ballasts

#### 87-2.02C(2)(a) General

A high□pressure sodium lamp ballast must operate the lamp for its rated wattage.

Starting aids for a ballast must be interchangeable between ballasts of the same wattage and manufacturer without ad□ustment.

The ballast must be provided with a heat□generating component to serve as a heat sin□. The capacitor must be placed at the ma□imum practicable distance from the heat□generating components or thermally shielded to limit the case temperature to □□ degrees □.

The transformer and inductor must be resin impregnated for protection against moisture. □apacitors, e□cept for those in starting aids, must be metal cased and hermetically sealed.

The ballast must have a power factor of □0 percent or greater.

□or the nominal input voltage and lamp voltage, the ballast design center must not vary more than □.□ percent from the rated lamp wattage.

### 87-2.02C(2)(b) Regulator-Type Ballasts

A regulator□type ballast must be designed such that a capacitance variance of □□ percent does not cause more than □□ percent variation in the lamp wattage regulation.

The ballast must have a current crest factor not e□ceeding 1.□ for an input voltage variation of □10 percent.

The lamp wattage regulation spread for a lag□type ballast must not vary by more than 1□ percent for □10 percent input voltage variations. The primary and secondary windings must be electrically isolated.

The lamp wattage regulation spread for a constant□wattage, autoregulator, lead□type ballast must not vary by more than □0 percent for □10 percent input voltage variations.

### 87-2.02C(2)(c) Nonregulator-Type Ballasts

A nonregulator□type ballast must have a current crest factor not e□ceeding 1.□ for an input voltage variation of □□ percent.

The lamp wattage regulation spread for an autotransformer or high reactance type ballast must not vary by more than 2□ percent for □□ percent input voltage variations.

## 87-2.03 CONSTRUCTION

### 87-2.03A General

Set the foundations for standards such that the mast arm is perpendicular to the centerline of the roadway.

Tighten the cap screws of the luminaire□s clamping brac□et to 10 ft□lb for L□D and low□pressure luminaires.

Label the month and year of the installation inside the luminaire housing□s door.

□erform the conductor and operational tests for the system.

### 87-2.03B High Mast Lighting Assemblies

Mount and connect the luminaires to the accessory support ring. Aim the asymmetrical luminaire to orient the distribution of light.

### 87-2.03C Soffit and Wall-Mounted Luminaires

□or a flush□mounted soffit luminaire:

1. □revent concrete from getting into the housing during pouring of the concrete for the structure
2. Install the luminaire with the a□is vertical and the street side of the refractor oriented as indicated
3. Locate the luminaire to provide a minimum 2□foot clearance from the inside surface of the girders and 1□foot clearance from the near face of the diaphragm
4. Install the bridge soffit and ceiling pull bo□over the same lane

□or a pendant soffit luminaire:

1. □ast in place the inserts for the no. □ pull bo□during concrete placement for a new structure
2. Drill holes for e□pansion anchors to support the no. □ pull bo□on e□isting structures
3. □ond the suspension conduit and luminaire to the pull bo□

□or a wall□mounted luminaire, provide:

1. □□tension □unction bo□or ring on a new structure
2. □e□ternal mounting taps on an e□isting structure

□lace the soffits or wall□mounted luminaires in operation as soon as practicable after the falsewor□has been removed from the structure.

If the □ngineer orders soffit or wall□mounted luminaires to be activated before permanent power service is available, installing and removing the temporary power service is change order wor□.

### 87-2.04 PAYMENT

□ot □sed

## 87-3 SIGN ILLUMINATION SYSTEMS

### 87-3.01 GENERAL

### 87-3.01A Summary

Section □□□□ includes specifications for constructing sign illumination systems.

Sign illumination system includes:

1. □oundations
2. □ull bo□es
□. □onduit
□. □onductors
□. Sign lighting fi□tures
□. □nclosure for the disconnect circuit brea□er
□. Service equipment enclosure
□. □hotoelectric control

The components of a sign illumination system are shown on the pro□ect plans.

### 87-3.01B Definitions

Reserved

### 87-3.01C Submittals

Submit the manufacturer□s test data for the induction sign□lighting fi□tures.

### 87-3.01D Quality Assurance

Reserved

### 87-3.02 MATERIALS

An induction sign□lighting fi□ture must include a housing with a door, reflector, refractor or lens, lamp, soc□et assembly, power coupler, high□frequency generator, fuse bloc□, and fuses.

The fi□ture must comply with the isofootcandle curves as shown.

□i□ture must weigh no more than □□ lb, be rated for □□ W at 120□2□0 □□ac□, and have a mounting assembly made of one of the following materials:

1. □ast aluminum
2. □ot□dip galvani□ed steel plate
□. □alvani□ed steel plate finished with one of the following:
   □.1. □olymeric coating
   □.2. Same finish used for the housing

□ousing must:

1. □e corrosion resistant and suitable for wet locations
2. □e above the top of the mounting rails at a ma□imum height of 12 inches
□. □ave weep holes

Door must:

1. □old a refractor or lens
2. Open without the use of special tools
□. □ave a loc□ing position at □0 degrees minimum from the plane of the door opening
□. □e hinged to the housing on the side of the fi□ture away from the sign panel
□. □ave 2 captive latch bolts or other latching device

When the door is opened, it must loc□ in the □0 degrees position when an □□ mph, □□second wind□gust load stri□es the door from either side.

The housing and door must be manufactured of sheet or cast aluminum and have a gray powder coat or polyester paint finish. The sheet aluminum must comply with ASTM □20□ or □20□M for □0□2□□□2 aluminum sheet. □□ternal bolts, screws, hinges, hinge pins, and door closure devices must be corrosion resistant.

The housing and door must be gas□eted. The thic□ness of the gas□et must be a minimum of 1□□ inch.

Reflector must not be attached to the outside of the housing and must be:

1. Made of a single piece of aluminum with a specular finish
2. □rotected with an electrochemically applied anodi□ed finish or a chemically applied silicate film
□. Designed to drain condensation away from it
□. Secured to the housing with a minimum of 2 screws
□. Removable without removing any fi□ture parts

Refractor or lens must have a smooth e□terior and must be manufactured from the materials shown in the following table:

**Refractor and Lens Material Requirements**

| □omponent | Material |
|---|---|
| □lat lens | □eat□resistant glass |
| □onve□ lens | □eat□resistant, high□impact□resistant tempered glass |
| Refractor | □orosilicate heat□resistant glass |

The refractor and conve□ lens must be designed or shielded such that no luminance is visible if the fi□ture is approached directly from the rear and viewed from below. If a shield is used, it must be an integral part of the door casting.

Lamp must:

1. □e an □□W induction type with a fluorescent, phosphor□coated, interior wall
2. □ave a minimum □0 percent light output of its original lumen output after □0,000 hours of operation
□. □ave a minimum color□rendering inde□ of □0
□. □e rated at a color temperature of □,000□
□. □e removable with common hand tools

The lamp soc□et must be rated for 1,□00 W and □00 □□ac□and be a porcelain□enclosed mogul type with a shell that contains integral lamp grips to ensure electrical contact under normal vibration conditions. The shell and center contact must be made of nic□el□plated brass. The center contact must be spring loaded.

The power coupler must be removable with common hand tools.

□igh□frequency generator must:

1. Start and operate lamps at an ambient temperature of □2□ degrees □ or greater for the rated life of the lamp
2. Operate continuously at ambient air temperatures from □2□ to □□ degrees □ without a reduction in the generator life
□. □ave a design life of at least 100,000 hours at □□ degrees □
□. □ave an output frequency of 2.□□M□□□10 percent
□. □ave radio frequency interference that complies with □□□□R 1□ regulations regarding harmful interference
□. □ave a power factor greater than □0 percent and total harmonic distortion less than 10 percent

The high frequency generator must be mounted such that the fi□ture can be used as a heat sin□ and be replaceable with common hand tools.

□ach fi□ture must include a barrier□type fuse bloc□ for terminating field connections. □use bloc□ must:

1. □e rated □00 □ac□
2. □ave bo□ terminals
□. □e secured to the housing and accessible without removal of any fi□ture parts
□. □e mounted to leave a minimum of 1□2 inch of air space from the sidewalls of the housing
□. □e designed for easy removal of fuses with a fuse puller

The fi□ture□s fuses must be 1□□□2□inch□diameter, 1□1□2□inch□long ferrule type and □L listed or □RTL certified. □or a 120 □□ac□fi□ture, only the ungrounded conductor must be fused and a solid connection must be provided between the grounded conductor and the high frequency generator.

The fi□ture must be permanently mar□ed with the manufacturer□s brand name, trademar□, model number, serial number, and date of manufacture on the inside and outside on the housing. The same information must be mar□ed on the pac□age.

If a wire guard is used, it must be made of a minimum 1□□□inch□diameter galvani□ed steel wire. The wires must be spaced to prevent roc□s larger than 1□1□2□inch diameter from passing through the guard. The guard must be either hot□dip galvani□ed or electroplated □inc□coated as specified in ASTM □□□□, service condition S□□, with a clear chromate dip treatment.

### 87-3.03 CONSTRUCTION

□erform the conductor and operational tests for the system.

### 87-3.04 PAYMENT

□ot □sed

## 87-4 SIGNAL AND LIGHTING SYSTEMS

### 87-4.01 GENERAL

### 87-4.01A Summary

Section □□□□ includes specifications for constructing signal and lighting systems.

Signal and lighting system includes:

1. □oundations
2. □ull bo□es
□. □onduit
□. □onductors
□. □ables
□. Standards
□. Signal heads
□. Internally illuminated street name signs
□. Service equipment enclosure
10. Department□furnished controller assembly
11. Detectors
12. Telephone demarcation cabinet
1□. Accessible pedestrian signals
1□. □ush button assemblies
1□. □edestrian signal heads
1□. Luminaires
1□. □hotoelectric control
1□. □use splice connectors
1□. □attery bac□up system
20. □lashing beacons
21. □lashing beacon control assembly

The components of a signal and lighting system are shown on the pro□ect plans.

### 87-4.01B Definitions

Reserved

### 87-4.01C Submittals

Submit shop drawings showing the message for each internally illuminated street sign, including the si□e of letters, symbols, and arrows.

### 87-4.01D Quality Assurance

#### 87-4.01D(1) General

Reserved

#### 87-4.01D(2) Quality Control

#### 87-4.01D(2)(a) General

Reserved

#### 87-4.01D(2)(b) Battery Backup System

□otify the □ngineer □□ hours before testing the battery bac□up system.

Test the system in the presence of the □ngineer by turning off the power to the signal system at the service equipment enclosure. The signal system must run continuously for □0 minutes. If the battery bac□up system fails, correct the problem and retest the system for another □0 minutes. After successful completion of the test, turn the power on for the signal system.

### 87-4.02 MATERIALS

#### 87-4.02A General

Reserved

#### 87-4.02B Battery Backup System

A battery bac□up system includes the cabinet, batteries, and the Department□furnished electronics assembly.

The electronics assembly includes the inverter□charger unit, power transfer relay, and the battery harness.

#### 87-4.02C Internally Illuminated Street Name Signs

An internally illuminated street name sign includes housing, brac□ets, sign panels, gas□ets, ballast, lampholder, terminal bloc□s, conductors, and fuses.

An internally illuminated street sign must be designed and constructed to prevent deformation or failure when sub□ected to an □□ mph, □□second wind□gust load as specified in the AAS□TO publication, "Standard Specifications for Structural Supports of □ighway Signs, Luminaires and Traffic Signals."

Sign must:

1. □e Types A or □
2. □ave galvani□ed or cadmium□plated ferrous parts
□. □ave screened weep holes
□. □ave fasteners, screws, and hardware made of passive stainless steel, Type □02 or □0□, or aluminum Type □0□0□T□
□. Operate at a temperature from □20 to □□ degrees □

□hotoelectric unit soc□ets are not allowed.

The housing must be constructed to resist torsional twist and warp. The housing must be designed such that opening or removing the panels provides access to the interior of the sign for lamp, ballast, and fuse replacement.

The top and bottom of the sign must be manufactured from formed or e□truded aluminum and attached to formed or cast aluminum end fittings. The top, bottom, and end fittings must form a sealed housing.

□or a Type A sign, both sides of the sign must be hinged at the top to allow installation or removal of the sign panel.

□or a Type □ sign, the sign panel must be slide mounted into the housing.

The top of the housing must have 2 free□swinging mounting brac□ets. □ach brac□et must be vertically ad□ustable for leveling the sign to either a straight or curved mast arm. The brac□et assembly must allow the lighting fi□ture to swing perpendicular to the sign panel.

The reflectors must be formed aluminum and have an acrylic, ba□ed□white□enamel surface with a minimum reflectance of 0.□□.

Sign panel must be translucent, high□impact□resistant, and made of one of the following plastic materials:

1. □lass□fiber□reinforced, acrylated resin
2. □olycarbonate resin
□. □ellulose acetate butyrate

The sign panel must be designed not to crac□ or shatter if a 1□inch□diameter steel ball weighing 2.□ ounces is dropped from a height of □.□ feet above the sign panel to any point on the panel. □or this test, the sign panel must be lying in a hori□ontal position and supported within its frame.

The sign panel□s surface must be evenly illuminated. The brightness measurements for the letters must be a minimum of 1□0 foot□lamberts, average. The letter□to□bac□ground brightness ratio must be from 10:1 to 20:1. The bac□ground luminance must not vary by more than □0 percent from the average bac□ground brightness measurement. The luminance of letters, symbols, and arrows must not vary by more than 20 percent from their average brightness measurement.

The sign panel□s white or green color must not fade or dar□en if e□posed to an accelerated test of □□ light equivalent to 2 years of outdoor e□posure.

The sign panel□s legend, symbols, arrows, and border on each face must be white on a green bac□ground. The bac□ground must comply with color no. 1□10□ of □□D□STD□□□□.

The message must appear on both sides of the sign and be protected from □□ radiation. The letters must be □□inch upper case and □□inch lower case, series □.

A Type A sign must have a closed□cell, sponge□neoprene gas□et installed between the sign panel frame to prevent the entry of water. The gas□et must be uniform and even te□tured.

The sign ballast must be a high□power□factor type for outdoor operation from 110 to 12□ □□ac□and □0 □□ and must comply with A□SI □□2.1 and □□2.2.

The ballast for a Type A sign must be rated at 200 mA. The ballast for a Type □ sign must be rated at □□0 mA.

Sign lampholder must:

1. □e the spring□loaded type
2. □ave silver□coated contacts and waterproofed entrance leads
□. □ave a heat□resistant, circular cross section with a partially recessed neoprene ring

Removal of the lamp from the soc□et must de□energi□e the primary of the ballast.

The springs for the lampholders must not be a part of the current□carrying circuit.

The sign□s wiring connections must terminate on a molded, phenolic, barrier□type, terminal bloc□ rated at 1□A, 1,000 □□ac□. The connections must have a white, integral, waterproof mar□ing strip. The terminal screws must not be smaller than a no. 10.

The terminal bloc□ must be insulated from the fi□ture to provide protection from the line□to□ground flashover voltage.

A sectionali□ed terminal bloc□ must have an integral barrier on each side and must allow rigid mounting and alignment.

□i□ture□s conductors must:

1. □e stranded copper wire with a minimum thermoplastic insulation of 2□ mils

2. □e rated at 1,000 □□ac□and for use up to □0 degrees □
□. □e a minimum of no. 1□
□. Match the color coding of the ballast leads
□. □e secured with spring cross straps, installed 12 inches apart or less in the chassis or fi□ture

Stranded copper conductors connected to screw□type terminals must terminate in crimp□type ring connectors.

□o splicing is allowed within the fi□ture.

The sign□s fuse must be the Type □A□, miniature, slow□blow type.

The fuse holder must be a panel□mounting type with a threaded or bayonet □nob that grips the fuse tightly for e□traction. □ach ballast must have a separate fuse.

### 87-4.03 CONSTRUCTION

#### 87-4.03A General

Set the foundations for standards such that the mast arm is perpendicular to the centerline of the roadway.

Tighten the cap screws of the luminaire□s clamping brac□et to 10 ft□lb for L□D and low□pressure luminaires.

Label the month and year of the installation inside the luminaire housing□s door.

□erform the conductor and operational tests for the system.

#### 87-4.03B Battery Backup System Cabinets

Install the battery bac□up system cabinet to the right of the Model □□2L cabinet.

If installation on the right side is not feasible, obtain authori□ation for installation on the left side.

□rovide access for power conductors between the cabinets using:

1. 2" nylon□insulated, steel chase nipple
2. 2" steel sealing loc□nut
□. 2" nylon□insulated, steel bushing

Remove the □umper between the terminals labeled *BBS-1* and *BBS-2* in the □position terminal bloc□in the controller cabinet before connecting the Department□furnished electronics assembly.

#### 87-4.03C Internally Illuminated Street Name Signs

Mount the internally illuminated street name sign to the signal mast arm using the ad□ustable brac□ets. □onnect the conductors to the terminal bloc□s in the signal head mounting terminal bloc□.

### 87-4.04 PAYMENT

□ot □sed

## 87-5 RAMP METERING SYSTEMS

### 87-5.01 GENERAL

Section □□□□ includes specifications for constructing ramp metering systems.

Ramp metering system includes:

1. □oundations
2. □ull bo□es
□. □onduit
□. □onductors
□. Standards
□. Signal heads
□. Service equipment enclosure
□. Department□furnished controller assembly

□. Detectors
10. Telephone demarcation cabinet

The components of a ramp metering system are shown on the pro□ect plans.

### 87-5.02 MATERIALS

□ot □sed

### 87-5.03 CONSTRUCTION

□onnect the field wiring to the terminal bloc□s in the controller cabinet. The □ngineer provides you a list of field conductor terminations for each controller cabinet.

□erform the conductor and operational tests for the system.

### 87-5.04 PAYMENT

□ot □sed

## 87-6 TRAFFIC MONITORING STATION SYSTEMS

### 87-6.01 GENERAL

Section □□□□ includes specifications for constructing traffic monitoring station systems.

Traffic monitoring station system includes:

1. □oundations
2. □ull bo□es
□. □onduit
□. □ables
□. □onductors
□. Service equipment enclosure
□. □ontroller cabinet
□. Detectors
□. Telephone demarcation cabinet

The components of a traffic monitoring station system are shown on the pro□ect plans.

### 87-6.02 MATERIALS

□ot □sed

### 87-6.03 CONSTRUCTION

□onnect the field wiring to the terminal bloc□s in the controller cabinet. The □ngineer provides you a list of field conductor terminations for the controller cabinet.

□erform the conductor and operational tests for the system.

### 87-6.04 PAYMENT

□ot □sed

## 87-7 FLASHING BEACON SYSTEMS

### 87-7.01 GENERAL

Section □□□□ includes specifications for constructing flashing beacon systems.

□lashing beacon system includes:

1. □oundations
2. □ull bo□es
□. □onduit
□. □onductors
□. Standards
□. Service equipment enclosure
□. Signal heads
□. □lashing beacon control assembly

The components of a flashing beacon system are shown on the pro□ect plans.

The flash rate for the flashing beacon must comply with chapter □L, "□lashing □eacons," of the *California MUTCD*.

The flashing beacon must allow alternating flashing wig□wag operation.

The flashing beacon must have a separate flasher unit installed in the flashing beacon control assembly.

