Meeting Date: **5/20/2014**

Report Type: Consent

Report ID: 2014-00338

City of SACRAMENTO **10**

City Council Report
915 I Street, 1st Floor
www.CityofSacramento.org

Title: Guy West Bridge Rehabilitation Project (K15105000) – Contract Award (Reviewed 05/13/2014)

Location: The Guy West Bridge spans the American River between California State University Sacramento and University Avenue in the Campus Commons community. The bridge is located in Council Districts 3 and 6.

Recommendation: Pass a Motion 1) approving the Plans and Specifications for the Guy West Bridge Rehabilitation Project (K15105000); and 2) awarding a construction contract to F.D. Thomas Inc. in an amount not to exceed $1,531,875.

Contact: Ricky Chuck, Associate Engineer, (916) 808-5050; Nicholas Theocharides, Engineering Services Manager, (916) 808-5065, Department of Public Works

Presenter: None

Department: Public Works Department

Division: Engineering Services Admin

Dept ID: 15001111

Attachments:
1-Description/Analysis
2-Background
3-Exhibit A Location Map
4-Guy West Bridge Contract

City Attorney Review

Approved as to Form
Joe Robinson
5/7/2014 5:56:58 PM

Approvals/Acknowledgements

Department Director or Designee: Jerry Way - 5/2/2014 7:08:42 AM

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Description/Analysis

Issue: The Guy West Bridge needs repair and repainting to ensure it continues to provide a safe and convenient bicycle and pedestrian route across the American River.

The Guy West Bridge Rehabilitation Project (K15105000) was advertised and bids were received. F.D. Thomas Inc. is the lowest responsive and responsible bidder. City Council approval is necessary to move forward with awarding the construction contract.

Policy Considerations: The action requested is consistent with the City's General Plan goals for improving public safety, achieving sustainability and enhanced livability by repairing a community asset that promotes walking and biking.

Economic Impacts: This rehabilitation project is expected to create 6.13 total jobs (3.52 direct jobs and 2.6 jobs through indirect and induced activities) and create $945,833 in total economic output ($596,165 of direct output and another $349,667 of output through indirect and induced activities).

The indicated economic impacts are estimates calculated using a calculation tool developed by the Center for Strategic Economic Research (CSER). CSER utilized the IMPLAN input-output model (2009 coefficients) to qualify the economic impacts of a hypothetical $1 million of spending in various construction categories within the City of Sacramento in an average one-year period. Actual impacts could differ significantly from the estimates and neither the city of Sacramento nor CSER shall be held responsible for consequences resulting from such differences.

Environmental Considerations:

California Environmental Quality Act (CEQA): The City adopted a Mitigated Negative Declaration (MND) for the Project in conformance with CEQA on December 3, 2013.

Sustainability Considerations: The project is consistent with the City's Sustainability Master Plan Goal of reducing the dependence on automobiles by ensuring the Guy West Bridge is maintained so that bicyclists and pedestrians will have use of the bridge for future generations to come.

Commission/Committee Action: None

Rationale for Recommendation: The project was advertised and bids were received on April 2, 2014. F.D. Thomas Inc. is the lowest responsive and responsible bidder.

The bids are summarized below:

Contractor	Bid Amount	LBE Participation Requirement (5%)
F.D. Thomas Inc.	$1,531,875.07	83.7%
Diana Prince	$1,969,143.00	5.1%
American Civil Constructors	$2,240,000.00	5.7%
Techno Coatings, Inc.	$2,454,593.89	89.4%

The Engineer's estimate was $2,000,000.

Construction is anticipated to begin in June 2014 and be completed in December 2014.

Financial Considerations: The estimated total project cost for the Guy West Bridge Rehabilitation Project (K15105000) is $3,119,000. To date $587,505 has been expended. As of April 15, 2014, the unobligated balance is $2,531,495 which is sufficient to execute the construction contract with F.D. Thomas Inc. in the not-to-exceed amount of $1,531,875 and cover the remaining project costs.

There are no General Funds planned or allocated for this project.

Local Business Enterprise (LBE): The City's LBE participation requirement for this project is 5%. The project was announced on the City's Project Internet site at www.cityofsacramento.org/bids. F.D. Thomas Inc. is an LBE and achieves 83.7% LBE participation.

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Background:

The Guy West Bridge is a steel suspension bridge over the American River which was constructed in 1966 for use by pedestrians and bicyclists. In 1987, broken wires were discovered in three vertical suspender ropes. An investigation by the City concluded the broken wires were due to fatigue failure. In 1990, all the vertical suspender ropes were replaced with a similar design. It was expected that an in-kind replacement of the original design would provide a similar suspender rope service life of approximately 20 years.