### 87-7.02 MATERIALS

□lashing beacon control assembly must:

1. □ave a □□MA □R enclosure with a dead front panel and a hasp with a □□1□□inch hole for a padloc□. The enclosure must have one of the following finishes:
   1.1. □owder coating.
   1.2. □ot□dip galvani□ed coating.
   1.□. □actory□applied, rust□resistant prime coat and finish coat.
2. □ave barrier□type terminal bloc□s rated for 2□A, □00 □□ac□, made of molded phenolic or nylon material and have plated□brass screw terminals and integral mar□ing strips.
□. Include a solid state flasher complying with section □ of □□MA standards publication no. TS 1 for 10 A, dual circuits.

### 87-7.03 CONSTRUCTION

□erform the conductor and operational tests for the system.

### 87-7.04 PAYMENT

□ot □sed

## 87-8–87-11 RESERVED

## 87-12 CHANGEABLE MESSAGE SIGN SYSTEMS

### 87-12.01 GENERAL

Section □□□12 includes specifications for constructing changeable message sign systems.

□hangeable message sign system includes:

1. □oundations
2. □ull bo□es
□. □onduit
□. □onductors
□. Service equipment enclosure
□. Department□furnished controller cabinet
□. Department□furnished changeable message sign
□. Department□furnished wiring harness
□. Service equipment enclosure
10. Sign disconnect

The components of a changeable message sign system are shown on the pro□ect plans.

### 87-12.02 MATERIALS

□ot □sed

### 87-12.03 CONSTRUCTION

Install the changeable message sign.

□onnect the field wiring to the terminal bloc□s in the sign assembly and controller cabinet.

The □ngineer provides you a list of field conductor terminations for each sign cabinet and controller cabinet.

The Department maintains the sign assemblies.

### 87-12.04 PAYMENT

□ot □sed

## 87-13–87-17 RESERVED

## 87-18 INTERCONNECTION CONDUIT AND CABLE

### 87-18.01 GENERAL

Section □□□1□ includes specifications for constructing interconnection conduit and cable.

Interconnection conduit and cable includes:

1. □ull bo□es
2. □onduit
□. Signal interconnect cables

The components of an interconnection conduit and cable are shown.

### 87-18.02 MATERIALS

□ot □sed

### 87-18.03 CONSTRUCTION

Test the signal interconnect cable.

□onnect the signal interconnect cable to the terminal bloc□ in the controller cabinets. The □ngineer provides you a list of terminations for each controller cabinet.

### 87-18.04 PAYMENT

□ot □sed

## 87-19 RESERVED

## 87-20 TEMPORARY ELECTRICAL SYSTEMS

### 87-20.01 GENERAL

Section □□□20 includes specifications for providing temporary electrical systems.

Obtain the Department□s authori□ation for the type of temporary electrical system and its installation method.

A temporary system must operate on a continuous, 2□□hour basis.

### 87-20.02 MATERIALS

#### 87-20.02A General

Material and equipment may be new or used.

The components of a temporary system are shown on the pro□ect plans.

If you use Type □□□□ cable, the minimum conductor si□e must be no. 12.

#### 87-20.02B Temporary Flashing Beacon Systems

A temporary flashing beacon system consists of a flashing beacon system, wood post, generator, and photovoltaic system.

The system must comply with the specifications for a flashing beacon system in section □□□□, e□cept it may be mounted on a wood post or a trailer.

#### 87-20.02C Temporary Lighting Systems

A temporary lighting system consists of a lighting system, generator, and wood poles.

The system must comply with the specifications for a lighting system in section □□□2, e□cept it may be mounted on a wood pole or a trailer.

### 87-20.02D Temporary Signal Systems

A temporary signal system consists of a signal and lighting system, wood poles and posts, and a generator.

System must comply with the specifications for a signal and lighting system in section □□□□, e□cept:

1. Signal heads may be mounted on a wood pole, mast arm, tether wire, or a trailer
2. □lashing beacons may be mounted on a wood post, or a trailer

## 87-20.03 CONSTRUCTION

### 87-20.03A General

□rovide electrical and telecommunication services for temporary systems. Do not use e□isting services unless authori□ed.

□rovide power for the temporary electrical systems under section 12□□.□□, e□cept you may use a photovoltaic system for the temporary flashing beacon system.

Install conductors and cables in a conduit, suspended from wood poles at least 2□ feet above the roadway, or use direct burial conductors and cables.

□ou may saw slots across paved areas for burial conductors and cables.

Install conduit outside the paved area at a minimum of 12 inches below grade for Type 1 and 2 conduit and at a minimum of 1□ inches below grade for Type □ conduit.

Install direct burial conductors and cables outside the paved area at a minimum depth of 2□ inches below grade.

□lace the portions of the conductors installed on the face of wood poles in either Type 1, 2, or □ conduit between the point 10 feet above grade at the pole and the pull bo□. The conduit between the pole and the pull bo□ must be buried at a depth of at least 1□ inches below grade.

□lace conductors across structures in a Type 1, 2, or □ conduit. Attach the conduit to the outside face of the railing.

Mount the photoelectric unit at the top of the standard or wood post.

□ou may abandon in place conductors and cables in sawed slots or in conduit installed below the ground surface.

### 87-20.03B Temporary Flashing Beacon Systems

Install a fused□splice connector in the pull bo□ ad□acent to each flashing beacon. Wherever conductors are run overhead, install the splice connector in the line side outside of the control assembly.

### 87-20.03C Temporary Lighting Systems

Wherever conductors are run overhead, install the fuse splice connectors in the line side before entering the mast arm.

### 87-20.03D Temporary Signal Systems

□ou may splice conductors that run to a terminal compartment or a signal head on a pole to the through conductors of the same phase in a pull bo□ ad□acent to the pole. Do not splice conductors or cables e□cept in a pull bo□ or in a □□MA □R enclosure.

The Department provides the timing for the temporary signal.

Maintain the temporary signal e□cept for the Department□furnished controller assembly.

## 87-20.04 PAYMENT

□ot □sed

# 87-21 EXISTING ELECTRICAL SYSTEMS

## 87-21.01 GENERAL

Section 87-21 includes general specifications for performing work on existing electrical systems.

## 87-21.02 MATERIALS

Not used

## 87-21.03 CONSTRUCTION

### 87-21.03A General

You may abandon unused underground conduit after pulling out all conductors and removing conduit terminations from the pull boxes.

If standards are to be salvaged, remove:

1. All components
2. Mast arms from the standards
3. Luminaires, signal heads, and signal mounting assemblies from the standards and mast arms

If the existing material is unsatisfactory for reuse and the Engineer orders you to replace it with new material, replacing the existing material with new material is change order work.

If the removed electrical equipment is to be reinstalled, supply all materials and equipment, including signal mounting assemblies, anchor bolts, nuts, washers, and concrete, needed to complete the new installation.

### 87-21.03B Maintaining Existing Electrical Systems

#### 87-21.03B(1) General

Maintain the existing electrical system in working order during the progress of the work. Conduct your operations to avoid damage to the elements of the systems.

#### 87-21.03B(2) Maintaining Existing Traffic Management System Elements During Construction

Section 87-21.02B(2) applies if a bid item for maintaining existing traffic management system elements during construction is shown on the Bid Item List.

Traffic management system elements include:

1. Ramp metering system
2. Traffic monitoring stations
3. Microwave vehicle detection system
4. Changeable message sign system
5. Extinguishable message sign system
6. Highway advisory radio system
7. Closed circuit television camera system
8. Roadway weather information system

Obtain authorization at least 72 hours before interrupting communication between an existing system and the traffic management center.

If the Engineer notifies you that an existing system is not fully operational due to your activities, repair or replace the system within 72 hours. If the system cannot be fixed within 72 hours or it is located on a structure, provide a temporary system within 24 hours until the system can be fixed. Perform a functional test of the system in the presence of the Engineer. If you fail to perform the necessary repair or replacement work, the Department may perform the repair or replacement work and deduct the cost.

If you damage an existing fiber optic cable, install a new cable such that the length of cable slack is the same as before the damage, measured from an original splice point or termination. All splices must be made using the fusion method.

You may interrupt the operation of traffic monitoring stations:

1. For 30 days if another operational traffic monitoring station is located within 1 miles

2. □or 1□ days if another operational traffic monitoring station is located more than □ miles away

If a traffic monitoring station must be interrupted for longer periods than specified, provide a temporary detection system. Obtain the Department□s authori□ation for the type of temporary system and its installation method.

**87-21.03C Modifying Existing Electrical Systems**

Modify electrical systems as shown.

**87-21.03D Removing Existing Electrical Systems**

The components to be removed are shown on the pro□ect plans.

**87-21.04 PAYMENT**

□ot □sed

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

# DIVISION XI MATERIALS

## 90 CONCRETE

0□□1□□1□

**Replace *Method 1* in the 4th paragraph of section 90-1.01D(5)(a) with:**

0□□1□□1□

Method 2

**Replace section 90-9 with:**

0□□1□□1□

**90-9 RETURNED PLASTIC CONCRETE**

**90-9.01 GENERAL**

**90-9.01A Summary**

Section □0□□ includes specifications for incorporating returned plastic concrete □R□□□ into concrete.

R□□ must be used only where the specifications allow its use. Do not use R□□ in pavement or structural concrete.

**90-9.01B Definitions**

**returned plastic concrete (RPC):** □□cess concrete that is returned to a concrete plant in a plastic state and that has not attained initial set.

**hydration stabilizing admixture (HSA):** □□tended set retarding admi□ture that controls and predictably reduces the hydration rate of the cementitious material.

**90-9.01C Submittals**

Submit the following with the weighmaster certificate:

1. Weight or volume of R□□
2. Type, brand, and dosage of □SA
3. Time of adding □SA
4. □opy of the original weighmaster certificate for the R□□
5. Temperature of R□□

When requested, submit the □SA manufacturer□s instructions, including dosage tables.

**90-9.01D Quality Assurance**

The material plant producing concrete containing R□□ must be authori□ed under the M□□□.

□or volumetric proportioning of R□□:

1. The volumetric container must be imprinted with manufacturer's name, model number, serial number, the as□calibrated volume and date of the last calibration. □ross sectional dimensions of the container must remain the same as those during its calibration.
2. The device must be re□calibrated monthly and at any time when the container shape has been deformed from its original condition or there is evidence of material build□up on the inside of the device.
□. The device must be held in a level condition during filling. □ill the device to the measure or stri□e □off line. □ach measurement must be filled to within 1.0□ of the device as□calibrated volume.
□. The device interior must be cleaned after each measurement to maintain a □ero condition.

□or weight proportioning, proportion R□□ with a weigh hopper attached to the plant at a position which allows the addition of the R□□ to the mi□er truc□with the conventional □□□ ingredients. The plant process controller must control the proportioning of R□□ to within 1.0□ of its target weight.

### 90-9.02 MATERIALS

#### 90-9.02A General

The quantity of R□□ added to the concrete must not e□ceed 1□ percent.

The cementitious material content of the R□□ must be at least that specified for the concrete that allows the use of R□□.

Water must not be added to the R□□ after batching, including in the truc□mi□er.

□se □SA for controlling and reducing the hydration rate of R□□.

Incorporate R□□ by mi□ing into the concrete before arriving at the □obsite.

#### 90-9.02B Returned Plastic Concrete

The R□□ must not e□ceed 100 degrees □ at any time.

If □SA is not used, R□□ must be incorporated into the concrete before attaining initial set or within □ hours after batching of R□□, whichever is earlier.

If □SA is used:

1. Add □SA to R□□ within □ hours after original batching.
2. Measure and record the time, dosage of □SA, and temperature of R□□ when □SA is added.
□. Mi□the R□□ under the □SA manufacturer□s instructions after adding □SA or at least □0 revolutions, whichever is greater.
□. Incorporate R□□ into the concrete within □ hours after adding □SA.

R□□ must not contain:

1. Accelerating admi□ture
2. □iber
□. □igment
□. Lightweight aggregate
□. □reviously returned R□□
□. Any ingredient incompatible with the resultant concrete

#### 90-9.02C Hydration Stabilizing Admixture

□SA must comply with ASTM □□□□ admi□ture Type □ or Type D.

□SA must have a proven history of specifically maintaining and e□tending both plasticity and set.

□SA dosage must comply with the manufacturer□s instructions.

#### 90-9.02D Production

□roportion concrete containing R□□ under section □0□2.02□.

□roportion R□□ by weight or by volume.

**90-9.03 CONSTRUCTION**

□ot □sed

**90-9.04 PAYMENT**

□ot □sed

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## 92 ASPHALT BINDERS

0□□1□□1□

0□□1□□1□

**Replace the 4th paragraph of section 92-1.02B with:**

□rumb rubber modifier used must be on the Authori□ed Materials List for crumb rubber modifier.

□roduction equipment for □□ modified asphalt binder with crumb rubber modifier must be authori□ed under the Department□s *MPQP*.

□rumb rubber must be derived from waste tires described in □ub Res □ode □ □2□0□ and must be free from contaminants including fabric, metal, minerals, and other nonrubber substances.

^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^

## 96 GEOSYNTHETICS

01□1□□1□

**Replace *product name, manufacturing source, and date of manufacture* in the 2nd sentence of the 1st paragraph of section 96-1.01D with:**

01□1□□1□

manufacturing source code

# BID BOOK

## FANCHER CREEK TRAIL

**BUDGET / ACCOUNT: 4510 / 7370**

*Department of Public Works and Planning*

**CONTRACT NUMBER 21-04-C**

# BID BOOK TABLE OF CONTENTS

## FANCHER CREEK TRAIL
## CONTRACT NUMBER 21-04-C


| PROPOSAL NUMBER(S) | TITLE |
|---|---|
| NOT APPLICABLE | INSTRUCTIONS FOR COMPLETING THE BID BOOK |
| 1 | PROPOSAL TO THE BOARD OF SUPERVISORS OF THE COUNTY OF FRESNO |
| 2 | BID ITEM LIST |
| 3 | EVALUATION OF BID ITEM LIST |
| 4 | BID SECURITY |
| 5 | NON-COLLUSION DECLARATION |
| 6 | PUBLIC CONTRACT CODE SECTION 10285.1 STATEMENT |
| 7 | PUBLIC CONTRACT CODE SECTION 10162 QUESTIONNAIRE AND PUBLIC CONTRACT CODE 10232 STATEMENT |
| 8(A) – 8(C) | SUBCONTRACTORS |
| 9 - 16 | NOT USED |
| 17 | GUARANTY |

# INSTRUCTIONS FOR COMPLETING THE BID BOOK FOR NON-FEDERAL AID PROJECTS

### General

□omplete forms in the *Bid* boo□.

Submit an electronic bid online at http:□www.□id□□press.com □Section 2□1.□□D□or submit a hardcopy bid:

1. □nder sealed cover addressed to the Department and labeled with the name of the bidder, the name of the pro□ect and the statement □Do □ot Open □ntil The Time Of □id Opening.□
2. Mar□ed as a bid
□. Identifying the contract number and the bid opening date

□ertain bid forms must be submitted with the bid and properly e□ecuted.

□ertain other forms and information must be submitted either with the bid or within the prescribed period after bid opening as specified elsewhere in these special provisions.

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

If an agent other than the authori□ed corporation officer or a partnership member signs the bid, file a □ower of Attorney with the Department either before opening bids or with the bid. Otherwise, the bid may be nonresponsive.

### Bid Item List and Bid Comparison

Submit a bid based on the bid item quantities the Department shows on the □id Item List. □ids will be evaluated and the low bidder determined as indicated in the *Notice to Bidders.*

### Bid Document Completion

□roposal items are identified by title and by the word “Proposal” followed by the number assigned to the proposal item in question. □roposal items are included in the *Bid Book.*

### Proposal to the Board of Supervisors of Fresno County – Proposal 1

□rovided for information.

### Bid Item List – Proposal 2

One or more sheet□s□or list□s□upon which the bidder completes the bid.

□ill out completely including a unit price and total for each unit price□based item and a total for each lump sum item.

Do not make any additions such as “plus tax”, “plus freight”, or conditions such as “less 2% if paid by 15th”.

□se in□or typewriter for paper bids.

### Evaluation of Bid Item List – Proposal 3

Describes how inconsistences and irregularities are evaluated and corrected when Design Services reviews the □id Item List.

**Bid Security and Signature – Proposal 4**

Submit one of the following forms of bidder□s security equal to at least 10 percent of the bid:

- □ash
- □ashier□s chec□
- □ertified chec□
- Signed bidder□s bond by an admitted surety insurer

Indicate type of bid security provided.

- □ash – Acceptable but not recommended. □ash is deposited in a clearing account and is returned to bidders by □ounty warrant. This process may ta□e several wee□s.
- Cashier's or Certified Checks. This type of security is held until the bid is no longer under consideration. If submitted by a potential awardee, they will be returned when the contract is fully e□ecuted by the bidder and bonds and insurance have been approved.
- □id □onds □Must be signed by the bidder and by the attorney□in□fact for the bonding company. □rovide notari□ed signature of attorney□in□fact accompanied by bonding company's affidavit authorizing attorney□ in□fact to e□ecute bonds. An unsigned bid bond will be cause for re□ection.

Ac□nowledge Addenda

Provide contractor's license information.

State business name and if business is a:

- □orporation □list officers
- □artnership □list partners
- □oint □enture □list members; if members are corporations or partnerships, list their officers or partners.
- Individual □list Owner's name and firm name style

Signature of □idder □the following lists types of companies and corresponding authori□ed signers.

- □orporation □by an officer
- □artnership □by a partner
- □oint □enture □by a member
- Individual □by the Owner

If signature is by a □ranch Manager, □stimator, Agent, etc., the bid must be accompanied by a power of attorney authori□ing the individual to sign the bid in question or to sign bids more generally, otherwise the bid may be re□ected.

- □usiness Address □Firm's Street Address
- Mailing Address □□.O. □o□or Street Address
- □omplete, sign, and return with bid.

**Noncollusion Declaration – Proposal 5**

Must be completed, signed, and returned with bid.

**Public Contract Code Section 10285.1 Statement – Proposal 6**

Select “has” or “has not” in accordance with instructions on form, return with completed for with bid. Note that signing the bid constitutes signing this statement.

**Public Contract Code Section 10162 Questionnaire And Public Contract Code 10232 Statement – Proposal 7**

Select ”yes” or “no” accordance with instructions on form, include explanation if “yes” is selected. Return completed form with bid. □ote that signing the bid constitutes signing this questionnaire and statement.

**Subcontractors – Proposal 8(a) through Proposal 8(g)**

Sheet□s□or spaces where bidders list subcontractors. List each subcontractor to perform wor□in an amount in e□cess of 1□2 of 1 percent of the total bid or □10,000, whichever is greater □□ub □ont □ode □ □100 et seq.□

The *Subcontractor List* submitted with the bid must show the name, location of business, wor□portions to be performed, and the contractor’s license number for each subcontractor listed.

- □se subcontractor□s business name style as registered with the License □oard.
- Specify the city in which the subcontractor’s business is located and the state if other than California.
- Description of the wor□to be performed by the subcontractor. Indicate with bid item numbers from the bid item list and□or wor□descriptions similar to those on bid item list.
- List license number for each subcontractor.

□pon request from Design Services, provide the following additional information within 2□ hours of bid opening if not included on the *Subcontractor List* submitted with the bid:

- □omplete physical address for each subcontractor listed.
- □ercentage of the total bid or dollar amount associated with each subcontractor listed.
- Department of Industrial Relations registration number.