In 2011, an in-depth inspection and subsequent need assessment report identified various deficiencies in the bridge and recommended repairs. In 2012, sampling and testing of fractured wire samples, applying banding to the cables to prevent strand unraveling, and relocating the out of position main cable spacer work was completed. The current proposed project will complete recommended repairs which will include minor truss and deck repair, replacement of bearing pads, handrail repairs, full removal and replacement of the failing lead-based paint system, and replacement of SMUD electrical conduits. The proposed improvements will bring the bridge to current standards and will result in a sustainable landmark structure.

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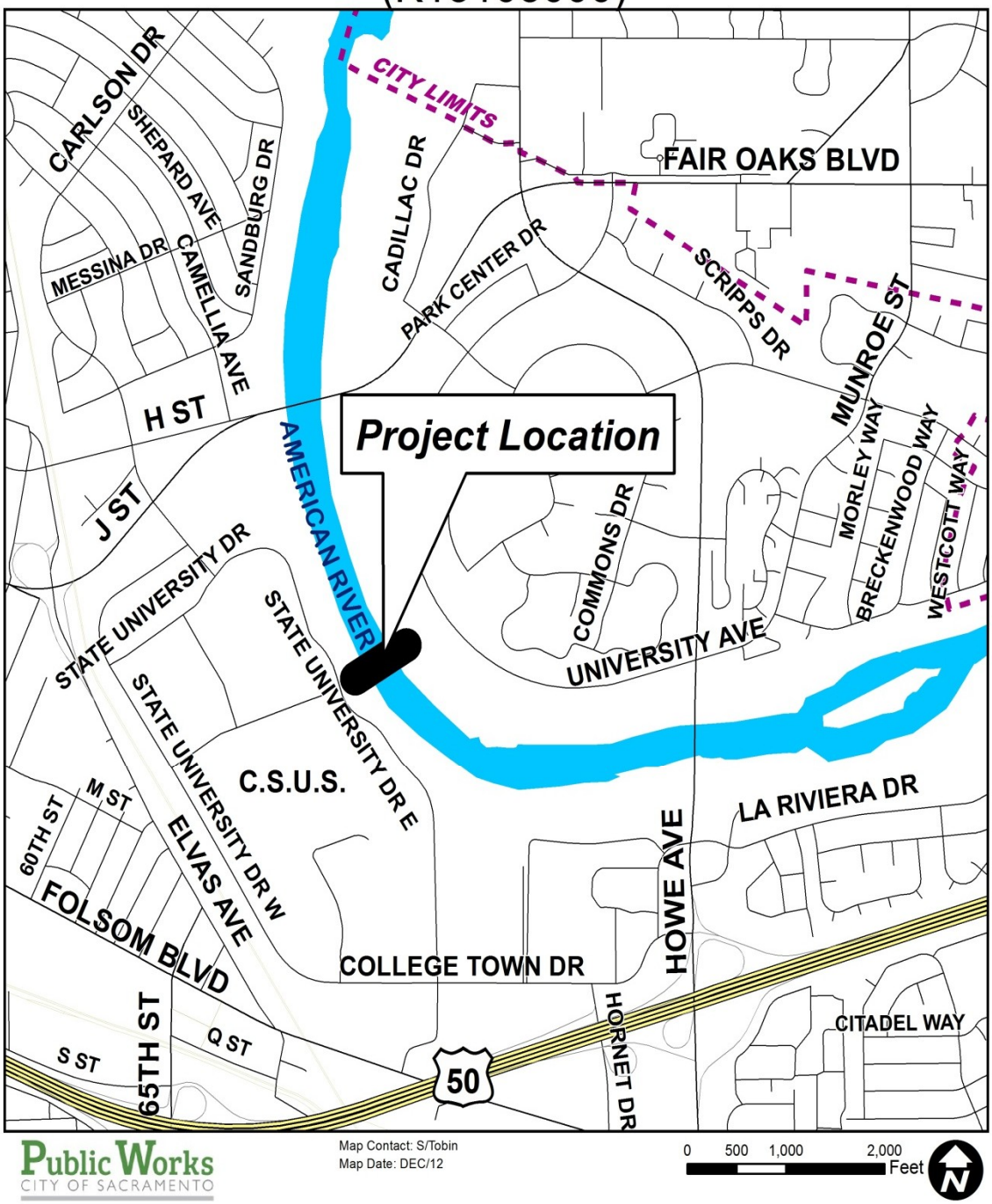
EXHIBIT A

Location Map for

Guy West Bridge Rehabilitation Project (K15105000)



Public Works
CITY OF SACRAMENTO

Map Contact: S/Tobin
Map Date: DEC/12

0 500 1,000 2,000 Feet

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DEPARTMENT OF
PUBLIC WORKS

ENGINEERING SERVICES
DIVISION

CITY OF SACRAMENTO
CALIFORNIA

915 I ST
RM 2000
SACRAMENTO, CA
95814-2702

PH 916-808-8300
FAX 916-808-8281

CONTRACT SPECIFICATIONS

for

Guy West Bridge Painting & Rehabilitation Project
(PN: K15105000)

Separate Plans

For Pre-Bid Information Call:
Ricky Chuck, Project Manager
(916) 808-5050
rchuck@cityofsacramento.org

Bids to be received before 2:00 P.M. April 2, 2014 at:
City Clerk's Public Counter
New City Hall
915 I Street, 4th Floor
Sacramento, CA 95814

PRE-BID MEETING to be held at:
Guy West Bridge East Side Tower,
University Avenue East
Sacramento CA
On: March 14, 2014 at 9:30A.M. For information about the pre-bid meeting, please contact Ricky Chuck.

LOCAL BUSINESS ENTERPRISE (LBE) PROGRAM

For information on meeting the City of Sacramento's Local Business Enterprise (LBE) project goal, please contact Lorrie Lowry at (916) 808-5448, or visit the City of Sacramento's local business web site at: http://portal.cityofsacramento.org/Economic-Development/Small-Business/LBE

Estimated Construction Cost: **$2,000,000**

Construction Time: **130 WORKING DAYS**

DEPARTMENT OF CONSUMER AFFAIRS

Contractors State License Board

Contractor's License Detail - License # 610403

DISCLAIMER: A license status check provides information taken from the CSLB license database. Before relying on this information, you should be aware of the following limitations.

CSLB complaint disclosure is restricted by law (B&P 7124.6) If this entity is subject to public complaint disclosure, a link for complaint disclosure will appear below. Click on the link or button to obtain complaint and/or legal action information.

Per B&P 7071.17 , only construction related civil judgments reported to the CSLB are disclosed.

Arbitrations are not listed unless the contractor fails to comply with the terms of the arbitration.

Due to workload, there may be relevant information that has not yet been entered onto the Board's license database.

License Number	**610403** **Extract Date** 4/10/2014
Business Information	F D THOMAS INC Business Phone Number: (541) 664-3010 P O BOX 4663 MEDFORD, OR 97501
Entity	Corporation
Issue Date	01/23/1991
Expire Date	01/31/2015
License Status	**ACTIVE** This license is current and active. **All information below should be reviewed.**

Classifications

CLASS	DESCRIPTION
C33	PAINTING AND DECORATING
B	GENERAL BUILDING CONTRACTOR
C39	ROOFING
A	GENERAL ENGINEERING CONTRACTOR

Bonding

CONTRACTOR'S BOND

This license filed a Contractor's Bond with
WESTERN SURETY COMPANY.

Bond Number: 929536832

Bond Amount: $12,500

Effective Date: 12/01/2011

Contractor's Bond History

BOND OF QUALIFYING INDIVIDUAL

1. The Responsible Managing Officer (RMO) THOMAS FRANK DANIEL certified that he/she owns 10 percent or more of the voting stock/equity of the corporation. A bond of qualifying individual is **not** required.

Effective Date: 01/23/1991

WORKERS' COMPENSATION

This license has workers compensation insurance with
ZURICH AMERICAN INSURANCE COMPANY

Workers' Compensation

Policy Number: WC931890202

Effective Date: 10/01/2012

Expire Date: 10/01/2014

Workers' Compensation History

Personnel listed on this license (current or disassociated) are listed on other licenses.

Personnel List | Other Licenses

Conditions of Use | Privacy Policy
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DLSE debarments

The following contractors are currently barred from bidding on, or accepting or performing any public works contracts, either as a contractor or subcontractor, for the period set forth below:

Note: As part of your due diligence, we suggest that you also check:

- Debarments made by the Division of Apprenticeship Standards (DAS)
- Contractor status at the Contractors State License Board (CSLB)
- The Federal debarment list at the Excluded Parties List System

For a list of past DLSE debarments of public works contractors, please contact:

Susan Nakagama
Special Assistant to the Labor Commissioner
455 Golden Gate Ave., 9th Flr.
San Francisco, CA 94102
415-703-4810
SNakagama@dir.ca.gov

Revised: 5/17/13

Name of contractor	Period of debarment
Russell/Thompson, Inc. **James Jean Russell & Valery Alena Thompson, Individually** 4684 Oak Glen Dr., Redding, CA 96001 CSLB# 915036 (revoked) Decision	**10/31/13 through 10/31/16**
Ayodejia A. Ogundare, Individual **Dba Pacific Engineering Company** 6310 Stewart Way, Bakersfield, CA 93308 CLSB#710322 Decision	**5/15/2013 through 5/15/2014**
Wallcrete Industries, Inc.; Garit David Wallace and Amber Anderson, Individuals 400 Kansas, Redlands, CA 92373 CSLB#834220 Decision	**7/29/12 through 7/28/15**
FEI Enterprises, Inc **Gabriel Fedida, Individual** 5749 Venice Blvd., Los Angeles, CA 90019 CSLB#659252 Decision	**6/14/12 through 6/13/15**
Jeffrey Alan Mott and Michelle Mott, individuals **Dda Integrity Landscape** 3756 Independence Avenue Sanger, CA 93637 CSLB#774222 Decision	**3/29/12 through 3/28/15**
Jensen Drywall & Stucco **Jeffrey E. Jensen** 3714 Lynda Place National City, CA 91950-8121 CSB # 664168 Exp. 2/18/11 (expired) Decision	**3/31/11 through 3/30/13**
All West Construction, Inc. **Donald Kent Russell** 495 N. Marks Ave.	**3/31/11 through 3/30/13**