**Proposal 9 - Proposal 16 – Not Used**

**Guaranty - Proposal 17**

Does not need to be signed with the bid. □art of the contract which must be signed by the contractor when contract is e□ecuted.

COUNTY OF FRESNO
DEPARTMENT OF PUBLIC WORKS AND PLANNING
PROJECT: Fancher Creek Trail

BID ITEM LIST

| Item No. | Quantity | Unit of Measure | F,S,P | Item | Item Price | Total Price |
|---|---|---|---|---|---|---|
| 1 | 5,000 | $ | - | SUPPLEMENTAL WORK (PAYMENT ADJUSTMENTS FOR PRICE INDEX FLUCTUATIONS) | $1 | $5,000 |
| 2 | 5,000 | $ | - | FRESNO IRRIGATION DISTRICT PERMIT | $1 | $5,000 |
| 3 | 20,000 | $ | - | SUPPLEMENTAL WORK | $1 | $20,000 |
| 4 | 2 | EA | - | CONSTRUCTION PROJECT FUNDING SIGN | $1,560.00 | $3,120.00 |
| 5 | 1 | LS | - | JOB SITE MANAGEMENT | $8,400.00 | $8,400.00 |
| 6 | 1 | LS | - | PREPARE STORM WATER POLLUTION PREVENTION PLAN | $6,000.00 | $6,000.00 |
| 7 | 1,000 | $ | - | STATE WATER RESOURCES CONTROL BOARD NOTICE OF INTENT FILING FEE | $1 | $1,000 |
| 8 | 1 | EA | - | STORM WATER ANNUAL REPORT | $1,200.00 | $1,200.00 |
| 9 | 1 | LS | - | TRAFFIC CONTROL SYSTEM | $4,800.00 | $4,800.00 |
| 10 | 7,000 | SQYD | - | ROLLED EROSION CONTROL PRODUCT (BLANKET) | $4.80 | $33,600.00 |
| 11 | 1 | LS | - | CLEARING AND GRUBBING | $42,000.00 | $42,000.00 |
| 12 | 1 | LS | - | PRUNING | $18,900.00 | $18,900.00 |
| 13 | 32 | EA | - | REMOVE TREE AND ASSOCIATED STUMP | $840.00 | $26,880.00 |
| 14 | 27 | EA | - | REMOVE STUMP | $360.00 | $9,720.00 |
| 15 | 440 | LF | - | REMOVE CHAIN LINK FENCE | $12.00 | $5,280.00 |
| 16 | 370 | LF | - | TEMPORARY FENCE (TYPE CL-6) | $13.80 | $5,106.00 |
| 17 | 1 | EA | - | REMOVE LIGHT POLE | $840.00 | $840.00 |
| 18 | 560 | CY | F | ROADWAY EXCAVATION | $112.80 | $63,168.00 |
| 19 | 59,975 | SF | - | 4" THICK STABILIZIED DECOMPOSED GRANITE (DG) | $1.74 | $104,356.00 |
| 20 | 75 | TON | - | HOT MIX ASPHALT | $360.00 | $27,000.00 |
| 21 | 58 | CY | F | CLASS 2 AGGREGATE BASE | $186.00 | $10,788.00 |
| 22 | 302 | SF | - | PARKING LOT STRIPING AND MARKINGS (2 COAT) | $9.60 | $2,899.20 |
| 23 | 1 | EA | - | ADA PARKING SIGN | $360.00 | $360.00 |
| 24 | 2 | EA | - | ROADSIDE SIGN - ONE POST | $480.00 | $960.00 |
| 25 | 112 | SF | - | THERMOPLASTIC CROSSWALK AND PAVEMENT MARKING (ENHANCED WET NIGHT VISIBILITY) | $36.00 | $4,032.00 |
| 26 | 1 | EA | - | HITCHING RAIL ASSEMBLY | $2,400.00 | $2,400.00 |
| 27 | 9 | EA | - | STEEL PIPE BOLLARD | $960.00 | $8,640.00 |
| 28 | 4 | EA | - | TRAIL SIGN | $960.00 | $3,840.00 |
| 29 | 1 | LS | - | FINISHING PROJECT SITE | $4,800.00 | $4,800.00 |
| 30 | 1 | LS | - | MOBILIZATION | $8,400.00 | $8,400.00 |

| | | |
|---|---|---|
| TOTAL (BID ITEMS 1 THROUGH 30) | | $438,489.70 |

F = Final Pay
P = Partial Pay

**BID SECURITY AND SIGNATURE**

Accompanying this proposal is security (check one only) in amount equal to at least ten percent (10%) of the total amount of the bid:

Bid Bond (X); Certified Check ( ); Cashier's Check ( ); Cash ($ )

Bidder has and acknowledges the following addenda: 1,2 Addendum1

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

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

FIRM NAME KROEKER, INC

JOYCE KROEKER PRESIDENT

JEFF KROEKER SEC / TRES

Licensed in accordance with an act providing for the registration of Contractors,

Class A C10 C12 C21 C57 C61/D06 License No. 621866 Expires 6/30/2023

DIR Registration Number 000006246

Signature of Bidder

AUGUST 25, 2021
Dated

**NOTE**: If bidder is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation; if bidder is a co-partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts on behalf of the co-partnership; and if bidder is an individual, his signature shall be placed above. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a Power of Attorney must be on file with the Owner prior to opening bids or submitted with the bid; otherwise, the bid will be disregarded as irregular and unauthorized.

BUSINESS ADDRESS: 4627 S CHESTNUT AVE. 93725
Zip Code

MAILING ADDRESS: SAME
Zip Code

BUSINESS PHONE: (559) 2373764 FAX NUMBER: (559) 268 3366

EMAIL ADDRESS JEFFK@KROEKERINC.COM

To the Board of Supervisors, County of Fresno:

**NONCOLLUSION DECLARATION**

TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID*

The undersigned declares:

I am the CORPORATE OFFICE - SECRETARY/TREASURER of
(Owner, Partner, Corporate Officer (list title), Co-Venturer)

KROEKER, INC., the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, and has not paid, and will not pay, any person or entity for that purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on AUGUST 25, 2021,

at FRESNO, CALIFORNIA."
[city] [state]

(Signature)

(See Title 23 United States Code Section 112; Calif Public Contract Code Section 7106)

*NOTE: Completing, signing, and returning the Non-Collusion Declaration is a required part of the Proposal. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

## PUBLIC CONTRACT CODE

### Public Contract Code Section 10285.1 Statement

In conformance with Public Contract Code Section 10285.1 (Chapter 376, Stats. 1985), the bidder hereby declares under penalty of perjury under the laws of the State of California that the bidder has ___ , has not _X_ been convicted within the preceding three years of any offenses referred to in that section, including any charge of fraud, bribery, collusion, conspiracy, or any other act in violation of any state or Federal antitrust law in connection with the bidding upon, award of, or performance of, any public works contract, as defined in Public Contract Code Section 1101, with any public entity, as defined in Public Contract Code Section 1100, including the Regents of the University of California or the Trustees of the California State University. The term "bidder" is understood to include any partner, member, officer, director, responsible managing officer, or responsible managing employee thereof, as referred to in Section 10285.1.

Note: The bidder must place a check mark after "has" or "has not" in one of the blank spaces provided. The above Statement is part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement. Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

**Public Contract Code Section 10162 Questionnaire**

In conformance with Public Contract Code Section 10162, the Bidder shall complete, under penalty of perjury, the following questionnaire:

Has the bidder, any officer of the bidder, or any employee of the bidder who has a proprietary interest in the bidder, ever been disqualified, removed, or otherwise prevented from bidding on, or completing a federal, state, or local government project because of a violation of law or a safety regulation?

Yes _____ No X

If the answer is yes, explain the circumstances in the following space.

**Public Contract Code 10232 Statement**

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

Note: The above Statement and Questionnaire are part of the Bid. Signing this Bid on the signature portion thereof shall also constitute signature of this Statement and Questionnaire.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

BIDDER: Kroeker, Inc.

**SUBCONTRACTORS:**

The following named subcontractor(s) will perform with labor, or otherwise render services to the general contractor in or about the construction of the work or improvement in an amount in excess of one-half of one percent of the total bid presented herewith **or $10,000, whichever is greater.** Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board. Each listed subcontractor's name, location of business and description of work, and both their contractor's license number and public works contractor registration number, issued pursuant to Section 1725.5 of the Labor Code, are REQUIRED, by Section 4104 of the California Public Contract Code, to be submitted prior to bid opening. (The "location of business" must specify the city in which the subcontractor's business is located, and the state if other than California.) All other requested information shall be submitted, either with the bid or within 24 hours after bid opening.

Please fill out as completely as possible when submitting your bid. Use subcontractor's business name style as registered with the License Board.

**FAILURE TO LIST SUBCONTRACTORS AS DIRECTED MAY RENDER THE BID NON-RESPONSIVE, OR MAY RESULT IN ASSESSMENT OF A PENALTY AGAINST THE BIDDER IN ACCORDANCE WITH SECTION 4110 OF THE CALIFORNIA PUBLIC CONTRACT CODE.**

**SUBCONTRACTOR:** Griffin Soil
Business Address: 248 Industrial Dr. Stockton CA 95206
Class ____ License No. 791232 DIR Registration No. 1000004572
Item No. or Description of Work: 18 - Day Rate for soil mixing.
Dollar Amount $10,300.00 **OR** Percentage of Total Bid ____
Email Address: Dave@GriffinSoil.com

**SUBCONTRACTOR:** Soar Environmental
Business Address: 1401 Fulton St, Suite 918, Fresno, CA 93721
Class ____ License No. ____ DIR Registration No 1000052849
Item No. or Description of Work: 6,8
Dollar Amount $2,890.00 **OR** Percentage of Total Bid ____
Email Address: Shopstone@soarhere.com

(This guaranty shall be executed by the successful bidder in accordance with instructions in the special provisions. The bidder may execute the guaranty on this page at the time of submitting his bid.)

## GUARANTY

To the Owner: County of Fresno

**CONTRACT NUMBER 21-04-C**

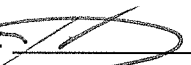
The undersigned guarantees the construction and installation of the following work included in this project:

**ALL WORK**

Should any of the materials or equipment prove defective or should the work as a whole prove defective, due to faulty workmanship, material furnished or methods of installation, or should the work or any part thereof fail to operate properly as originally intended and in accordance with the plans and specifications, due to any of the above causes, all within twelve (12) months after date on which this contract is accepted by the Owner, the undersigned agrees to reimburse the Owner, upon demand, for its expenses incurred in restoring said work to the condition contemplated in said project, including the cost of any such equipment or materials replaced and the cost of removing and replacing any other work necessary to make such replacement or repairs, or, upon demand by the Owner, to replace any such material and to repair said work completely without cost to the Owner so that said work will function successfully as originally contemplated.

The Owner shall have the unqualified option to make any needed replacement or repairs itself or to have such replacements or repairs done by the undersigned. In the event the Owner elects to have said work performed by the undersigned, the undersigned agrees that the repairs shall be made and such materials as are necessary shall be furnished and installed within a reasonable time after the receipt of demand from the Owner.

Name (Printed): JEFF KROEKER

Signature: 

Title: SECRETARY/TREASURER

Date: AUGUST 25, 2021

Contractor: JEFF KROEKER

Swiss Re
Corporate Solutions

North American Specialty Insurance Company
Washington International Insurance Company
Westport Insurance Corporation
1200 Main Street, Suite 800
Kansas City, MO 64105

# Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we Kroeker, Inc.
4627 S. Chestnut Ave., Fresno, CA 93725 (full name and address or legal title of Principal)

as Principal, hereinafter called the Principal, and North American Specialty Insurance Company
(select Surety)

a corporation duly organized under the laws of the state of NH as Surety, hereafter called the Surety, are
(select state)

held and firmly bound unto County of Fresno 2220 Tulare Street, Suite 720
Fresno, CA 93721 (full name and address or legal title of Obligee)

as Obligee, hereinafter called the Obligee, in the sum of Ten Percent of Amount Bid Dollars ($ 10% )

for the payment of which the Principal and the Surety bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted to the Obligee a bid for Fancher Creek Trail; Contract Number 21-04-C
(full name, address and description of project)

NOW, THEREFORE, the condition of this obligation is such that if the Obligee shall accept the bid of the Principal, and the Principal either 1) shall enter into a contract with the Obligee in accordance with the terms of such bid and gives such bond or bonds as may be specified in the bidding or contract documents with good and sufficient surety, or 2) shall pay to the Obligee the difference, not to exceed the amount of this bond, between the amount specified in said bid and such larger amount for which Obligee may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void; otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Obligee and Principal to extend the time in which the Obligee may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Obligee and Principal shall obtain the Surety's consent for an extension beyond sixty (60) days.

When this bond has been furnished to comply with a statutory or other legal requirement in the location of the project, any provision in this bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirements shall be deemed incorporated herein. When so furnished, the intent is that this bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 24th day of August, 2021

BY _____
(Witness)

Kroeker, Inc.
(Principal)
By: _____
Name/Title:

BY _____
(Witness)

North American Specialty Insurance Company
(Surety)
By: _____
Name: Cody Lyman
(Attorney-in-Fact)

SEAL 1973

## CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT — Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )
) ss
County of Fresno )

On 8/24/2021, before me, Bonnie Gonzalez, Notary Public, personally appeared Cody Lyman, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity~~(ies)~~, and that by his/~~her/their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

BONNIE GONZALEZ
NOTARY PUBLIC - CALIFORNIA
COMMISSION # 2368139
FRESNO COUNTY
My Comm. Exp. July 27, 2025

(Seal)

Signature: Bonnie Gonzalez

Bonnie Gonzalez, Notary Public

## SWISS RE CORPORATE SOLUTIONS

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
WASHINGTON INTERNATIONAL INSURANCE COMPANY

# GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT North American Specialty Insurance Company, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Kansas City, Missouri, and Washington International Insurance Company, a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Kansas City, Missouri, each does hereby make, constitute and appoint: Cody Lyman

Principal: Kroeker, Inc. Bond Number: Bid Bond
Obligee: County of Fresno Bond Amount: See Bond Form
Bond Description: Fancher Creek Trail; Contract Number 21-04-C

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of:
FIFTY MILLION ($50,000,000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of both North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on the 9th of May, 2012:

"RESOLVED, that any two of the Presidents, any Managing Director, any Senior Vice President, any Vice President, any Assistant Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."

NORTH AMERICAN SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1973 NEW HAMPSHIRE

By _____
Steven P. Anderson, Senior Vice President of Washington International Insurance Company & Senior Vice President of North American Specialty Insurance Company

By _____
Michael A. Ito, Senior Vice President of Washington International Insurance Company & Senior Vice President of North American Specialty Insurance Company

WASHINGTON INTERNATIONAL INSURANCE COMPANY CORPORATE SEAL NEW HAMPSHIRE

IN WITNESS WHEREOF, North American Specialty Insurance Company and Washington International Insurance Company have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this 1st day of February, 2019.

**North American Specialty Insurance Company**
**Washington International Insurance Company**

State of Illinois
County of Cook ss:

On this 1st day of February, 2019, before me, a Notary Public personally appeared Steven P. Anderson, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Michael A. Ito, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.

OFFICIAL SEAL
M. KENNY
Notary Public - State of Illinois
My Commission Expires
12/04/2021

M. Kenny, Notary Public

I, Jeffrey Goldberg, the duly elected Assistant Secretary of North American Specialty Insurance Company and Washington International Insurance Company, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company and Washington International Insurance Company, which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 24th day of August, 2021.

Jeffrey Goldberg, Vice President & Assistant Secretary of
Washington International Insurance Company & North American Specialty Insurance Company

# A G R E E M E N T

THIS AGREEMENT made at Fresno, in Fresno County, California, by and between Kroeker, Inc. hereinafter called the Contractor, and the County of Fresno hereinafter called the Owner.

WITNESSETH: That the Contractor and the Owner, for the consideration hereinafter named, agree as follows:

**ARTICLE I**. The Contractor agrees to furnish all labor and materials, including tools, implements, and appliances required, but excluding such materials as are mentioned in the specifications to be furnished by the Owner, and to perform all the work in a good and workmanlike manner, free from any and all liens and claims of mechanics, materialmen, teamsters, subcontractors, artisans, machinists, and laborers required for:

**FANCHER CREEK TRAIL**

**CONTRACT NUMBER: 21-04-C**

All in strict compliance with the plans, drawings and specifications therefor prepared by the Owner, and other contract documents relating thereto.

**ARTICLE II.** The Contractor and the Owner agree that the Notice to Bidders and Special Provisions, the Wage Scale (Prevailing Wages), the Plans and Drawings, Addenda and Bulletins thereto, and the Proposal (Bid Book) hereto attached, together with this Agreement, form the contract, and they are as fully a part of the contract as if hereto attached or herein repeated.

All portions of the Standard Specifications of the State of California, Department of Transportation, dated 2015, which are not in conflict with this contract shall be deemed a part of the specifications as though fully therein set forth; provided, however, that revisions to the said Standard Specifications shall apply only to the extent, if any, included in the Project Details of these specifications or as otherwise incorporated directly herein. No part of said specifications which is in conflict with any portion of this agreement, or which is not actually descriptive of the work to be done thereunder, or of the manner in which said work is to be executed, shall be considered as any part of this agreement, but shall be utterly null and void.

**ARTICLE III.** The Owner agrees to pay the Contractor in current funds for the performance of the contract the sum of **FOUR HUNDRED AND THIRTY EIGHT THOUSAND FOUR HUNDRED AND EIGHTY NINE DOLLARS AND 70/100 ($438,489.70)** it being understood that said price is based upon the estimated quantities of materials to be used as set forth in the Proposal, except where provisions are made in the contract documents whereby the estimated quantities shall constitute the final quantity; that upon completion of the project the final contract prices shall be revised by change order, if necessary, to reflect the true quantities used at the stated unit price thereof as contained in the Contractor's Proposal hereto attached. Payments on account thereof will be made as set forth in the special provisions.

**ARTICLE IV.** If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he or any of his subcontractors should persistently violate any of the provisions of the contract, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Engineer, then the Owner may, upon certificate of the

Engineer when sufficient cause exists to justify such action, serve written notice upon the Contractor and his surety of its intention to terminate the contract, and unless within five days after the serving of such notice, such violations shall cease and satisfactory arrangements for correction thereof be made, the contract shall, upon the expiration of said five days, cease and terminate.

In the event of any such termination, the Owner shall immediately serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the contract, provided, however, that if the surety within ten (10) days after the serving upon it of notice of termination does not give the Owner written notice of its intention to take over and perform the contract or does not commence performance thereof within the ten (10) days stated above from the date of the serving of such notice, the Owner may take over the work and prosecute the same to completion by contract or by any other method it may deem advisable, for the account and at the expense of the Contractor, and the Contractor and his surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may without liability for so doing, take possession of and utilize in completing the work such materials, appliances, plant and other property belonging to the Contractor as may be on the site of the work and necessary therefor. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expenses of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner, as herein provided and damage incurred through the Contractor's default, shall be certified by the Engineer.

**ARTICLE V.** To the fullest extent permitted by law with respect to any work required to be done under this contract, the Contractor will indemnify and hold harmless the COUNTY OF FRESNO, STATE OF CALIFORNIA, FRESNO IRRIGATION DISTRICT, and all other participating public agencies, whether or not said agencies are named herein, who have jurisdiction within the areas in which the work is to be performed, and all officers and employees of the Owner, the County, the State, the United States and said other participating agencies, from any and all costs and expenses, attorney fees and court costs, damages, liabilities, claims and losses occurring or resulting to COUNTY in connection with the performance, or failure to perform, by CONTRACTOR, its officers, agents or employees under this Agreement, and from any and all costs and expenses, attorney fees and court costs, damages, liabilities, claims and losses occurring or resulting to any person, firm or corporation who may be injured or damaged by the performance, or failure to perform, of CONTRACTOR, its officers, agents or employees under this Agreement. In addition, CONTRACTOR agrees to indemnify COUNTY for Federal, State of California and/or local audit exceptions resulting from non-compliance herein on the part of CONTRACTOR.

CONTRACTOR agrees to indemnify, save, hold harmless, and at COUNTY'S request, defend the COUNTY, its officers, agents, and employees from any and all costs and expenses, damages, liabilities, claims, and losses occurring or resulting to COUNTY in connection with the performance, or failure to perform, by CONTRACTOR, its officers, agents, or employees under this Agreement, and from any and all costs and expenses, damages, liabilities, claims, and losses occurring or resulting to any person, firm, or corporation who may be injured or damaged by the performance, or failure to perform, of CONTRACTOR, its officers, agents, or employees under this Agreement.

The Certificate of Insurance shall be issued in duplicate, to the COUNTY OF FRESNO and all other participating agencies, whether or not said agencies are named herein, who contribute to the cost of the work or have jurisdiction over areas in which the work is to be performed and all officers and employees of said agencies while acting within the course and scope of their duties and responsibilities.

In the event CONTRACTOR fails to keep in effect at all times insurance coverage as herein provided, the COUNTY may, in addition to other remedies it may have, suspend or terminate this Agreement upon the occurrence of such event.

All policies shall be with admitted insurers licensed to do business in the State of California. Insurance purchased shall be purchased from companies possessing a current A.M Best Company rating of A FSC VII or better.

Without limiting the COUNTY'S right to obtain indemnification from CONTRACTOR or any third parties, CONTRACTOR, at its sole expense, shall maintain in full force and effect, the following insurance policies or a program of self-insurance, including but not limited to, an insurance pooling arrangement or Joint Powers Agreement (JPA) throughout the term of the Agreement:

A. Commercial General Liability

Commercial General Liability Insurance with limits not less than those shown in the following table:

**Liability Insurance Requirements**

| Total bid | For each occurrence[a] | Aggregate for products/completed operation | General aggregate[b] | Umbrella or excess liability[c] |
|---|---|---|---|---|
| ≤ $1,000,000 | $1,000,000 | $2,000,000 | $2,000,000 | $5,000,000 |
| > $1,000,000 ≤ $10,000,000 | $1,000,000 | $2,000,000 | $2,000,000 | $10,000,000 |
| > $10,000,000 ≤ $25,000,000 | $2,000,000 | $2,000,000 | $4,000,000 | $15,000,000 |
| > $25,000,000 | $2,000,000 | $2,000,000 | $4,000,000 | $25,000,000 |

*[a]Combined single limit for bodily injury and property damage.*
*[b]This limit must apply separately to your work under this Contract.*
*[c]The umbrella or excess policy must contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.*

This policy shall be issued on a per occurrence basis. COUNTY may require specific coverages including completed operations, products liability, contractual liability, Explosion-Collapse-Underground, fire legal liability, or any other liability insurance deemed necessary because of the of the nature of this contract.

Such Commercial General Liability insurance shall name the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned. Such coverage for additional insured shall apply as primary insurance and any other insurance, or self-insurance, maintained by COUNTY, its officers, agents and employees shall be excess only and not contributing with insurance provided under CONTRACTOR's policies herein. This insurance shall not be cancelled or changed without a minimum of thirty (30) days advance written notice given to COUNTY. CONTRACTOR shall obtain endorsements to the Commercial General Liability insurance policy naming COUNTY as an additional insured and providing for a thirty (30) day prior written notice of cancellation or change in terms or coverage.

Within eight (8) days from date CONTRACTOR executes this Agreement, CONTRACTOR shall provide certificates of insurance and endorsement as stated above for all of the foregoing policies, as required herein, to the County of Fresno, Design Services, 2220 Tulare St, 6th Floor, Fresno, CA 93720 or to designservices@fresnocountyca.gov, stating that such insurance coverages have been obtained and are in full force; that the County of Fresno, its officers, agents and employees will not be responsible for an premiums on the policies; that such Commercial General Liability insurance names the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned; that such coverage for additional insured shall apply as primary insurance an any other insurance, or self- insurance shall not be cancelled or changed without a minimum of thirty (30) days advance, written notice given to COUNTY.

CONTRACTOR shall obtain endorsements to the Commercial General Liability insurance naming the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned. Such coverage for additional insured shall apply as primary insurance and any other insurance, or self-insurance, maintained by COUNTY, its officers, agents, and employees shall be excess only and not contributing with insurance provided under CONTRACTOR'S policies herein. This insurance shall not be cancelled or changed without a minimum or thirty (30) days advance written notice given to COUNTY.

B. Automobile Liability

Comprehensive Automobile Liability Insurance with limits of not less than One Million Dollars ($1,000,000) per accident for bodily injury and property damage. Coverage should include owned and non-owned vehicles used in connection with this Agreement and all applicable endorsements.

C. Professional Liability

If CONTRACTOR is a licensed professional or employs professional staff, (e.g., Architect, Engineer, Surveyor, etc.) in providing services, Professional Liability Insurance with limits of not less than One Million Dollars ($1,000,000.00) per occurrence, Three Million Dollars ($3,000,000.00) annual aggregate with a provision for 3 year tail coverage.

D. Worker's Compensation

A policy of Worker's Compensation insurance as may be required by the California Labor Code.

**ARTICLE VI.** Contractor represents that he has secured the payment of Worker's Compensation in compliance with the provisions of the Labor Code of the State of California and during the performance of the work contemplated herein will continue so to comply with said provisions of said Code. Contractor shall supply the Owner with certificates of insurance, in duplicate, evidencing that Worker's Compensation Insurance is in effect and providing that the Owner will receive ten days notice of cancellation. If Contractor self-insures Worker's Compensation, Certificate of Consent to Self-insure should be provided the Owner.

**ARTICLE VII.** The Contractor shall forthwith furnish in duplicate, a faithful performance bond in an amount equal to 100% of the contract price and a payment bond in an amount equal to 100% of the contract price, both bonds to be written by a surety company acceptable to the Owner and in the form prescribed by law.

The payment bond shall contain provisions such that if the Contractor or his subcontractors shall fail to pay (a) amounts due under the Unemployment Insurance Code with respect to work performed under the contract, or (b) any amounts required to be deducted, withheld and paid over to the Employment Development Department and to the Franchise Tax Board from the wages of the employees of the Contractor and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code with respect to such work and labor, then the surety will pay these amounts. In case suit is brought upon the payment bond, the surety will pay a reasonable attorney's fee to be fixed by the court.

**ARTICLE VIII.** This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

Except as provided in Labor Code section 1725.5(f), no contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

Except as provided in Labor Code section 1725.5(f), no contractor or subcontractor may be awarded a contract for public work on a public works project or engage in the performance of work on any public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

Contractor shall comply with all applicable laws and regulations relating to wages and employment, including all requirements imposed by the California Department of Industrial Relations (DIR). Contractor shall cooperate with County to furnish timely all information necessary for County's completion of the form required to be submitted by County when registering the Project on the DIR website, and County thereafter shall provide to Contractor the "Project ID Number" assigned by DIR in order to facilitate Contactor's submission to DIR of its certified payrolls for the Project, in the manner required and using such form as may be prescribed by DIR, in accordance with the provisions of Labor Code section 1771.4(a)(3).

**ARTICLE IX:** Governing Law – Venue for any action arising out of or relating to this Agreement shall be in Fresno County, California. This Agreement shall be governed by the laws of the State of California.

This Contract, **21-04-C**, was awarded by the Board of Supervisors on September 21, 2021. It has been reviewed by the Department of Public Works and Planning and is in proper order for signature of the Chairman of the Board of Supervisors.

IN WITNESS WHEREOF, they have executed this Agreement this 19th day of October, 2021

KROEKER INC
(CONTRACTOR)

77-0235632
(Taxpayer Federal I.D. No.)

By _____

Title GENERAL MANAGER

COUNTY OF FRESNO
(OWNER)

By _____
Steve Brandau, Chairman
of the Board of Supervisors of the
County of Fresno

**ATTEST:**
Bernice E. Seidel
Clerk of the Board of Supervisors
County of Fresno, State of California

By _____
Deputy

**Bid Summary**
**Fresno County Department of Public Works and Planning**

**Project: Fancher Creek Trail**
**Contract No.: 21-04-C**

□id Opening: □2/□2021
Scheduled Award Date: □21/2021

□idders:
1 □roe□er, Inc. □□2□S □hestnut Ave. □resno, □A □□□2□
2 Terra West □onstruction, Incorporated 10□0 □ettyburg Avenue, Suite 10□, □lovis, □A □□□12
□ Avison □onstruction, Inc. □0□□□ □ric□yard Dr., Madera, □A □□□□□
□ □lean □ut Landscape Inc. □□0□□. Armstrong Ave. □lovis □a □□□1□
□ □mmett's □□cavation, Inc. 1□□□Menlo Ave, □lovis, □A □□□11

| | | | | □ngineer's □stimate | | **Kroeker, Inc.**<br>□riffin Soil<br>Soar □nvironmental | | **Terra West Construction Inc.**<br>□hrisp □ompany<br>□roe□er, Inc. | | **Avison Construction, Inc.**<br>□hrisp □o<br>□alley □ence □o | | **Clean Cut Landscape Inc.**<br>Safety Striping | | **Emmett's Excavation, Inc.**<br>Marina Landscape, Inc.<br>Safety Striping Service, Inc. | |
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| **Item ID** | **Description** | **Unit** | **Quantity** | **Unit Price** | **Total Price** | **Unit Price** | **Total Price** | **Unit Price** | **Total Price** | **Unit Price** | **Total Price** | **Unit Price** | **Total Price** | **Unit Price** | **Total Price** |
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| | | | Total | **$669,877.00** | | **$438,489.70** | | **$483,533.00** | | **$636,947.00** | | **$647,419.80** | | **$849,260.00** | |

# Board Agenda Item 49

DATE: September 21, 2021

TO: Board of Supervisors

SUBMITTED BY: Steven E. White, Director
Department of Public Works and Planning

SUBJECT: Award Contract 21-04-C Fancher Creek Trail

RECOMMENDED ACTION(S):

**Adopt plans and specifications for Contract 21-04-C Fancher Creek Trail, and award to the lowest bidder, Kroeker, Inc., 4627 S. Chestnut Avenue, Fresno, CA 93725, in the total amount of $438,489.70.**

Approval of the recommended action will authorize the award of a budgeted trail improvement project. This item pertains to a location in District 5.

ALTERNATIVE ACTION(S):

If the recommended action is not approved, the project will be delayed or will not be constructed.

FISCAL IMPACT:

There is no Net County Cost associated with the recommended action. The maximum anticipated construction cost for the project, based on the low bid and Director's allowance of $34,424 for change orders, is $472,914. The project is funded with Measure C rural trail funds. Sufficient appropriations and estimated revenues are included in the Department of Public Works and Planning - Road Fund Org 4510 FY 2021-22 Adopted Budget.

DISCUSSION:

The existing path, located within an unincorporate County island in the Sunnyside neighborhood of the City of Fresno, has fallen into disrepair and become overgrown with weeds and trees rendering the path unusable to the equestrian community. The Department has conducted several public information meetings and has worked in collaboration with the Sunnyside Property Owners Association and the public to develop the scope for this project. On December 10, 2013, the Board of Supervisors executed Cooperative Agreement No. 13-760 with Tree Fresno, High Sierra Volunteer Crew, and the Sunnyside Property Owners Association (Association) to maintain and rehabilitate the path. In general, the County agreed to assist in acquiring funding for infrastructure improvements and to provide a portion of the operations cost for maintenance activities. On January 26, 2016, your Board adopted a Mitigated Negative Declaration for this project.

The work to be done consists, in general, of constructing a 10-foot wide equestrian trail of stabilized decomposed granite over compacted native soil for a distance of approximately 1.12 miles. The trail commences on the south side of Kings Canyon Road west of Clovis Avenue and proceeds south to cross Butler Avenue, ultimately ending west of Clovis Avenue approximately halfway between Butler Avenue to the

north and Church Avenue to the south. The project also includes the construction or installation of a 5-stall (including one ADA-compliant stall) asphalt concrete parking/trailhead area, a hitching post, removable bollards, and a crosswalk at Butler Avenue. The project also includes removal of various trees and stumps, safety pruning of the entire project right of way, and clearing the right of way for construction.

A bid opening was held on August 26, 2021. Five bids were received. The low bid of $438,489.70, from Kroeker, Inc., was $231,387.30 or 34.54% lower than the engineer's estimate of $669,877.00. The difference can primarily be accounted for in the cost of 4" Thick Stabilized Decomposed Granite. A list of bidders and their respective bid amounts is shown below:

| Bidder | Bid Amount |
|---|---|
| Kroeker, Inc. | $438,489.70 |
| TerraWest Construction | $483,533.00 |
| Avison Construction | $636,947.00 |
| Clean Cut Landscaping | $647,419.80 |
| Emmett's Excavation | $849,260.00 |

Plans and Specifications were started by Lars Anderson and Associates and completed by Department staff and are on file with the Department. It is anticipated that construction will commence in early November and will be completed in early January 2022.

REFERENCE MATERIAL:

BAI #45, January 26, 2016

ATTACHMENTS INCLUDED AND/OR ON FILE:

Location Map

CAO ANALYST:

Ron Alexander

Company Profile
Company Search
Company Search Results
Company Information
Old Company Names
Agent for Service
Reference Information
NAIC Group List
Lines of Business
Workers' Compensation Complaint and Request for Action/Appeals Contact Information
Financial Statements PDF's
Annual Statements
Quarterly Statements
Company Complaint
Company Performance & Comparison Data
Company Enforcement Action
Composite Complaints Studies
Additional Info
Find A Company Representative In Your Area
View Financial Disclaimer

## COMPANY PROFILE

### Company Information

**NORTH AMERICAN SPECIALTY INSURANCE COMPANY**

**1200 MAIN STREET**
**KANSAS CITY, MO 64105**

**Old Company Names** **Effective Date**

### Agent For Service

AMANDA GARCIA
330 N Brand Blvd Ste 700
Glendale CA 91203-2336

### Reference Information

| | |
|---|---|
| NAIC #: | 29874 |
| California Company ID #: | 3208-6 |
| Date Authorized in California: | 06/30/1989 |
| License Status: | UNLIMITED-NORMAL |
| Company Type: | Property & Casualty |
| State of Domicile: | NEW HAMPSHIRE |

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### NAIC Group List

NAIC Group #: 0181 SWISS RE GRP

### Lines Of Business

The company is authorized to transact business within these lines of insurance.
For an explanation of any of these terms, please refer to the glossary.

AIRCRAFT
AUTOMOBILE
BOILER AND MACHINERY
BURGLARY
DISABILITY
FIRE
LIABILITY
MARINE
PLATE GLASS
SPRINKLER
SURETY
WORKERS' COMPENSATION

back to top

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THE AMERICAN INSTITUTE OF ARCHITECTS

Premium: $7,577.00

Bond No. 2316892

*AIA Document A312*

# Performance Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

Kroeker, Inc.
4627 S. Chestnut Ave.
Fresno CA 93725

SURETY (Name and Principal Place of Business):

North American Specialty Insurance Company
1200 Main Street, Suite 800
Kansas City MO 64105

OWNER (Name and Address):

County of Fresno
2220 Tulare Street, Suite 720
Fresno CA 93721

CONSTRUCTION CONTRACT
Date:
Amount: ($ 438,489.70 ) Four Hundred Thirty Eight Thousand Four Hundred Eighty Nine Dollars and 70/100
Description (Name and Location): Fancher Creek Trail; Contract Number 21-04-C

BOND
Date (Not earlier than Construction Contract Date): October 11, 2021
Amount: ($ 438,489.70 ) Four Hundred Thirty Eight Thousand Four Hundred Eighty Nine Dollars and 70/100
Modifications to this Bond: ☒ None ☐ See Page 3

CONTRACTOR AS PRINCIPAL
Company: (Corporate Seal)
Kroeker, Inc.
Signature:
Name and Title: Bryce Jones, General Manager

SURETY
Company: (Corporate Seal)
North American Specialty Insurance Company
Signature:
Name and Title: Lyn Genito
Attorney-in-Fact

(Any additional signatures appear on page 3)

*(FOR INFORMATION ONLY—Name, Address and Telephone)*
AGENT or BROKER:

Alliant Insurance Services, Inc.
9 River Place East, 3rd Floor
Fresno CA 93720
559-374-3576

OWNER'S REPRESENTATIVE (Architect, Engineer or other party):

NORTH AMERICAN SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1973 NEW HAMPSHIRE

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

2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.

3 If there is no Owner Default, the Surety's obligation under this Bond shall arise after:

**3.1** The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and

**3.2** The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1; and

**3.3** The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

4 When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

**4.1** Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or

**4.2** Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or

**4.3** Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or

**4.4** Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or

.2 Deny liability in whole or in part and notify the Owner citing reasons therefor.

5 If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

6 After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:

**6.1** The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

**6.2** Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and

**6.3** Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

7 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators or successors.

8 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

9 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation avail-

able to sureties as a defense in the jurisdiction of the suit shall be applicable.

**10** Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.

**11** When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

**12 DEFINITIONS**

**12.1** Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

**12.2** Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

**12.3** Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

**12.4** Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

**MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:**

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

| CONTRACTOR AS PRINCIPAL | | SURETY | |
|---|---|---|---|
| Company: | (Corporate Seal) | Company: | (Corporate Seal) |
| Signature: | | Signature: | |
| Name and Title: | Bryce Jones, General Manager | Name and Title: | |
| Address: | | Address: | |

## CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT — Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )
) ss
County of Fresno )

On 10/11/2021, before me, Bonnie Gonzalez, Notary Public, personally appeared Lyn Genito _____, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

BONNIE GONZALEZ
NOTARY PUBLIC - CALIFORNIA
COMMISSION # 2366139
FRESNO COUNTY
My Comm. Exp. July 27, 2025

(Seal)

Signature: _____
Bonnie Gonzalez, Notary Public

## SWISS RE CORPORATE SOLUTIONS

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
WASHINGTON INTERNATIONAL INSURANCE COMPANY
WESTPORT INSURANCE CORPORATION

# GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT North American Specialty Insurance Company, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Kansas City, Missouri and Washington International Insurance Company a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Kansas City, Missouri, and Westport Insurance Corporation, organized under the laws of the State of Missouri, and having its principal office in the City of Kansas City, Missouri, each does hereby make constitute and appoint:

STEVEN EDWARDS, CODY LYMAN, RALPH BERING BUSCH III, LYN GENITO, and BONNIE GONZALEZ

JOINTLY OR SEVERALLY

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of:

TWO HUNDRED MILLION ($200,000,000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on March 24, 2000 and Westport Insurance Corporation by written consent of its Executive Committee dated July 18, 2011.