Labor Commissioner's Office

Quick Links

Apply for a Farm Labor Contractor license online
Make an online payment
Verify a license or registration
Find a wage order
Labor law training
Forms
Publications
Frequently asked questions

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Contact Us
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Fresno, CA 93706 CSB # 592321 Exp. 4/3/12 (suspended) Decision	
Country Builders, Inc. **Weldon Offill, individually** 5915 Graham Ct. Livermore, CA 94550 CSB # 699574 Exp. 11/30/12 (active) Decision Addendum	**3/1/11 through 2/28/14**
Sutter Foam & Coating, Inc. 909 A. George Washington Yuba City, CA 95993 CSB # 732014 Exp. 1/31/09 (inactive) **David Alvin Trexler, an individual** 909 A. George Washington Yuba City, CA 95993 **Kenneth A. Trexler, an individual** 2603 Lago Lane Marysville, CA 95901 Decision	**7/1/10 through 6/30/13** **7/1/10 through 6/30/13** **7/1/10 through 6/30/13**
Soo Dong Kim, an individual, **dba Soo Kim Electric Company** 16224 Ridgeview Lane La Mirada, CA 90638 CSB # 568103 Exp. 8/1/09 (inactive) **Hyo Nam Jung, an individual,** **dba Lucid Electric** 18621 Well Street Rowland Heights, CA 91748 CSB # 914692 Exp. 4/3/10 Decision	**4/19/10 through 4/18/13** **4/19/10 through 4/18/13**
Southwest Grading, **dba Southwest Grading Services, Inc.,** 22031 Waite Street Wildomar, CA 92595 **David Walter Cholewinski, an individual** 22031 Waite Street Wildomar, A 92595 29970 Technology Drive, Ste. 205 Murrieta, CA 92563 CSB #840416 Exp. 6/30/10 Decision	**3/18/10 through 3/17/13**
S.J. Cimino Electric, Inc., a California corporation, 3267 Dutton Ave. Santa Rosa, CA 95404 **Salvatore Joseph Cimino, RMO, CEO and President of S.J. Cimino Electric, Inc. and sole owner of S.J. Cimino** **Electric, an individual** 5825 Heights Rd. Santa Rosa, CA 95401 CSB #343802 Exp. 2/28/10 CSB #294141 Exp. 9/30/13 (inactive) Decision	**10/15/09 through 10/14/12**
Cedar Development Corporation **Serghon Gabriel Afram, individually** 12477 Feather Dr Mira Loma, CA 91752 CSB # 839898 Exp. 6/30/10 (suspended) Decision	**8/5/09 through 8/4/12**
All Floors Commercial and Residential Flooring, Inc. **Salvador Elias Perea, individually** 750 E. McGlincy Lane, #103 Campbell, CA 95008 CSB #430969 Exp. 7/31/09 Decision	**5/14/09 through 5/13/12**
1-AMD Construction, Inc. **Alberto Mordoki, individually** **Mirella Mordoki, individually** 5300 Beach Blvd., Suite 110-416 Buena Park, CA 90621 CSB #787533, revoked Decision	**3/16/09 through 3/15/12**

Online payments
Haga un pago por linea

Legislative reports

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DEPARTMENT OF
PUBLIC WORKS

ENGINEERING SERVICES DIVISION

CITY OF SACRAMENTO
CALIFORNIA

915 I STREET, ROOM 2000
SACRAMENTO, CA
95814-2700

PH. (916) 808-8300
FAX (916) 808-8281

Guy West Bridge Painting and Rehabilitation
K15105000
Addendum 1

March 21, 2014

To all Potential Bidders:

Attached hereto are addenda items, which shall be incorporated into the bid proposal for above noted project. These changes shall be considered as part of the original documents, as if they were originally provided therein, and as such shall be used as contractual documents. All other terms, conditions, and specifications of the bid remain unchanged. Bidders must acknowledge receipt of this addendum prior to the hour and date specified in the bid request, or as amended, by one of the following methods:

(a) By acknowledging receipt, on the bid proposal form submitted; or
(b) By separate letter or email which includes a reference to the bid request and addendum number.

Failure to acknowledge receipt of this addendum in one of the above methods and cause acknowledgment to be received prior to the hour and date specified for receipt of proposals, **may result in rejection of your offer.** If by virtue of this addendum you decide to change an offer already submitted, such change may be made by email or letter, provided such email or letter makes reference to the bid request number and this addendum, and is received prior to the opening hour and date specified.