"RESOLVED, that any two of the President, any Senior Vice President, any Vice President, any Assistant Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."

NORTH AMERICAN SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1973 NEW HAMPSHIRE

WASHINGTON INTERNATIONAL INSURANCE COMPANY CORPORATE SEAL NEW HAMPSHIRE

By _____
Steven P. Anderson, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

By _____
Michael A. Ito, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

WESTPORT INSURANCE CORPORATION CORPORATE SEAL MISSOURI

IN WITNESS WHEREOF, North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this 12th day of June, 20 19.

**North American Specialty Insurance Company**
**Washington International Insurance Company**
**Westport Insurance Corporation**

State of Illinois
County of Cook ss:

On this 12th day of June, 20 19, before me, a Notary Public personally appeared Steven P. Anderson, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation and Michael A. Ito Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.

OFFICIAL SEAL
M. KENNY
Notary Public - State of Illinois
My Commission Expires
12/04/2021

M. Kenny, Notary Public

I, Jeffrey Goldberg, the duly elected Vice President and Assistant Secretary of North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 11th day of October, 21

Jeffrey Goldberg, Vice President & Assistant Secretary of Washington International Insurance Company & North American Specialty Insurance Company & Vice President & Assistant Secretary of Westport Insurance Corporation

## PAYMENT BOND TO ACCOMPANY CONSTRUCTION CONTRACT

(CIVIL CODE SECTION 3247)

BOND NO. 2316892

The premium on this bond is Premium is included in Performance Bond for the term 10/11/2021-10/11/2022

**Know All Men By These Presents:**

That The State of California, acting by and through the County of Fresno

has awarded to Kroeker, Inc. whose address is

*(CONTRACTOR / PRINCIPLE)*

4627 S. Chestnut Ave. Fresno CA 93725 as Principle, a contract for the work described as follows:

Fancher Creek Trail; Contract Number 21-04-C

WHEREAS, The provisions of Civil Code Section 3247 require that the Principle file a bond in connection with said contract and this bond is executed and tendered in accordance therewith.

NOW THEREFORE, Principle and North American Specialty Insurance Company, a corporation organized

*(SURETY)*

under the laws of NH, and authorized to transact a general surety business in the State of California, as Surety, are held and firmly bound to the People of the State of California in the penal sum of Four Hundred Thirty Eight Thousand Four Hundred Eighty Nine Dollars and 70/100 ( $438,489.70 ), for which payment we bind ourselves, our heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

1. That if said Principle or its subcontractors shall fail to pay any of the persons named in Civil Code Section 3181, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principle and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor, that the Surety herein will pay for the same, otherwise this obligation is to be void. In case suit is brought upon this bond, the Surety will pay a reasonable attorney's fee to be fixed by the court.
2. This bond shall insure to the benefit of any persons named in Civil Code Section 3181 as to give a right of action to such persons or their assigns in any suit brought upon this bond.
3. The aggregate liability of the Surety hereunder, including costs and attorney fees, on all claims whatsoever shall not exceed the penal sum of the bond in accordance with the provisions of Section 996.470(a) of the Code of Civil Procedure.
4. This bond is executed by the Surety, to comply with the provisions of Chapter 7, Title 15, Part 4, Division 3 of the Civil Code and of Chapter 2, Title 14, Part 2 of the Code of Civil Procedure and said bond shall be subject to all of the terms and provisions thereof.
5. This bond may be cancelled by the Surety in accordance with the provisions of Section 996.310 et seq. of the Code of Civil Procedure.
6. This bond to become effective October 11, 2021

North American Specialty Insurance Company (NAME OF SURETY) 1200 Main Street, Suite 800 Kansas City MO 64105 (ADDRESS)

I certify (or declare) under penalty of perjury that I have executed the foregoing bond under an unrevoked power of attorney.

Executed in Fresno (CITY AND STATE) on October 11, 2021 (DATE)

under the laws of the State of California.

(SIGNATURE OF ATTORNEY IN FACT)

Lyn Genito Attorney-in-Fact

(PRINTED OR TYPED NAME OF ATTORNEY IN FACT)

STATE OF CALIFORNIA
STD. 807 (REV 9/87)

## CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )
) ss
County of Fresno )

On 10/11/2021, before me, Bonnie Gonzalez, Notary Public, personally appeared Lyn Genito _____, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

BONNIE GONZALEZ
NOTARY PUBLIC - CALIFORNIA
COMMISSION # 2368139
FRESNO COUNTY
My Comm. Exp. July 27, 2025

(Seal)

Signature: Bonnie Gonzalez

Bonnie Gonzalez, Notary Public

## SWISS RE CORPORATE SOLUTIONS

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
WASHINGTON INTERNATIONAL INSURANCE COMPANY
WESTPORT INSURANCE CORPORATION

# GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT North American Specialty Insurance Company, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Kansas City, Missouri and Washington International Insurance Company a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Kansas City, Missouri, and Westport Insurance Corporation, organized under the laws of the State of Missouri, and having its principal office in the City of Kansas City, Missouri, each does hereby make constitute and appoint:

STEVEN EDWARDS, CODY LYMAN, RALPH BERING BUSCH III, LYN GENITO, and BONNIE GONZALEZ

JOINTLY OR SEVERALLY

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of:

TWO HUNDRED MILLION ($200,000,000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on March 24, 2000 and Westport Insurance Corporation by written consent of its Executive Committee dated July 18, 2011.

"RESOLVED, that any two of the President, any Senior Vice President, any Vice President, any Assistant Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."

NORTH AMERICAN SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1973 NEW HAMPSHIRE

WASHINGTON INTERNATIONAL INSURANCE COMPANY CORPORATE SEAL NEW HAMPSHIRE

By _____
Steven P. Anderson, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

By _____
Michael A. Ito, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

WESTPORT INSURANCE CORPORATION CORPORATE SEAL MISSOURI

IN WITNESS WHEREOF, North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this this 12th day of June, 2019.

**North American Specialty Insurance Company**
**Washington International Insurance Company**
**Westport Insurance Corporation**

State of Illinois
County of Cook ss:

On this 12th day of June, 2019, before me, a Notary Public personally appeared Steven P. Anderson, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation and Michael A. Ito Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.

OFFICIAL SEAL
M. KENNY
Notary Public - State of Illinois
My Commission Expires
12/04/2021

M. Kenny, Notary Public

I, Jeffrey Goldberg, the duly elected Vice President and Assistant Secretary of North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 11th day of October, 2021

Jeffrey Goldberg, Vice President & Assistant Secretary of Washington International Insurance Company & North American Specialty Insurance Company & Vice President & Assistant Secretary of Westport Insurance Corporation

KROEINC-02 PSTOCKDALE

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 10/11/2021

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

| PRODUCER | CONTACT NAME: | |
|---|---|---|
| Fresno CSG-Alliant Insurance Services, Inc.<br>9 E River Park Place East Ste 310<br>Fresno, CA 93720 | PHONE (A/C, No, Ext): (559) 374-3560 | FAX (A/C, No): |
| | E-MAIL ADDRESS: | |

| INSURED | INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|---|
| Kroeker Inc<br>4627 S. Chestnut AVe<br>Fresno, CA 93725 | INSURER A : Nautilus Insurance Company | 17370 |
| | INSURER B : Key Risk Insurance Company | 10885 |
| | INSURER C : | |
| | INSURER D : | |
| | INSURER E : | |
| | INSURER F : | |

**COVERAGES** **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | X COMMERCIAL GENERAL LIABILITY<br>CLAIMS-MADE X OCCUR<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>X POLICY X PRO-JECT X LOC<br>X OTHER: Excludes Concrete Construction | X | | GLP2030171-12 | 9/30/2021 | 9/30/2022 | EACH OCCURRENCE<br>DAMAGE TO RENTED PREMISES (Ea occurrence)<br>MED EXP (Any one person)<br>PERSONAL & ADV INJURY<br>GENERAL AGGREGATE<br>PRODUCTS - COMP/OP AGG | $ 1,000,000<br>$ 300,000<br>$ 10,000<br>$ 1,000,000<br>$ 2,000,000<br>$ 2,000,000 |
| B | AUTOMOBILE LIABILITY<br>X ANY AUTO<br>OWNED AUTOS ONLY / SCHEDULED AUTOS<br>X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY | X | | BAP2030153-12 | 9/30/2021 | 9/30/2022 | COMBINED SINGLE LIMIT (Ea accident)<br>BODILY INJURY (Per person)<br>BODILY INJURY (Per accident)<br>PROPERTY DAMAGE (Per accident) | $ 1,000,000<br>$<br>$<br>$ |
| A | X UMBRELLA LIAB X OCCUR<br>EXCESS LIAB CLAIMS-MADE<br>DED RETENTION $ | X | | FFX2030172-12 | 9/30/2021 | 9/30/2022 | EACH OCCURRENCE<br>AGGREGATE | $ 10,000,000<br>$ 10,000,000 |
| | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY<br>ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N<br>(Mandatory in NH)<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | | | | | PER STATUTE / OTH-ER<br>E.L. EACH ACCIDENT<br>E.L. DISEASE - EA EMPLOYEE<br>E.L. DISEASE - POLICY LIMIT | <br>$<br>$<br>$ |

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

**Regarding Fancher Creek Trail- Contract Number: 21-04-C: County of Fresno, its officers, agents and employees are included individually and collectively, as Additionl Insured but insofar as the operations under this agreement are concerned. Such coverage for Additional Insured shall be primary insurance and any other insurance, or self insurance, maintained by County, its officers, agents, and employees shall be excess only and not contributing with insurance provided under Contractor's policies herein. This insurance shall not be cancelled or changed without a minimum of thirty (30) days advance written notice given to County.**

**CERTIFICATE HOLDER**

County of Fresno, Design Services
2220 Tulare Sr. 6th Floor
Fresno, CA 93720

**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Pamela A Stockdale


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The ACORD name and logo are registered marks of ACORD

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

# ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

**SCHEDULE**

| Name Of Additional Insured Person(s) Or Organization(s) | Location(s) Of Covered Operations |
|---|---|
| Any person or organization that you are required by written contract or agreement to include as an additional insured | Any location |
| Information required to complete this Schedule, if not shown above, will be shown in the Declarations. | |

**A.** **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

**B.** With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.


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**C.** With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

**1.** Required by the contract or agreement; or

**2.** Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.


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**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

# ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

**SCHEDULE**

| Name Of Additional Insured Person(s) Or Organization(s) | Location And Description Of Completed Operations |
|---|---|
| Any person or organization that you are required by written contract or agreement to include as an additional insured | Any location |
| Information required to complete this Schedule, if not shown above, will be shown in the Declarations. | |

**A.** **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the Schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

**B.** With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.


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**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

# PRIMARY AND NONCONTRIBUTORY – OTHER INSURANCE CONDITION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

The following is added to the **Other Insurance** Condition and supersedes any provision to the contrary:

**Primary and Noncontributory Insurance**

This insurance is primary to and will not seek contribution from any other insurance available to an additional insured under your policy provided that:

**(1)** The additional insured is a Named Insured under such other insurance; and

**(2)** You have agreed in writing in a contract or agreement that this insurance would be primary and would not seek contribution from any other insurance available to the additional insured.

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# ENDORSEMENT

This endorsement forms a part of the policy to which it is attached. Please read it carefully.

## NOTICE OF CANCELLATION TO DESIGNATED ENTITIES

**SCHEDULE**

| **Name of Person(s) or Organization(s)** |
| --- |
| Per written request(s) of the named insured on file with the company |

In consideration of an additional premium of $0 and notwithstanding anything contained in the policy to the contrary, it is hereby agreed and understood if the Company cancels this policy on or before the expiration date of the policy, the Company will mail or deliver to the person(s) or organization(s) shown in the schedule above, written notice of cancellation to the address included above not less than 30 days prior to the effective date of cancellation. Proof of mailing of notice shall be sufficient proof of notice. The effective date and hour of cancellation stated in the notice shall be the end of the policy period.

This endorsement shall not apply for the following reasons:

**a.** non-payment of premium, or

**b.** the policy is non-renewed for any reason.

**ALL OTHER TERMS AND CONDITIONS OF THE POLICY SHALL APPLY AND REMAIN UNCHANGED.**

# ENDORSEMENT

This endorsement forms a part of the policy to which it is attached. Please read it carefully.

**BUSINESS AUTO – ADDITIONAL INSURED**
**WHEN REQUIRED BY CONTRACT OR AGREEMENT**

This endorsement modifies insurance provided under the following:

**BUSINESS AUTO COVERAGE FORM**

**Section II – Liability Coverage A. – Coverage, 1. Who is an Insured**, is amended to add:

**d.** Any person or organization to whom you become obligated to include as an additional insured under this policy, as a result of any contract or agreement you enter into, excluding contracts or agreements for professional services, which requires you to furnish insurance to that person or organization of the type provided by this policy, but only with respect to liability arising out of your operations or premises owned by or rented to you. However, the insurance provided will not exceed the lesser of:

**1.** The coverage and/or limits of this policy; or

**2.** The coverage and/or limits required by said contract or agreement.

**ALL OTHER TERMS AND CONDITIONS OF THE POLICY SHALL APPLY AND REMAIN UNCHANGED.**

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THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

# PRIMARY AND NON-CONTRIBUTORY COVERAGE - ADDITIONAL INSURED - BUSINESS AUTO

This endorsement modifies insurance provided under the following:
BUSINESS AUTO COVERAGE FORM

**SCHEDULE**

| Name of Person(s) or Organization(s) |
|---|
| Blanket applies when required by written contract.<br><br>This responsibility ends when the contractual obligations of the insured ends. |

A. The following is added to Paragraph c. under **A.1. Who Is An Insured,** of **Section II - Covered Autos Liability Coverage:**

Any person or organization shown in the above Schedule who is required to be named as an additional insured under a written contract or agreement between you and that person or organization is an "insured" for Liability Coverage, but only for damages to which this insurance applies and only to the extent that person or organization qualifies as an "insured" under the **Who Is An Insured** provision contained in **Section II.** In addition, the written contract or agreement must be signed and executed by you and the person or organization before the "bodily injury" or "property damage" occurs and in effect during the policy period.

B. The following is added to Paragraph 5. Other Insurance, under **B. General Conditions** of **Section IV - Business Auto Conditions:**

If the person or organization in the above Schedule under a written contract or agreement with you requires this insurance to be primary and non contributory, regardless of the provisions under paragraph a. and paragraph d. of part **5. Other Insurance,** this insurance will be primary and non contributory to any other insurance where the scheduled person or organization is a Named Insured, with respects to the insured's sole negligence. The written contract or agreement must be signed and executed by you and the person or organization before the "bodily injury" or "property damage" occurs and in effect during the policy period.

# FOLLOW FORM EXCESS LIABILITY COVERAGE FORM

Various provisions in this policy restrict coverage. Read the entire policy carefully to determine rights, duties and what is and is not covered.

Throughout this policy the words "you" and "your" refer to the Named Insured shown in the Declarations, and any other person or organization qualifying as a Named Insured under this policy. The words "we", "us" and "our" refer to the company providing this insurance. The word "insured" means any person or organization qualifying as such under the **controlling underlying insurance**.

Other words and phrases that appear in **bold** in this Coverage Form have special meaning. Refer to Section **IV -** Definitions. Other words and phrases that are not defined under this Coverage Form but defined in the **controlling underlying insurance** will have the meaning described in the policy of **controlling underlying insurance**.

This policy is subject to the same representations and warranties as are contained in the application for any **controlling underlying insurance,** and the insurance provided under this Coverage Form will follow the same terms, conditions, agreements, exclusions, definitions and limitations that are contained in the applicable **controlling underlying insurance**, unless otherwise directed by this insurance. To the extent such provisions differ or conflict, the provisions of this Coverage Form will apply. However, the coverage provided under this Coverage Form will not be broader than that provided by the applicable **controlling underlying insurance**.

There may be more than one **controlling underlying insurance** listed in the Declarations and provisions in those policies conflict, and which are not superseded by the provisions of this Coverage Form. In such a case, the terms, conditions, agreements, exclusions, definitions and limitations of the **controlling underlying insurance** applicable to the particular **event** for which a claim is made or suit is brought will apply.

## SECTION I - COVERAGES

### 1. Insuring Agreement

**a.** We will pay on behalf of the insured the **ultimate net loss** in excess of the **retained limit** because of **injury or damage** to which insurance provided under this Coverage Form applies.

Where the **controlling underlying insurance** has the duty to defend, we will have the right and duty to defend the insured against any suit seeking damages for such **injury or damage** under this Coverage Form when the applicable limits of **controlling underlying insurance** have been exhausted through the payment of the underlying limits in full in accordance with the provisions of such **controlling underlying insurance**.

When we have no duty to defend, we will have the right to defend, or to participate in the defense of, the insured against any other suit seeking damages for **injury or damage**.

However, we will have no duty to defend the insured against any suit seeking damages for which insurance under this policy does not apply.

At our discretion, we may investigate any **event** that may involve this insurance and settle any resultant claim or suit, for which we have the duty to defend.

But:

**(1)** The amount we will pay for **ultimate net loss** is limited as described in Section II - Limits Of Insurance; and

**(2)** Our right and duty to defend ends when we have used up the applicable limit of insurance in the payment of **defense costs**, judgments or settlements under this Coverage Form.

**b.** This insurance applies to **injury or damage** that is subject to an applicable **retained limit**. If any other limit, such as a sublimit, is specified in the **controlling underlying insurance**, this insurance does not apply to **injury or damage** arising out of that exposure unless that limit is specified in the Declarations under the Schedule of **controlling underlying insurance**.

Furthermore, if any **controlling underlying insurance** shown in the Schedule of Underlying Insurance (**SCHEDULE**) attached hereto has a limit of liability:

**(1)** Greater than the amount shown in such Schedule of Underlying Insurance, then this policy will apply in excess of the greater amount; or

**(2)** Less than the amount shown in such Schedule of Underlying Insurance, then this policy will apply in excess of the amount shown in such Schedule of Underlying Insurance.

**c.** **(1)** If the **controlling underlying insurance** requires, for a particular claim, that the **injury or damage** occur during its policy period in order for that coverage to apply, then this insurance will only apply to that **injury or damage** if it occurs during the policy period of this Coverage Form. If the **controlling underlying insurance** requires that the **event** causing the particular **injury or damage** takes place during its policy period in order for that coverage to apply, then this insurance will apply to the claim only if the **event** causing that **injury or damage** takes place during the policy period of this Coverage Form.

**(2)** If any **controlling underlying insurance** is written on a claims-made or discovery basis, the following applies to the insurance provided by this Coverage Form which is excess over that underlying insurance:

If the **controlling underlying insurance** requires, for a particular claim, that the **injury or damage** occur on or after the Retroactive Date shown in the Declarations of that insurance in order for that coverage to apply, then this insurance will only apply to that **injury or damage** which occurs on or after the Retroactive Date shown in the **controlling underlying insurance** but before the end of the policy period of this Coverage Form. If the **controlling underlying insurance** requires, for a particular claim, that the **event** causing the particular **injury or damage** takes place on or after the Retroactive Date shown in the Declarations of that insurance in order for that coverage to apply, then this insurance will apply to the claim only if the **event** causing that **injury or damage** takes place on or after the Retroactive Date shown in the **controlling underlying insurance** but before the end of the policy period of this Coverage Form.

A claim for damages for such **injury or damage** must be first made against the insured during this policy period or any extended reporting period provided under this Coverage Form. A claim will be considered first made under this Coverage Form:

**(1)** When notice of such claim is received and recorded by any insured or by us, whichever comes first, if the **controlling underlying insurance** is written on a claims-made and recorded basis; or

**(2)** When notice of such claim, after being received by any insured, is reported to us in writing, if the **controlling underlying insurance** is written on any other claims-made basis.

**d.** Any additional insured under any policy of **controlling underlying insurance** will automatically be an additional insured under this insurance. If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance required by the contract, less any amounts payable by any **controlling underlying insurance**.

Additional insured coverage provided by this insurance will not be broader than coverage provided by the **controlling underlying insurance**.

**2. Exclusions**

The following exclusions, and any other exclusions added by endorsement, apply to this Coverage Form. In addition, the exclusions applicable to any **controlling underlying insurance** apply to this insurance unless superseded by the following exclusions, or superseded by any other exclusions added by endorsement to this Coverage Form.

Insurance provided under this Coverage Form does not apply to:

**a. Medical Payments**

Medical payments coverage or expenses that are provided without regard to fault, whether or not provided by the applicable **controlling underlying insurance**.

**b. Auto**

Any loss, cost or expense payable under or resulting from any of the following auto coverages:

**(1)** First-party physical damage coverage;

**(2)** No-fault coverage;

**(3)** Personal injury protection or auto medical payments coverage; or

**(4)** Uninsured or underinsured motorists' coverage.

**c. Workers' Compensation And Similar Laws**

Any obligation of the insured under a workers' compensation, disability benefits or unemployment compensation law or any similar law.

**SECTION II - LIMITS OF INSURANCE**

**1.** The Limits of Insurance shown in the Declarations, and the rules below fix the most we will pay regardless of the number of:

# ENDORSEMENT

This endorsement forms a part of the policy to which it is attached. Please read it carefully.

## NONCONTRIBUTORY – OTHER INSURANCE CONDITION

This endorsement modifies insurance provided under the following:

**FOLLOW FORM EXCESS LIABILITY COVERAGE FORM**

**SCHEDULE**

| **Name Of Additional Insured Person(s) Or Organization(s):** |
|---|
| Any person or organization that you are required by written contract or agreement to include as an additional insured |

Paragraph **8.** Of **Section III – Conditions** is deleted and replaced by the following:

**8. Other Insurance**

**a.** This insurance is excess over, and shall not contribute with any of the other insurance, whether primary, excess, contingent or on any other basis. However:

**(1)** This condition will not apply to other insurance specifically written as excess over this Coverage Form.

**(2)** The insurance provided under this Coverage Form will not seek contribution from any other insurance available to an additional insured, provided that:

**(a)** The additional insured is a Named Insured under such insurance;

**(b)** The additional insured is shown in the Schedule; and

**(c)** You have agreed in writing in a contract or agreement that this insurance would not seek contribution from any other insurance available to the additional insured.

When this insurance is excess, if no other insurer defends, we will undertake to do so, but we will be entitled to the insured's rights against all those other insurers.

**b.** When this insurance is excess over other insurance, we will pay only our share of the **ultimate net loss** that exceeds:

**(1)** The total amount that all such other insurance would pay for the loss in the absence of the insurance provided under this Coverage Form; plus

**(2)** The total of all deductible and self-insured amounts under all that other insurance.

**ALL OTHER TERMS AND CONDITIONS OF THE POLICY SHALL APPLY AND REMAIN UNCHANGED.**

# CERTIFICATE OF LIABILITY INSURANCE

Acct#: 2526344

DATE (MM/DD/YYYY): 10/9/2021

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

| | |
|---|---|
| **PRODUCER**<br>Lockton Companies<br>444 W 47th Street, Suite 900<br>Kansas City, MO 64112-1906 | **CONTACT NAME:**<br>**PHONE (A/C, No, Ext):** 844-290-4908 **FAX (A/C, No):**<br>**E-MAIL ADDRESS:** BBSIcerts@locktonaffinity.com |
| **INSURED**<br>**Barrett Business Services, Inc.**<br>**L/C/F KROEKER, INC.**<br>**4627 SOUTH CHESTNUT**<br>**FRESNO, CA 93725** | **INSURER(S) AFFORDING COVERAGE** — **NAIC #**<br>**INSURER A :** Ace American Insurance Co. — 22667<br>**INSURER B :**<br>**INSURER C :**<br>**INSURER D :**<br>**INSURER E :**<br>**INSURER F :** |

**COVERAGES** **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| | **COMMERCIAL GENERAL LIABILITY** | | | | | | EACH OCCURRENCE | $ |
| | ☐ CLAIMS-MADE ☐ OCCUR | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) | $ |
| | | | | | | | MED EXP (Any one person) | $ |
| | | | | | | | PERSONAL & ADV INJURY | $ |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | GENERAL AGGREGATE | $ |
| | ☐ POLICY ☐ PRO-JECT ☐ LOC | | | | | | PRODUCTS - COMP/OP AGG | $ |
| | OTHER: | | | | | | | $ |
| | **AUTOMOBILE LIABILITY** | | | | | | COMBINED SINGLE LIMIT (Ea accident) | $ |
| | ☐ ANY AUTO | | | | | | BODILY INJURY (Per person) | $ |
| | ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS | | | | | | BODILY INJURY (Per accident) | $ |
| | ☐ HIRED AUTOS ☐ NON-OWNED AUTOS | | | | | | PROPERTY DAMAGE (Per accident) | $ |
| | | | | | | | | $ |
| | ☐ **UMBRELLA LIAB** ☐ OCCUR | | | | | | EACH OCCURRENCE | $ |
| | ☐ **EXCESS LIAB** ☐ CLAIMS-MADE | | | | | | AGGREGATE | $ |
| | ☐ DED ☐ RETENTION $ | | | | | | | $ |
| A | **WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N<br>ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐<br>**(Mandatory in NH)**<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | | C69975070 | 10/1/2021 | 10/1/2022 | X PER STATUTE ☐ OTH-ER | |
| | | | | | | | E.L. EACH ACCIDENT | $ 2,000,000 |
| | | | | | | | E.L. DISEASE - EA EMPLOYEE | $ 2,000,000 |
| | | | | | | | E.L. DISEASE - POLICY LIMIT | $ 2,000,000 |
| | | | | | | | | |

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

Policy State = CA

Fancher Creek Trail

**CERTIFICATE HOLDER**

**County Of Fresno**

**CANCELLATION**

**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.**

**AUTHORIZED REPRESENTATIVE**

Joseph M Arnold

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# AGREEMENT

THIS AGREEMENT made at Fresno, in Fresno County, California, by and between Kroeker, Inc. hereinafter called the Contractor, and the County of Fresno hereinafter called the Owner.

WITNESSETH: That the Contractor and the Owner, for the consideration hereinafter named, agree as follows:

**ARTICLE I.** The Contractor agrees to furnish all labor and materials, including tools, implements, and appliances required, but excluding such materials as are mentioned in the specifications to be furnished by the Owner, and to perform all the work in a good and workmanlike manner, free from any and all liens and claims of mechanics, materialmen, teamsters, subcontractors, artisans, machinists, and laborers required for:

**FANCHER CREEK TRAIL**

**CONTRACT NUMBER: 21-04-C**

All in strict compliance with the plans, drawings and specifications therefor prepared by the Owner, and other contract documents relating thereto.

**ARTICLE II.** The Contractor and the Owner agree that the Notice to Bidders and Special Provisions, the Wage Scale (Prevailing Wages), the Plans and Drawings, Addenda and Bulletins thereto, and the Proposal (Bid Book) hereto attached, together with this Agreement, form the contract, and they are as fully a part of the contract as if hereto attached or herein repeated.

All portions of the Standard Specifications of the State of California, Department of Transportation, dated 2015, which are not in conflict with this contract shall be deemed a part of the specifications as though fully therein set forth; provided, however, that revisions to the said Standard Specifications shall apply only to the extent, if any, included in the Project Details of these specifications or as otherwise incorporated directly herein. No part of said specifications which is in conflict with any portion of this agreement, or which is not actually descriptive of the work to be done thereunder, or of the manner in which said work is to be executed, shall be considered as any part of this agreement, but shall be utterly null and void.

**ARTICLE III.** The Owner agrees to pay the Contractor in current funds for the performance of the contract the sum of **FOUR HUNDRED AND THIRTY EIGHT THOUSAND FOUR HUNDRED AND EIGHTY NINE DOLLARS AND 70/100 ($438,489.70)** it being understood that said price is based upon the estimated quantities of materials to be used as set forth in the Proposal, except where provisions are made in the contract documents whereby the estimated quantities shall constitute the final quantity; that upon completion of the project the final contract prices shall be revised by change order, if necessary, to reflect the true quantities used at the stated unit price thereof as contained in the Contractor's Proposal hereto attached. Payments on account thereof will be made as set forth in the special provisions.

**ARTICLE IV.** If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he or any of his subcontractors should persistently violate any of the provisions of the contract, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Engineer, then the Owner may, upon certificate of the

Engineer when sufficient cause exists to justify such action, serve written notice upon the Contractor and his surety of its intention to terminate the contract, and unless within five days after the serving of such notice, such violations shall cease and satisfactory arrangements for correction thereof be made, the contract shall, upon the expiration of said five days, cease and terminate.

In the event of any such termination, the Owner shall immediately serve written notice thereof upon the surety and the Contractor, and the surety shall have the right to take over and perform the contract, provided, however, that if the surety within ten (10) days after the serving upon it of notice of termination does not give the Owner written notice of its intention to take over and perform the contract or does not commence performance thereof within the ten (10) days stated above from the date of the serving of such notice, the Owner may take over the work and prosecute the same to completion by contract or by any other method it may deem advisable, for the account and at the expense of the Contractor, and the Contractor and his surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the Owner may without liability for so doing, take possession of and utilize in completing the work such materials, appliances, plant and other property belonging to the Contractor as may be on the site of the work and necessary therefor. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expenses of finishing the work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner, as herein provided and damage incurred through the Contractor's default, shall be certified by the Engineer.

**ARTICLE V.** To the fullest extent permitted by law with respect to any work required to be done under this contract, the Contractor will indemnify and hold harmless the COUNTY OF FRESNO, STATE OF CALIFORNIA, FRESNO IRRIGATION DISTRICT, and all other participating public agencies, whether or not said agencies are named herein, who have jurisdiction within the areas in which the work is to be performed, and all officers and employees of the Owner, the County, the State, the United States and said other participating agencies, from any and all costs and expenses, attorney fees and court costs, damages, liabilities, claims and losses occurring or resulting to COUNTY in connection with the performance, or failure to perform, by CONTRACTOR, its officers, agents or employees under this Agreement, and from any and all costs and expenses, attorney fees and court costs, damages, liabilities, claims and losses occurring or resulting to any person, firm or corporation who may be injured or damaged by the performance, or failure to perform, of CONTRACTOR, its officers, agents or employees under this Agreement. In addition, CONTRACTOR agrees to indemnify COUNTY for Federal, State of California and/or local audit exceptions resulting from non-compliance herein on the part of CONTRACTOR.

CONTRACTOR agrees to indemnify, save, hold harmless, and at COUNTY'S request, defend the COUNTY, its officers, agents, and employees from any and all costs and expenses, damages, liabilities, claims, and losses occurring or resulting to COUNTY in connection with the performance, or failure to perform, by CONTRACTOR, its officers, agents, or employees under this Agreement, and from any and all costs and expenses, damages, liabilities, claims, and losses occurring or resulting to any person, firm, or corporation who may be injured or damaged by the performance, or failure to perform, of CONTRACTOR, its officers, agents, or employees under this Agreement.

The Certificate of Insurance shall be issued in duplicate, to the COUNTY OF FRESNO and all other participating agencies, whether or not said agencies are named herein, who contribute to the cost of the work or have jurisdiction over areas in which the work is to be performed and all officers and employees of said agencies while acting within the course and scope of their duties and responsibilities.

In the event CONTRACTOR fails to keep in effect at all times insurance coverage as herein provided, the COUNTY may, in addition to other remedies it may have, suspend or terminate this Agreement upon the occurrence of such event.

All policies shall be with admitted insurers licensed to do business in the State of California. Insurance purchased shall be purchased from companies possessing a current A.M Best Company rating of A FSC VII or better.

Without limiting the COUNTY'S right to obtain indemnification from CONTRACTOR or any third parties, CONTRACTOR, at its sole expense, shall maintain in full force and effect, the following insurance policies or a program of self-insurance, including but not limited to, an insurance pooling arrangement or Joint Powers Agreement (JPA) throughout the term of the Agreement:

A. Commercial General Liability

Commercial General Liability Insurance with limits not less than those shown in the following table:

**Liability Insurance Requirements**

| Total bid | For each occurrence[a] | Aggregate for products/completed operation | General aggregate[b] | Umbrella or excess liability[c] |
|---|---|---|---|---|
| ≤ $1,000,000 | $1,000,000 | $2,000,000 | $2,000,000 | $5,000,000 |
| > $1,000,000 ≤ $10,000,000 | $1,000,000 | $2,000,000 | $2,000,000 | $10,000,000 |
| > $10,000,000 ≤ $25,000,000 | $2,000,000 | $2,000,000 | $4,000,000 | $15,000,000 |
| > $25,000,000 | $2,000,000 | $2,000,000 | $4,000,000 | $25,000,000 |

[a]*Combined single limit for bodily injury and property damage.*
[b]*This limit must apply separately to your work under this Contract.*
[c]*The umbrella or excess policy must contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.*

This policy shall be issued on a per occurrence basis. COUNTY may require specific coverages including completed operations, products liability, contractual liability, Explosion-Collapse-Underground, fire legal liability, or any other liability insurance deemed necessary because of the of the nature of this contract.

Such Commercial General Liability insurance shall name the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned. Such coverage for additional insured shall apply as primary insurance and any other insurance, or self-insurance, maintained by COUNTY, its officers, agents and employees shall be excess only and not contributing with insurance provided under CONTRACTOR's policies herein. This insurance shall not be cancelled or changed without a minimum of thirty (30) days advance written notice given to COUNTY. CONTRACTOR shall obtain endorsements to the Commercial General Liability insurance policy naming COUNTY as an additional insured and providing for a thirty (30) day prior written notice of cancellation or change in terms or coverage.

Within eight (8) days from date CONTRACTOR executes this Agreement, CONTRACTOR shall provide certificates of insurance and endorsement as stated above for all of the foregoing policies, as required herein, to the County of Fresno, Design Services, 2220 Tulare St, 6th Floor, Fresno, CA 93720 or to designservices@fresnocountyca.gov, stating that such insurance coverages have been obtained and are in full force; that the County of Fresno, its officers, agents and employees will not be responsible for an premiums on the policies; that such Commercial General Liability insurance names the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned; that such coverage for additional insured shall apply as primary insurance an any other insurance, or self- insurance shall not be cancelled or changed without a minimum of thirty (30) days advance, written notice given to COUNTY.

CONTRACTOR shall obtain endorsements to the Commercial General Liability insurance naming the County of Fresno, its officers, agents, and employees, individually and collectively, as additional insured, but only insofar as the operations under this Agreement are concerned. Such coverage for additional insured shall apply as primary insurance and any other insurance, or self-insurance, maintained by COUNTY, its officers, agents, and employees shall be excess only and not contributing with insurance provided under CONTRACTOR'S policies herein. This insurance shall not be cancelled or changed without a minimum or thirty (30) days advance written notice given to COUNTY.

B. Automobile Liability

Comprehensive Automobile Liability Insurance with limits of not less than One Million Dollars ($1,000,000) per accident for bodily injury and property damage. Coverage should include owned and non-owned vehicles used in connection with this Agreement and all applicable endorsements.

C. Professional Liability

If CONTRACTOR is a licensed professional or employs professional staff, (e.g., Architect, Engineer, Surveyor, etc.) in providing services, Professional Liability Insurance with limits of not less than One Million Dollars ($1,000,000.00) per occurrence, Three Million Dollars ($3,000,000.00) annual aggregate with a provision for 3 year tail coverage.

D. Worker's Compensation

A policy of Worker's Compensation insurance as may be required by the California Labor Code.

**ARTICLE VI.** Contractor represents that he has secured the payment of Worker's Compensation in compliance with the provisions of the Labor Code of the State of California and during the performance of the work contemplated herein will continue so to comply with said provisions of said Code. Contractor shall supply the Owner with certificates of insurance, in duplicate, evidencing that Worker's Compensation Insurance is in effect and providing that the Owner will receive ten days notice of cancellation. If Contractor self-insures Worker's Compensation, Certificate of Consent to Self-insure should be provided the Owner.

**ARTICLE VII.** The Contractor shall forthwith furnish in duplicate, a faithful performance bond in an amount equal to 100% of the contract price and a payment bond in an amount equal to 100% of the contract price, both bonds to be written by a surety company acceptable to the Owner and in the form prescribed by law.

The payment bond shall contain provisions such that if the Contractor or his subcontractors shall fail to pay (a) amounts due under the Unemployment Insurance Code with respect to work performed under the contract, or (b) any amounts required to be deducted, withheld and paid over to the Employment Development Department and to the Franchise Tax Board from the wages of the employees of the Contractor and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code with respect to such work and labor, then the surety will pay these amounts. In case suit is brought upon the payment bond, the surety will pay a reasonable attorney's fee to be fixed by the court.

**ARTICLE VIII.** This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

Except as provided in Labor Code section 1725.5(f), no contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

Except as provided in Labor Code section 1725.5(f), no contractor or subcontractor may be awarded a contract for public work on a public works project or engage in the performance of work on any public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

Contractor shall comply with all applicable laws and regulations relating to wages and employment, including all requirements imposed by the California Department of Industrial Relations (DIR). Contractor shall cooperate with County to furnish timely all information necessary for County's completion of the form required to be submitted by County when registering the Project on the DIR website; and County thereafter shall provide to Contractor the "Project ID Number" assigned by DIR in order to facilitate Contactor's submission to DIR of its certified payrolls for the Project, in the manner required and using such form as may be prescribed by DIR, in accordance with the provisions of Labor Code section 1771.4(a)(3).

**ARTICLE IX:** Governing Law – Venue for any action arising out of or relating to this Agreement shall be in Fresno County, California. This Agreement shall be governed by the laws of the State of California.

This Contract, **21-04-C**, was awarded by the Board of Supervisors on September 21, 2021. It has been reviewed by the Department of Public Works and Planning and is in proper order for signature of the Chairman of the Board of Supervisors.

IN WITNESS WHEREOF, they have executed this Agreement this _____ day of

_____, 2021

KROEKER INC
(CONTRACTOR)

77-0275632
(Taxpayer Federal I.D. No.)