For any questions related to this Addendum, contact the Project Manager, Ricky Chuck at (916) 808-5050.

Respectfully,

Jose R. Ledesma
Contracts & Compliance Specialist

Guy West Bridge Painting and Rehabilitation
K15105000

Addendum 1 - March 21, 2014

ITEM 1: Pre-bid meeting sign in sheet dated March 14, 2014

ITEM 2: Special Provisions, Section 2.03 - Technical Specifications: "The WDID # is 5S34C369117" was added into the summary.

City of Sacramento – City Funded Guy West Bridge Painting and Rehabilitation Project
K15105000

Pre-bid Meeting Sign in Sheet – March 14, 2014, 9:30 A.M. Guy West Bridge East Tower

Name	Organization	Phone/Email	DBE (yes/no)
RICKY CHUCK	CITY OF SACRAMENTO	(916) 808-5050 rchuck@cityofsacramento.org	
Bill Mulvihill	Warehouse Paint	mulvihill@warehousepaint.com	
Todd Anderson	Jeffco Painting	toddanderson@jeffcoptg.com	
Andrew Keough	American Civil Constructors	akeough@acecbuilt.com	NC
CAREY TAKIGUCHI	CERTIFIED COATINGS CO	takiguchie muehlhan.com	
STEVE PALLOS	ESM INC.	SUPPORT @ ESM.CC	NO.
Mike Taylor	River City Ptg	916.349-9900 mike.rivercityptg@gmail.com	
Stan Davis	FD Thomas	530-237 6504	
JEFF JONES	FD THOMAS	916-896-1544 Jeff@fdthomas.com	
Ross Town	Ashron Construction	408-956-0909 ross@ashronconstruction.com	
ROBERT RUEFF	City of SACRAMENTO	(916) 804-3180 rrueff@cityofsacramento.org	
Mark Reno	Quincy Engineering	916 368 9181 MarkR@quincyeng.com	

The high speed internet connection shall include a wireless router have a minimum download speed of 10 Megabits per second (Mps) and minimum upload speed of 5 Mps. The contractor shall provide one dual line speaker phone (located in meeting area) and services desks, common spaces and conference room. Phone service shall include messaging services to at least one phone line. The contractor shall provide the necessary 5' high partitions (or suggested alternative) required to provide privacy for the each desk and a 3' x 6' table.

The Contractor shall provide for the City's exclusive possession and use: one new laptop computers and installed with a licensed copy of the Microsoft Office software suite including Word and Excel 2007 or higher and scheduling software detailed in the "PROGRESS SCHEDULE (CRITICAL PATH METHOD)" section of these special provisions. The dry plain paper copy/fax/scan/printer machine shall be a Ricoh Aficio MP3300 or approved equal, networked to all office computers and include color and black ink capabilities. It is the Contractor's responsibility to set up, maintain and repair the computer/internet/phone/fax/printer connections as well as all other office machines and equipment. The Engineer may use the furnished computer hardware and software for any purposes relating to the subject project. Before delivery and setup of the computer, the Contractor shall submit to the Engineer for approval a detailed list of all computer hardware and software the Contractor proposes to furnish. All computer hardware and software furnished shall remain the property of the Contractor and shall be removed by the Contractor upon acceptance of the contract when no claims involving contract progress are pending. After final project acceptance and prior to the return of the computer to the Contractor, the City shall be provided the opportunity to remove all City owned proprietary software, maps, work product, files and other information from the computer that may have been placed in or added to the computer during the course of the project. Failure of the City to completely or partially remove all City owned proprietary software, maps, work product, files and other information from the computer that may have been placed in or added to the computer during the course of the project does NOT constitute a waiver of exclusive City ownership of the items referenced above.

All furnishings shall be of standard quality and in new condition. The facility shall be adequately secured, such as steel bars and blinds on the windows of the trailer to deter/prevent theft of the equipment housed inside. Two 500 watt security lamps (one each side) will be provided at the facility. The field office shall be installed and ready for occupancy within thirty calendar days after the date on the notice to proceed or prior to the start of work, whichever is earlier. For each day thereafter that the field office is not ready for occupancy, the Contractor will be assessed damages in the amount of $200.00 per calendar day. If unforeseen circumstances cause the field office to be relocated during construction the contractor must make other accommodations acceptable by the engineer so there is always a field office on site during construction.

2.03 WATER POLLUTION CONTROL

GENERAL

Summary

This work includes developing and implementing a storm water pollution prevention plan (SWPPP).

This project is risk level 2. The WDID # is 5S34C369117.

City of Sacramento
Formal Bid / Proposal Delivery Options

Any vendor and/or consultant submitting an official bid or proposal to the City of Sacramento City Clerk's Office, shall select one of the following delivery options. To ensure responsive receipt of bids and/or proposals within established submission deadlines, address information must exactly match one of the below options.