By _____

Title GENERAL MANAGER

COUNTY OF FRESNO
(OWNER)

By _____
Steve Brandau, Chairman
of the Board of Supervisors of the
County of Fresno

**ATTEST:**
Bernice E. Seidel
Clerk of the Board of Supervisors
County of Fresno, State of California

By _____
Deputy

KROEINC-02 PSTOCKDALE

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 10/11/2021

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

| PRODUCER | CONTACT NAME: | |
|---|---|---|
| Fresno CSG-Alliant Insurance Services, Inc.<br>9 E River Park Place East Ste 310<br>Fresno, CA 93720 | PHONE (A/C, No, Ext): (559) 374-3560 | FAX (A/C, No): |
| | E-MAIL ADDRESS: | |

| INSURED | INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|---|
| Kroeker Inc<br>4627 S. Chestnut AVe<br>Fresno, CA 93725 | INSURER A : Nautilus Insurance Company | 17370 |
| | INSURER B : Key Risk Insurance Company | 10885 |
| | INSURER C : | |
| | INSURER D : | |
| | INSURER E : | |
| | INSURER F : | |

**COVERAGES** **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | X COMMERCIAL GENERAL LIABILITY<br>CLAIMS-MADE X OCCUR<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>X POLICY X PRO-JECT X LOC<br>X OTHER: Excludes Concrete Construction | X | | GLP2030171-12 | 9/30/2021 | 9/30/2022 | EACH OCCURRENCE<br>DAMAGE TO RENTED PREMISES (Ea occurrence)<br>MED EXP (Any one person)<br>PERSONAL & ADV INJURY<br>GENERAL AGGREGATE<br>PRODUCTS - COMP/OP AGG | $ 1,000,000<br>$ 300,000<br>$ 10,000<br>$ 1,000,000<br>$ 2,000,000<br>$ 2,000,000 |
| B | AUTOMOBILE LIABILITY<br>X ANY AUTO<br>OWNED AUTOS ONLY / SCHEDULED AUTOS<br>X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY | X | | BAP2030153-12 | 9/30/2021 | 9/30/2022 | COMBINED SINGLE LIMIT (Ea accident)<br>BODILY INJURY (Per person)<br>BODILY INJURY (Per accident)<br>PROPERTY DAMAGE (Per accident) | $ 1,000,000<br>$<br>$<br>$ |
| A | X UMBRELLA LIAB X OCCUR<br>EXCESS LIAB CLAIMS-MADE<br>DED RETENTION $ | X | | FFX2030172-12 | 9/30/2021 | 9/30/2022 | EACH OCCURRENCE<br>AGGREGATE | $ 10,000,000<br>$ 10,000,000 |
| | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY<br>ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N<br>(Mandatory in NH)<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | | | | | PER STATUTE / OTH-ER<br>E.L. EACH ACCIDENT<br>E.L. DISEASE - EA EMPLOYEE<br>E.L. DISEASE - POLICY LIMIT | <br>$<br>$<br>$ |

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

**Regarding Fancher Creek Trail- Contract Number: 21-04-C: County of Fresno, its officers, agents and employees are included individually and collectively, as Additionl Insured but insofar as the operations under this agreement are concerned. Such coverage for Additional Insured shall be primary insurance and any other insurance, or self insurance, maintained by County, its officers, agents, and employees shall be excess only and not contributing with insurance provided under Contractor's policies herein. This insurance shall not be cancelled or changed without a minimum of thirty (30) days advance written notice given to County.**

**CERTIFICATE HOLDER**

County of Fresno, Design Services
2220 Tulare Sr. 6th Floor
Fresno, CA 93720

**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Pamela A Stockdale


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**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

# ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

**SCHEDULE**

| Name Of Additional Insured Person(s) Or Organization(s) | Location(s) Of Covered Operations |
|---|---|
| Any person or organization that you are required by written contract or agreement to include as an additional insured | Any location |
| Information required to complete this Schedule, if not shown above, will be shown in the Declarations. | |

**A.** **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

1. Your acts or omissions; or
2. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

**B.** With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to "bodily injury" or "property damage" occurring after:

1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.


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**C.** With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

**1.** Required by the contract or agreement; or

**2.** Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.


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**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

# ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

**SCHEDULE**

| Name Of Additional Insured Person(s) Or Organization(s) | Location And Description Of Completed Operations |
|---|---|
| Any person or organization that you are required by written contract or agreement to include as an additional insured | Any location |
| Information required to complete this Schedule, if not shown above, will be shown in the Declarations. | |

**A.** **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" or "property damage" caused, in whole or in part, by "your work" at the location designated and described in the Schedule of this endorsement performed for that additional insured and included in the "products-completed operations hazard".

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

**B.** With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.


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**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

# PRIMARY AND NONCONTRIBUTORY – OTHER INSURANCE CONDITION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

The following is added to the **Other Insurance** Condition and supersedes any provision to the contrary:

**Primary and Noncontributory Insurance**

This insurance is primary to and will not seek contribution from any other insurance available to an additional insured under your policy provided that:

**(1)** The additional insured is a Named Insured under such other insurance; and

**(2)** You have agreed in writing in a contract or agreement that this insurance would be primary and would not seek contribution from any other insurance available to the additional insured.

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# ENDORSEMENT

This endorsement forms a part of the policy to which it is attached. Please read it carefully.

## NOTICE OF CANCELLATION TO DESIGNATED ENTITIES

**SCHEDULE**

| **Name of Person(s) or Organization(s)** |
| --- |
| Per written request(s) of the named insured on file with the company |

In consideration of an additional premium of $0 and notwithstanding anything contained in the policy to the contrary, it is hereby agreed and understood if the Company cancels this policy on or before the expiration date of the policy, the Company will mail or deliver to the person(s) or organization(s) shown in the schedule above, written notice of cancellation to the address included above not less than 30 days prior to the effective date of cancellation. Proof of mailing of notice shall be sufficient proof of notice. The effective date and hour of cancellation stated in the notice shall be the end of the policy period.

This endorsement shall not apply for the following reasons:

**a.** non-payment of premium, or

**b.** the policy is non-renewed for any reason.

**ALL OTHER TERMS AND CONDITIONS OF THE POLICY SHALL APPLY AND REMAIN UNCHANGED.**

# ENDORSEMENT

This endorsement forms a part of the policy to which it is attached. Please read it carefully.

**BUSINESS AUTO – ADDITIONAL INSURED**
**WHEN REQUIRED BY CONTRACT OR AGREEMENT**

This endorsement modifies insurance provided under the following:

**BUSINESS AUTO COVERAGE FORM**

**Section II – Liability Coverage A. – Coverage, 1. Who is an Insured**, is amended to add:

**d.** Any person or organization to whom you become obligated to include as an additional insured under this policy, as a result of any contract or agreement you enter into, excluding contracts or agreements for professional services, which requires you to furnish insurance to that person or organization of the type provided by this policy, but only with respect to liability arising out of your operations or premises owned by or rented to you. However, the insurance provided will not exceed the lesser of:

**1.** The coverage and/or limits of this policy; or

**2.** The coverage and/or limits required by said contract or agreement.

**ALL OTHER TERMS AND CONDITIONS OF THE POLICY SHALL APPLY AND REMAIN UNCHANGED.**

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THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

# PRIMARY AND NON-CONTRIBUTORY COVERAGE - ADDITIONAL INSURED - BUSINESS AUTO

This endorsement modifies insurance provided under the following:
BUSINESS AUTO COVERAGE FORM

**SCHEDULE**

| Name of Person(s) or Organization(s) |
|---|
| Blanket applies when required by written contract.<br><br>This responsibility ends when the contractual obligations of the insured ends. |

A. The following is added to Paragraph c. under **A.1. Who Is An Insured,** of **Section II - Covered Autos Liability Coverage:**

Any person or organization shown in the above Schedule who is required to be named as an additional insured under a written contract or agreement between you and that person or organization is an "insured" for Liability Coverage, but only for damages to which this insurance applies and only to the extent that person or organization qualifies as an "insured" under the **Who Is An Insured** provision contained in **Section II.** In addition, the written contract or agreement must be signed and executed by you and the person or organization before the "bodily injury" or "property damage" occurs and in effect during the policy period.

B. The following is added to Paragraph 5. Other Insurance, under **B. General Conditions** of **Section IV - Business Auto Conditions:**

If the person or organization in the above Schedule under a written contract or agreement with you requires this insurance to be primary and non contributory, regardless of the provisions under paragraph a. and paragraph d. of part **5. Other Insurance,** this insurance will be primary and non contributory to any other insurance where the scheduled person or organization is a Named Insured, with respects to the insured's sole negligence. The written contract or agreement must be signed and executed by you and the person or organization before the "bodily injury" or "property damage" occurs and in effect during the policy period.

# FOLLOW FORM EXCESS LIABILITY COVERAGE FORM

Various provisions in this policy restrict coverage. Read the entire policy carefully to determine rights, duties and what is and is not covered.

Throughout this policy the words "you" and "your" refer to the Named Insured shown in the Declarations, and any other person or organization qualifying as a Named Insured under this policy. The words "we", "us" and "our" refer to the company providing this insurance. The word "insured" means any person or organization qualifying as such under the **controlling underlying insurance**.

Other words and phrases that appear in **bold** in this Coverage Form have special meaning. Refer to Section **IV -** Definitions. Other words and phrases that are not defined under this Coverage Form but defined in the **controlling underlying insurance** will have the meaning described in the policy of **controlling underlying insurance**.

This policy is subject to the same representations and warranties as are contained in the application for any **controlling underlying insurance,** and the insurance provided under this Coverage Form will follow the same terms, conditions, agreements, exclusions, definitions and limitations that are contained in the applicable **controlling underlying insurance**, unless otherwise directed by this insurance. To the extent such provisions differ or conflict, the provisions of this Coverage Form will apply. However, the coverage provided under this Coverage Form will not be broader than that provided by the applicable **controlling underlying insurance**.

There may be more than one **controlling underlying insurance** listed in the Declarations and provisions in those policies conflict, and which are not superseded by the provisions of this Coverage Form. In such a case, the terms, conditions, agreements, exclusions, definitions and limitations of the **controlling underlying insurance** applicable to the particular **event** for which a claim is made or suit is brought will apply.

## SECTION I - COVERAGES

### 1. Insuring Agreement

**a.** We will pay on behalf of the insured the **ultimate net loss** in excess of the **retained limit** because of **injury or damage** to which insurance provided under this Coverage Form applies.

Where the **controlling underlying insurance** has the duty to defend, we will have the right and duty to defend the insured against any suit seeking damages for such **injury or damage** under this Coverage Form when the applicable limits of **controlling underlying insurance** have been exhausted through the payment of the underlying limits in full in accordance with the provisions of such **controlling underlying insurance**.

When we have no duty to defend, we will have the right to defend, or to participate in the defense of, the insured against any other suit seeking damages for **injury or damage**.

However, we will have no duty to defend the insured against any suit seeking damages for which insurance under this policy does not apply.

At our discretion, we may investigate any **event** that may involve this insurance and settle any resultant claim or suit, for which we have the duty to defend.

But:

**(1)** The amount we will pay for **ultimate net loss** is limited as described in Section II - Limits Of Insurance; and

**(2)** Our right and duty to defend ends when we have used up the applicable limit of insurance in the payment of **defense costs**, judgments or settlements under this Coverage Form.

**b.** This insurance applies to **injury or damage** that is subject to an applicable **retained limit**. If any other limit, such as a sublimit, is specified in the **controlling underlying insurance**, this insurance does not apply to **injury or damage** arising out of that exposure unless that limit is specified in the Declarations under the Schedule of **controlling underlying insurance**.

Furthermore, if any **controlling underlying insurance** shown in the Schedule of Underlying Insurance (**SCHEDULE**) attached hereto has a limit of liability:

**(1)** Greater than the amount shown in such Schedule of Underlying Insurance, then this policy will apply in excess of the greater amount; or

**(2)** Less than the amount shown in such Schedule of Underlying Insurance, then this policy will apply in excess of the amount shown in such Schedule of Underlying Insurance.

**c.** **(1)** If the **controlling underlying insurance** requires, for a particular claim, that the **injury or damage** occur during its policy period in order for that coverage to apply, then this insurance will only apply to that **injury or damage** if it occurs during the policy period of this Coverage Form. If the **controlling underlying insurance** requires that the **event** causing the particular **injury or damage** takes place during its policy period in order for that coverage to apply, then this insurance will apply to the claim only if the **event** causing that **injury or damage** takes place during the policy period of this Coverage Form.

**(2)** If any **controlling underlying insurance** is written on a claims-made or discovery basis, the following applies to the insurance provided by this Coverage Form which is excess over that underlying insurance:

If the **controlling underlying insurance** requires, for a particular claim, that the **injury or damage** occur on or after the Retroactive Date shown in the Declarations of that insurance in order for that coverage to apply, then this insurance will only apply to that **injury or damage** which occurs on or after the Retroactive Date shown in the **controlling underlying insurance** but before the end of the policy period of this Coverage Form. If the **controlling underlying insurance** requires, for a particular claim, that the **event** causing the particular **injury or damage** takes place on or after the Retroactive Date shown in the Declarations of that insurance in order for that coverage to apply, then this insurance will apply to the claim only if the **event** causing that **injury or damage** takes place on or after the Retroactive Date shown in the **controlling underlying insurance** but before the end of the policy period of this Coverage Form.

A claim for damages for such **injury or damage** must be first made against the insured during this policy period or any extended reporting period provided under this Coverage Form. A claim will be considered first made under this Coverage Form:

**(1)** When notice of such claim is received and recorded by any insured or by us, whichever comes first, if the **controlling underlying insurance** is written on a claims-made and recorded basis; or

**(2)** When notice of such claim, after being received by any insured, is reported to us in writing, if the **controlling underlying insurance** is written on any other claims-made basis.

**d.** Any additional insured under any policy of **controlling underlying insurance** will automatically be an additional insured under this insurance. If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance required by the contract, less any amounts payable by any **controlling underlying insurance**.

Additional insured coverage provided by this insurance will not be broader than coverage provided by the **controlling underlying insurance**.

**2. Exclusions**

The following exclusions, and any other exclusions added by endorsement, apply to this Coverage Form. In addition, the exclusions applicable to any **controlling underlying insurance** apply to this insurance unless superseded by the following exclusions, or superseded by any other exclusions added by endorsement to this Coverage Form.

Insurance provided under this Coverage Form does not apply to:

**a. Medical Payments**

Medical payments coverage or expenses that are provided without regard to fault, whether or not provided by the applicable **controlling underlying insurance**.

**b. Auto**

Any loss, cost or expense payable under or resulting from any of the following auto coverages:

**(1)** First-party physical damage coverage;

**(2)** No-fault coverage;

**(3)** Personal injury protection or auto medical payments coverage; or

**(4)** Uninsured or underinsured motorists' coverage.

**c. Workers' Compensation And Similar Laws**

Any obligation of the insured under a workers' compensation, disability benefits or unemployment compensation law or any similar law.

**SECTION II - LIMITS OF INSURANCE**

**1.** The Limits of Insurance shown in the Declarations, and the rules below fix the most we will pay regardless of the number of:

# ENDORSEMENT

This endorsement forms a part of the policy to which it is attached. Please read it carefully.

## NONCONTRIBUTORY – OTHER INSURANCE CONDITION

This endorsement modifies insurance provided under the following:

**FOLLOW FORM EXCESS LIABILITY COVERAGE FORM**

**SCHEDULE**

| **Name Of Additional Insured Person(s) Or Organization(s):** |
|---|
| Any person or organization that you are required by written contract or agreement to include as an additional insured |

Paragraph **8.** Of **Section III – Conditions** is deleted and replaced by the following:

**8. Other Insurance**

**a.** This insurance is excess over, and shall not contribute with any of the other insurance, whether primary, excess, contingent or on any other basis. However:

**(1)** This condition will not apply to other insurance specifically written as excess over this Coverage Form.

**(2)** The insurance provided under this Coverage Form will not seek contribution from any other insurance available to an additional insured, provided that:

**(a)** The additional insured is a Named Insured under such insurance;

**(b)** The additional insured is shown in the Schedule; and

**(c)** You have agreed in writing in a contract or agreement that this insurance would not seek contribution from any other insurance available to the additional insured.

When this insurance is excess, if no other insurer defends, we will undertake to do so, but we will be entitled to the insured's rights against all those other insurers.

**b.** When this insurance is excess over other insurance, we will pay only our share of the **ultimate net loss** that exceeds:

**(1)** The total amount that all such other insurance would pay for the loss in the absence of the insurance provided under this Coverage Form; plus

**(2)** The total of all deductible and self-insured amounts under all that other insurance.

**ALL OTHER TERMS AND CONDITIONS OF THE POLICY SHALL APPLY AND REMAIN UNCHANGED.**

# CERTIFICATE OF LIABILITY INSURANCE

Acct#: 2526344

DATE (MM/DD/YYYY): 10/9/2021

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

| | |
|---|---|
| **PRODUCER**<br>Lockton Companies<br>444 W 47th Street, Suite 900<br>Kansas City, MO 64112-1906 | **CONTACT NAME:**<br>**PHONE (A/C, No, Ext):** 844-290-4908 **FAX (A/C, No):**<br>**E-MAIL ADDRESS:** BBSIcerts@locktonaffinity.com |
| **INSURED**<br>**Barrett Business Services, Inc.**<br>**L/C/F KROEKER, INC.**<br>**4627 SOUTH CHESTNUT**<br>**FRESNO, CA 93725** | **INSURER(S) AFFORDING COVERAGE** — **NAIC #**<br>**INSURER A :** Ace American Insurance Co. — 22667<br>**INSURER B :**<br>**INSURER C :**<br>**INSURER D :**<br>**INSURER E :**<br>**INSURER F :** |

**COVERAGES** **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| | **COMMERCIAL GENERAL LIABILITY** | | | | | | EACH OCCURRENCE | $ |
| | ☐ CLAIMS-MADE ☐ OCCUR | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) | $ |
| | | | | | | | MED EXP (Any one person) | $ |
| | | | | | | | PERSONAL & ADV INJURY | $ |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | GENERAL AGGREGATE | $ |
| | ☐ POLICY ☐ PRO-JECT ☐ LOC | | | | | | PRODUCTS - COMP/OP AGG | $ |
| | OTHER: | | | | | | | $ |
| | **AUTOMOBILE LIABILITY** | | | | | | COMBINED SINGLE LIMIT (Ea accident) | $ |
| | ☐ ANY AUTO | | | | | | BODILY INJURY (Per person) | $ |
| | ☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS | | | | | | BODILY INJURY (Per accident) | $ |
| | ☐ HIRED AUTOS ☐ NON-OWNED AUTOS | | | | | | PROPERTY DAMAGE (Per accident) | $ |
| | | | | | | | | $ |
| | ☐ **UMBRELLA LIAB** ☐ OCCUR | | | | | | EACH OCCURRENCE | $ |
| | ☐ **EXCESS LIAB** ☐ CLAIMS-MADE | | | | | | AGGREGATE | $ |
| | ☐ DED ☐ RETENTION $ | | | | | | | $ |
| A | **WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** Y / N<br>ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐<br>**(Mandatory in NH)**<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | | C69975070 | 10/1/2021 | 10/1/2022 | X PER STATUTE ☐ OTH-ER | |
| | | | | | | | E.L. EACH ACCIDENT | $ 2,000,000 |
| | | | | | | | E.L. DISEASE - EA EMPLOYEE | $ 2,000,000 |
| | | | | | | | E.L. DISEASE - POLICY LIMIT | $ 2,000,000 |
| | | | | | | | | |

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

Policy State = CA

Fancher Creek Trail

**CERTIFICATE HOLDER**

**County Of Fresno**

**CANCELLATION**

**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.**

**AUTHORIZED REPRESENTATIVE**

Joseph M Arnold

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**The ACORD name and logo are registered marks of ACORD**

THE AMERICAN INSTITUTE OF ARCHITECTS

Premium: $7,577.00

Bond No. 2316892

*AIA Document A312*

# Performance Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

Kroeker, Inc.
4627 S. Chestnut Ave.
Fresno CA 93725

SURETY (Name and Principal Place of Business):

North American Specialty Insurance Company
1200 Main Street, Suite 800
Kansas City MO 64105

OWNER (Name and Address):

County of Fresno
2220 Tulare Street, Suite 720
Fresno CA 93721

CONSTRUCTION CONTRACT
Date:
Amount: ($ 438,489.70 ) Four Hundred Thirty Eight Thousand Four Hundred Eighty Nine Dollars and 70/100
Description (Name and Location): Fancher Creek Trail; Contract Number 21-04-C

BOND
Date (Not earlier than Construction Contract Date): October 11, 2021
Amount: ($ 438,489.70 ) Four Hundred Thirty Eight Thousand Four Hundred Eighty Nine Dollars and 70/100
Modifications to this Bond: ☒ None ☐ See Page 3

CONTRACTOR AS PRINCIPAL
Company: (Corporate Seal)
Kroeker, Inc.
Signature:
Name and Title: Bryce Jones, General Manager

SURETY
Company: (Corporate Seal)
North American Specialty Insurance Company
Signature:
Name and Title: Lyn Genito
Attorney-in-Fact

(Any additional signatures appear on page 3)

*(FOR INFORMATION ONLY—Name, Address and Telephone)*
AGENT or BROKER:

Alliant Insurance Services, Inc.
9 River Place East, 3rd Floor
Fresno CA 93720
559-374-3576

OWNER'S REPRESENTATIVE (Architect, Engineer or other party):

NORTH AMERICAN SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1973 NEW HAMPSHIRE

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

2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.