The City of Sacramento is not responsible for the late receipt of bids and/or proposals where the proposer did not adhere to one of the available delivery options.

Option	Service Provider and/or Service Types	Address
1.	**United States Postal Service (USPS)** - Regular First Class - Certified or Return Receipt - Priority - Express	Sacramento City Clerk's Office 915 I Street, New City Hall Public Counter - 4th Floor Sacramento, CA 95814-2604
2.	**Expedited Services** - FedEx - UPS - DHL	Sacramento City Clerk's Office 915 I Street, New City Hall Public Counter - 4th Floor Sacramento, CA 95814-2604
3.	**Personal Delivery** - Hand Delivery - Courier	Sacramento City Clerk's Office 915 I Street, New City Hall Public Counter - 4th Floor Sacramento, CA 95814-2604

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Subcontractor and Local Business Participation Form	1 only
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Sealed Proposals will be received by the City Clerk of the City of Sacramento at the office of the City Clerk Public Counter, New City Hall, 4th Floor, located at 915 I Street between 9th and 10th Streets, up to the hour of **2:00 PM on April 2, 2014** and will be opened as soon thereafter as business allows, in the Planning Commission Conference Room, Historic City Hall for:

Guy West Bridge Painting & Rehabilitation Project
(PN: K15105000)

as set forth in the Contract Documents.

Proposals received and work performed thereunder shall comply with the requirements of Title 3 of the Sacramento City Code. Each Bid Proposal shall be accompanied by bid security of at least 10% of the sum of the Bid Proposal which conforms to the requirements of Section 7.0 of the Instructions to Bidders. The right to reject Proposals or to waive any error or omission in any Bid Proposal received is reserved by the City. Signed proposals shall be submitted on the printed forms contained in the Project Manual and enclosed in an envelope marked: Sealed Bid Proposal for:

Guy West Bridge Painting & Rehabilitation Project
(PN: K15105000)

Copies of the Contract Documents are available at

Planetbids
http://www.planetbids.com/portal/portal.cfm?CompanyID=15300#

There are no costs to view or download the plans and specifications.

Subcontractors shall comply with the rates of wages currently established by the Director of Industrial Relations under provisions of Sections 1773 of the Labor Code of the State of California, a copy of which is on file in the office of the City Clerk. In accordance with Sacramento City Code Section 3.60.180 and Section 1771.5 of the California Labor Code, the payment of the general prevailing rate of per diem wages or the general prevailing rate of per diem wages for holiday and overtime is not required for any Public Construction project of $25,000 or less, or Public Maintenance project of $15,000 or less. The City of Sacramento has an approved Labor Compliance Program. **Electronic Web submittal of Labor Compliance Reports is effective May 1, 2007.** Each contractor and every lower-tier subcontractor is required to submit certified payrolls and labor compliance documentation electronically at the discretion of and in the manner specified by the City of Sacramento.

Electronic submittal will be a web-based system, accessed on the World Wide Web by a web browser. Each contractor and subcontractor will be given a Log On identification and password to access the City of Sacramento reporting system.

Use of the system may entail additional data entry of weekly payroll information including; employee identification, labor classification, total hours worked and hours worked on this project, wage and benefit rates paid, etc. The contractor's payroll and accounting software might be capable of generating a 'comma delimited file' that will interface with the software.

This requirement will be 'flowed down' to every lower-tier subcontractor and vendor required to provide labor compliance documentation.

All questions regarding this Labor Compliance Program should be directed to the department's contracts staff or Contracts Services at (916) 808-8195.

Pursuant to Sacramento City Code Section 3.60.250, any Agreement awarded pursuant to this Invitation to Bid shall contain a provision permitting the substitution of securities for any monies withheld to ensure performance under the Agreement. The terms of such provisions shall be according to the requirements and the form required by the City.

Bid protests must be filled and maintained in accordance with the provisions of Sections 3.60.460 through 3.60.560 of the Sacramento City Code. Bid protests that do not comply with Sections 3.60.460 through 3.60.560 of the Sacramento City Code shall be invalid and shall not be considered. A bid protest fee of $750.00 is required at the time of filing to be considered valid in accordance with City of Sacramento Resolution No. 2003-231 dated April 29, 2003. As used herein, the term "bid protest" includes any bid protest that (1) claims that one or more bidders on this contract should be disqualified or rejected for any reason, or (2) contests a City staff recommendation to award this contract to a particular bidder, or (3) contests a City staff recommendation to disqualify or reject one or more bidders on this contract. A copy of Sections 3.60.460 through 3.60.560 of the Sacramento City Code may be obtained from the Project Manager, or from the City Clerk, located at 915 I Street, Sacramento, CA 95814.

LOCAL BUSINESS ENTERPRISE (LBE) PARTICIPATION REQUIREMENTS

(City Contracts no Federal Funds Used)

I. LBE PARTICIPATION REQUIREMENT

On April 3, 2012, the Sacramento City Council adopted a Local Business Enterprise (LBE) Preference Program to provide enhanced opportunities for the participation of local business enterprises (LBEs) in the City's contracting and procurement activities. On November 19, 2013, City Council increased the LBE preference percentage and authorized City departments to require minimum LBE participation levels in specific contracts. Under City Code section 3.60.270, when the bid specifications for a City contract establish a minimum participation level for LBEs, no bidder on the contract shall be considered responsive unless its bid meets the minimum LBE participation level required by the bid specifications.

The City has established **a minimum 5% participation level for LBEs on this contract.** Pursuant to City Code Section 3.60.270, no bidder on this contract shall be considered responsive unless its bid meets or exceeds this minimum participation level.

Bidders shall submit proof to the City demonstrating that the business and each subcontractor, trucker, material supplier, or other business entity listed on the forms submitted are in compliance with all applicable laws relating to licensing and are not delinquent in payment of any City of Sacramento or County of Sacramento taxes, permits, or fees. Failure to submit the required LBE information may be grounds for finding the bid non-responsive.

II. LBE QUALIFICATION

A. A LBE designated in the bid must be qualified as a LBE prior to the time set for submission of bids.

B. Local Business Enterprise means a business enterprise, including but not limited to, a sole proprietorship, partnership, limited liability company, corporation, or other business entity that has a legitimate business presence in the city or unincorporated county of Sacramento. Proof of legitimate business presence in the city or unincorporated county of Sacramento shall include:

1. Having a current City of Sacramento Business Operation Tax or County of Sacramento Business License for at least twelve (12) consecutive months prior to submission of bid; and
2. Having either of the following types of offices or workspace operating legally within the city or unincorporated county of Sacramento for at least twelve (12) consecutive months prior to submission of bid:
    a. The LBE's principle business office or workspace; or
    b. The LBE's regional, branch or satellite office with at least one full time employee located in the city or unincorporated county of Sacramento.

C. A LBE must provide a physical address for the basis of location. This excludes P.O. Box addresses.

D. A LBE must provide a current copy of the City of Sacramento Business Operations Tax Certificate or County of Sacramento Business License.

III. DETERMINATION OF LBE PARTICIPATION LEVEL

A. LBE Participation: The percentage of LBE participation is determined based on the dollar value of the work to be performed or supplies to be furnished by certified LBEs designated in the bidder's Subcontractor and LBE Participation Verification Form, relative to the total dollar amount of the bid.

B. Participation Credit: To receive credit for participation:(1) an LBE subcontractor must be responsible for the execution of a distinct element of the work, must possess any license or certification required for the work, and must actually perform, manage, or supervise the work without subcontracting or otherwise shifting any portion of the work to another subcontractor; and (2) an LBE supplier must furnish materials, equipment, or supplies that the supplier sells as a recurring, although not necessarily primary, part of its business, and that are necessary for performance of the work.

C.

D. Suppliers: Credit for an LBE supplier of materials, equipment, or supplies is counted as one hundred (100) percent of the amount paid to the supplier for the material, equipment, or supplies. To receive this credit, LBE suppliers must be listed on the bidder's Subcontractor and LBE Participation Verification Form.

E. Subcontractors (including truckers): To receive credit for an LBE subcontractor, the subcontractor must be listed on the bidder's Subcontractor and LBE Participation Verification Form.

- Truckers: Credit for an LBE trucker is counted as one hundred (100) percent of the amount paid to the trucker for trucking services, not including any amount paid to the trucker for the cost of any materials, equipment, or supplies being transported by the trucker.

IV. LBE REQUIREMENTS FOR CONTRACTOR

A. LBE Records: The Contractor shall maintain records of all subcontracts with verified LBE subcontractors and records of materials purchased from verified LBE suppliers for one (1) year after receiving final payment from the City. Such records shall show the name and business address of each LBE subcontractor or supplier and the total dollar amount actually paid each LBE subcontractor or supplier.

Not later than 30 days after completion of the work performed under the contract, a summary of these records shall be prepared, certified correct by the Contractor's

authorized representative and furnished to the City. The Contractor shall provide such other information, records, reports, certifications or other documents as may be required by City, to determine compliance with any provision of the LBE program or these specifications.

B. Performance of LBE Subcontractors and Suppliers: The LBEs listed by the Contractor shall perform the work and supply the materials, equipment, and supplies for which they are listed unless the Contractor has received prior written authorization from the City to perform the work with other forces or to obtain the material, equipment, or supplies from other sources. Reasons for requesting such authorization would include:

1. The listed LBE fails to execute a written contract based upon the general terms, conditions, plans, and specifications for the project.

2. The listed LBE becomes bankrupt or insolvent.

3. The listed LBE subcontractor fails to meet the bond requirements of the Contractor.

4. The work performed or the materials/equipment/supplies provided by the listed LBE are unsatisfactory or are not in accordance with the plans and specifications, or the listed LBE fails to perform its contractual obligations.