3 If there is no Owner Default, the Surety's obligation under this Bond shall arise after:

**3.1** The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and

**3.2** The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1; and

**3.3** The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

4 When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

**4.1** Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or

**4.2** Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or

**4.3** Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or

**4.4** Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or

.2 Deny liability in whole or in part and notify the Owner citing reasons therefor.

5 If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

6 After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:

**6.1** The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

**6.2** Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and

**6.3** Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

7 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators or successors.

8 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

9 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation avail-

able to sureties as a defense in the jurisdiction of the suit shall be applicable.

**10** Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.

**11** When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

**12 DEFINITIONS**

**12.1** Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

**12.2** Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

**12.3** Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

**12.4** Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

**MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:**

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

| CONTRACTOR AS PRINCIPAL | | SURETY | |
|---|---|---|---|
| Company: | (Corporate Seal) | Company: | (Corporate Seal) |
| Signature: | | Signature: | |
| Name and Title: | Bryce Jones, General Manager | Name and Title: | |
| Address: | | Address: | |

## CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT — Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )
) ss
County of Fresno )

On 10/11/2021, before me, Bonnie Gonzalez, Notary Public, personally appeared Lyn Genito _____, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

BONNIE GONZALEZ
NOTARY PUBLIC - CALIFORNIA
COMMISSION # 2366139
FRESNO COUNTY
My Comm. Exp. July 27, 2025

(Seal)

Signature: _____
Bonnie Gonzalez, Notary Public

## SWISS RE CORPORATE SOLUTIONS

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
WASHINGTON INTERNATIONAL INSURANCE COMPANY
WESTPORT INSURANCE CORPORATION

# GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT North American Specialty Insurance Company, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Kansas City, Missouri and Washington International Insurance Company a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Kansas City, Missouri, and Westport Insurance Corporation, organized under the laws of the State of Missouri, and having its principal office in the City of Kansas City, Missouri, each does hereby make constitute and appoint:

STEVEN EDWARDS, CODY LYMAN, RALPH BERING BUSCH III, LYN GENITO, and BONNIE GONZALEZ

JOINTLY OR SEVERALLY

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of:

TWO HUNDRED MILLION ($200,000,000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on March 24, 2000 and Westport Insurance Corporation by written consent of its Executive Committee dated July 18, 2011.

"RESOLVED, that any two of the President, any Senior Vice President, any Vice President, any Assistant Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."

NORTH AMERICAN SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1973 NEW HAMPSHIRE

WASHINGTON INTERNATIONAL INSURANCE COMPANY CORPORATE SEAL NEW HAMPSHIRE

By _____
Steven P. Anderson, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

By _____
Michael A. Ito, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

WESTPORT INSURANCE CORPORATION CORPORATE SEAL MISSOURI

IN WITNESS WHEREOF, North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this 12th day of June, 20 19.

**North American Specialty Insurance Company**
**Washington International Insurance Company**
**Westport Insurance Corporation**

State of Illinois
County of Cook ss:

On this 12th day of June, 20 19, before me, a Notary Public personally appeared Steven P. Anderson, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation and Michael A. Ito Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.

OFFICIAL SEAL
M. KENNY
Notary Public - State of Illinois
My Commission Expires
12/04/2021

M. Kenny, Notary Public

I, Jeffrey Goldberg, the duly elected Vice President and Assistant Secretary of North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 11th day of October, 21

Jeffrey Goldberg, Vice President & Assistant Secretary of Washington International Insurance Company & North American Specialty Insurance Company & Vice President & Assistant Secretary of Westport Insurance Corporation

## PAYMENT BOND TO ACCOMPANY CONSTRUCTION CONTRACT

(CIVIL CODE SECTION 3247)

BOND NO. 2316892

The premium on this bond is Premium is included in Performance Bond for the term 10/11/2021-10/11/2022

**Know All Men By These Presents:**

That The State of California, acting by and through the County of Fresno

has awarded to Kroeker, Inc. whose address is

*(CONTRACTOR / PRINCIPLE)*

4627 S. Chestnut Ave. Fresno CA 93725 as Principle, a contract for the work described as follows:

Fancher Creek Trail; Contract Number 21-04-C

WHEREAS, The provisions of Civil Code Section 3247 require that the Principle file a bond in connection with said contract and this bond is executed and tendered in accordance therewith.

NOW THEREFORE, Principle and North American Specialty Insurance Company, a corporation organized

*(SURETY)*

under the laws of NH, and authorized to transact a general surety business in the State of California, as Surety, are held and firmly bound to the People of the State of California in the penal sum of Four Hundred Thirty Eight Thousand Four Hundred Eighty Nine Dollars and 70/100 ( $438,489.70 ), for which payment we bind ourselves, our heirs, executors, administrators, successors and assigns jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH,

1. That if said Principle or its subcontractors shall fail to pay any of the persons named in Civil Code Section 3181, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principle and subcontractors pursuant to Section 13020 of the Unemployment Insurance Code, with respect to such work and labor, that the Surety herein will pay for the same, otherwise this obligation is to be void. In case suit is brought upon this bond, the Surety will pay a reasonable attorney's fee to be fixed by the court.
2. This bond shall insure to the benefit of any persons named in Civil Code Section 3181 as to give a right of action to such persons or their assigns in any suit brought upon this bond.
3. The aggregate liability of the Surety hereunder, including costs and attorney fees, on all claims whatsoever shall not exceed the penal sum of the bond in accordance with the provisions of Section 996.470(a) of the Code of Civil Procedure.
4. This bond is executed by the Surety, to comply with the provisions of Chapter 7, Title 15, Part 4, Division 3 of the Civil Code and of Chapter 2, Title 14, Part 2 of the Code of Civil Procedure and said bond shall be subject to all of the terms and provisions thereof.
5. This bond may be cancelled by the Surety in accordance with the provisions of Section 996.310 et seq. of the Code of Civil Procedure.
6. This bond to become effective October 11, 2021

North American Specialty Insurance Company (NAME OF SURETY) 1200 Main Street, Suite 800 Kansas City MO 64105 (ADDRESS)

I certify (or declare) under penalty of perjury that I have executed the foregoing bond under an unrevoked power of attorney.

Executed in Fresno (CITY AND STATE) on October 11, 2021 (DATE)

under the laws of the State of California.

(SIGNATURE OF ATTORNEY IN FACT)

Lyn Genito Attorney-in-Fact

(PRINTED OR TYPED NAME OF ATTORNEY IN FACT)

STATE OF CALIFORNIA
STD. 807 (REV 9/87)

## CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

Civil Code § 1189

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California )
) ss
County of Fresno )

On 10/11/2021, before me, Bonnie Gonzalez, Notary Public, personally appeared Lyn Genito _____, who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is~~/are~~ subscribed to the within instrument and acknowledged to me that ~~he~~/she/~~they~~ executed the same in ~~his~~/her/~~their~~ authorized capacity~~(ies)~~, and that by ~~his~~/her/~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

BONNIE GONZALEZ
NOTARY PUBLIC - CALIFORNIA
COMMISSION # 2368139
FRESNO COUNTY
My Comm. Exp. July 27, 2025

(Seal)

Signature: Bonnie Gonzalez

Bonnie Gonzalez, Notary Public

## SWISS RE CORPORATE SOLUTIONS

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
WASHINGTON INTERNATIONAL INSURANCE COMPANY
WESTPORT INSURANCE CORPORATION

# GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT North American Specialty Insurance Company, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Kansas City, Missouri and Washington International Insurance Company a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Kansas City, Missouri, and Westport Insurance Corporation, organized under the laws of the State of Missouri, and having its principal office in the City of Kansas City, Missouri, each does hereby make constitute and appoint:

STEVEN EDWARDS, CODY LYMAN, RALPH BERING BUSCH III, LYN GENITO, and BONNIE GONZALEZ

JOINTLY OR SEVERALLY

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of:

TWO HUNDRED MILLION ($200,000,000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on March 24, 2000 and Westport Insurance Corporation by written consent of its Executive Committee dated July 18, 2011.

"RESOLVED, that any two of the President, any Senior Vice President, any Vice President, any Assistant Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."

NORTH AMERICAN SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1973 NEW HAMPSHIRE

WASHINGTON INTERNATIONAL INSURANCE COMPANY CORPORATE SEAL NEW HAMPSHIRE

By _____
Steven P. Anderson, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

By _____
Michael A. Ito, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

WESTPORT INSURANCE CORPORATION CORPORATE SEAL MISSOURI

IN WITNESS WHEREOF, North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this this 12th day of June, 2019.

**North American Specialty Insurance Company**
**Washington International Insurance Company**
**Westport Insurance Corporation**

State of Illinois
County of Cook ss:

On this 12th day of June, 2019, before me, a Notary Public personally appeared Steven P. Anderson, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation and Michael A. Ito Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.

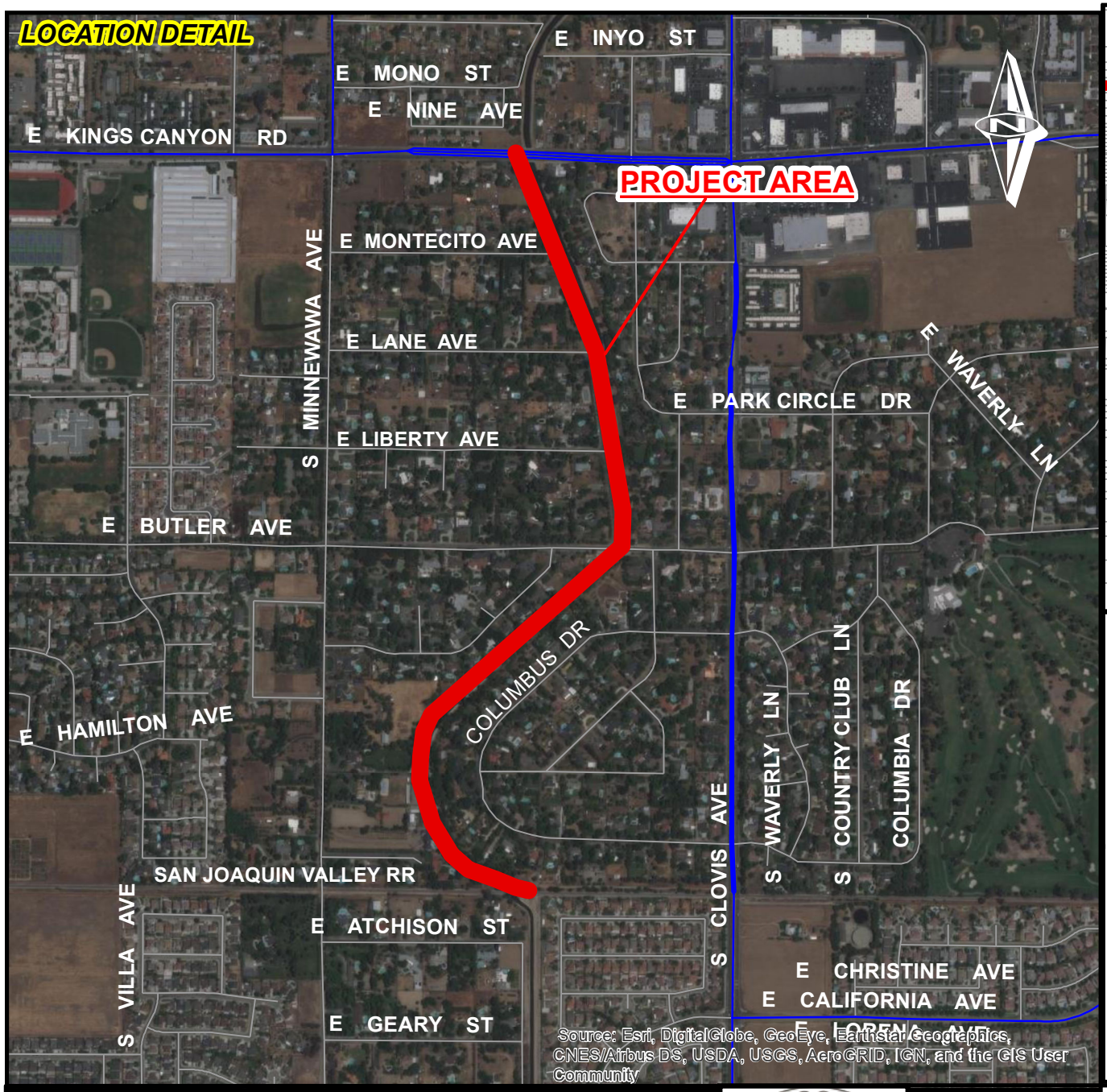
OFFICIAL SEAL
M. KENNY
Notary Public - State of Illinois
My Commission Expires
12/04/2021

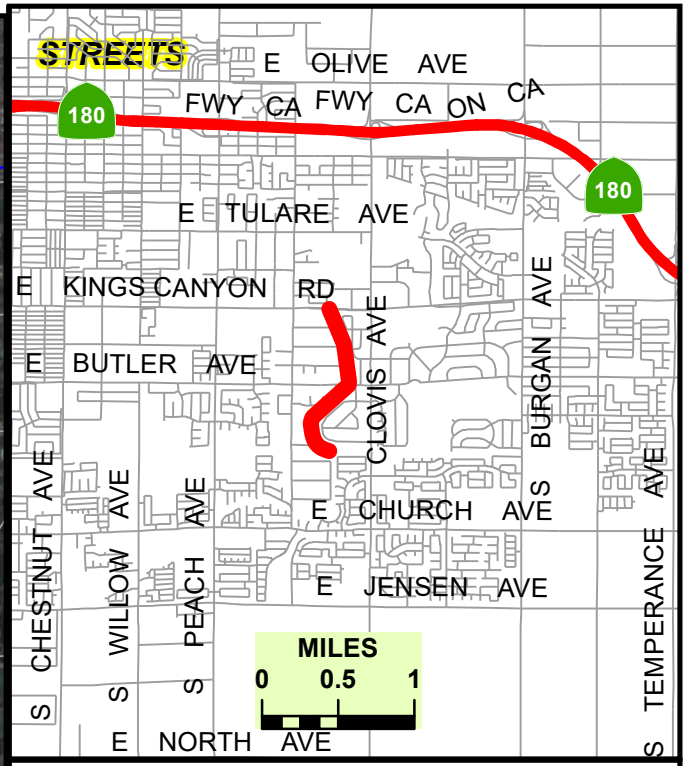
M. Kenny, Notary Public

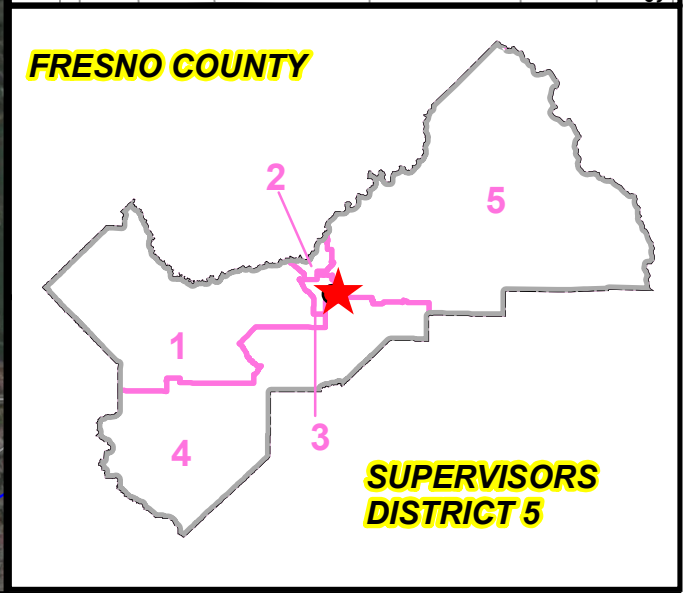
I, Jeffrey Goldberg, the duly elected Vice President and Assistant Secretary of North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 11th day of October, 2021

Jeffrey Goldberg, Vice President & Assistant Secretary of Washington International Insurance Company & North American Specialty Insurance Company & Vice President & Assistant Secretary of Westport Insurance Corporation




| | DATE: | SCALE IN FEET |
|---|---|---|
| DESIGNED: D.N. | 8/12/2021 | 0 500 1,000 |
| DRAWN: D.N. | 8/12/2021 | |
| STATE BRIDGE NO. N/A | | |

DEPARTMENT OF PUBLIC WORKS & PLANNING

# FANCHER CREEK BRIDLE PATH FROM KINGS CANYON RD TO SJV RR TRACKS

# County of Fresno

DEPARTMENT OF PUBLIC WORKS AND PLANNING
**STEVEN E. WHITE, DIRECTOR**


October 19, 2021

Joyce Kroeker, President
Kroeker, Inc.
4627 S. Chestnut Ave.
Fresno, CA 93725

Transmitted by email to: jeffk@kroekerinc.com;KathyN@kroekerinc.com;donc@kroekerinc.com

Dear Joyce Kroeker:

Subject: Notice of Approval, Fancher Creek Trail
Contract No. 21-04-C

The contract between your firm and the County of Fresno for the referenced project became operative on October 19, 2021. A copy of the executed contract is enclosed.

A "Notice to Proceed" authorizing commencement of the work will be issued by the Construction Engineer.

DIR Project ID 391182 is assigned to Contract No. 21-04-C

The enclosed copy of Section 41 of the Charter of the County of Fresno is for your reference and compliance. If you have any questions contact Erin Haagenson at ehaagenson@fresnocountyca.gov or (559) 600-9908.

Sincerely,

Mohammad Alimi, Ph.D., P.E.
Design Division Engineer

Erin Haagenson
Senior Staff Analyst

Enclosures

cc: Board of Supervisors
Auditor – Controller
Financial Services
Construction Management
Design Division – Design Services