5. It would be in the best interest of the City.

C. Subcontractor Substitution: No substitution of an LBE subcontractor shall be made at any time without compliance with the Subletting and Subcontracting Fair Practices Act. If an LBE subcontractor is unable to perform successfully and is to be replaced, the Contractor shall make reasonable efforts to replace the original LBE subcontractor with another verified LBE subcontractor. The new LBE subcontractor must be verified at the time of substitution.

D. Reporting and Utilization Requirements and Sanctions: Failure to provide specific information, records, reports, certifications, or any other documents required for compliance with these specifications, or failure to utilize one or more LBEs in substantial compliance with the LBE utilization indicated in the Contractor's bid (unless otherwise authorized by City as provided herein, or when such failure results from changes to the work approved by the City), shall be considered a breach of the contract, and a deduction may be made from the contract amount. The deduction shall be not more than ten (10) percent of the value of the work or materials/equipment/supplies that the subject LBE(s) were listed to perform/provide in the Contractor's bid, and shall be deducted from any payment due to the Contractor. This is in addition to any deduction that may be made under any other provision of the contract, the Sacramento City Code, or State law.

E. Hearing and Review of Division Manager Decision: Prior to making a deduction pursuant to Section IV (D), above, the City shall provide written notice of the proposed deduction to the Contractor, and the Contractor may, not later than five

(5) working days after receiving such notice, provide a written request to City for a hearing to contest the proposed deduction. Upon receipt of a timely written request from the Contractor, the City shall schedule a hearing before the Division Manager (as defined in the City's Standard Specifications for Public Construction), and written notice of the date, time and location of the hearing shall be provided to the Contractor not less than five (5) working days prior to the date of the hearing. The hearing shall be conducted in the manner specified in Section 4-8 of the Standard Specifications, and the Division Manager shall prepare and forward to the Contractor a written decision as soon as practicable after the hearing. The Division Manager's decision shall be subject to review in accordance with the provisions of Section 4-9 of the Standard Specifications. Failure to request such review in compliance with the requirements set forth in Section 4-9 shall constitute acceptance of the Division Manager's decision by the Contractor.

The written notices and requests described above shall be provided by registered or certified mail (return receipt requested), by telecopy, by personal delivery, or by any other method that provides reliable evidence of the date of receipt. Written notice provided by telecopy shall be deemed received on the date that it is transmitted and transmission is confirmed by the transmitting machine. Written notice provided by personal delivery shall be deemed received on the date of delivery.

V. DEFINITIONS

A. Local Business Enterprise (LBE): A business enterprise, including but not limited to, a sole proprietorship, partnership, limited liability company, corporation, or any other business entity that has a legitimate business presence in the city or unincorporated county of Sacramento.

B. Contractor: The sole proprietorship, partnership, limited liability company, corporation, or any other business entity entering into a contract with the City of Sacramento.

C. Subcontractor: The sole proprietorship, partnership, limited liability company, corporation, or other business entity entering into a contract with the prime contractor to perform a portion of the work.

D. Supplier: The sole proprietorship, partnership, limited liability company, corporation, or other business entity to provide materials, equipment, or supplies necessary for performance of the work.

E. Proposal: Any response to a City solicitation for Proposals or Qualifications.

F. Bid: Any response to a City solicitation for bids.

CALIFORNIA LABOR CODE RELATING TO APPRENTICES ON PUBLIC WORKS PROJECTS

See following links: www.dir.ca.gov and/or www.leginfo.ca.gov

City of
SACRAMENTO

LABOR COMPLIANCE REQUIREMENTS

Labor compliance requirements will be discussed at the pre-construction meeting. However, please read the attached documents relating to the labor compliance expectations for this project. You will be required to sign the labor compliance acknowledgment at the pre-construction meeting if you are awarded the project. For any questions regarding these requirements, please contact Jose R. Ledesma at jledesma@cityofsacramento.org, or Brenda Kee at bkee@cityofsacramento.org.

Each contractor and every lower-tier subcontractor is required to submit certified payrolls and labor compliance documentation electronically at the discretion of and in the manner specified by the City of Sacramento.

Electronic submittal will be a web-based system, accessed on the World Wide Web by a web browser. Each contractor and subcontractor will be given a Log On identification and password to access the City of Sacramento reporting system, which is currently LCPTracker.

Use of the system may entail additional data entry of weekly payroll information including; employee identification, labor classification, total hours worked and hours worked on this project, wage and benefit rates paid, etc. The contractor's payroll and accounting software might be capable of generating a 'comma delimited file' that will interface with the software. If the 'comma delimited file' option does not work, it is still the responsibility of the prime and subs to manually enter their data into LCPtracker meeting the required deadlines for those documents.

This requirement will be 'flowed down' to every lower-tier subcontractor and vendor required to provide labor compliance documentation.

City of
SACRAMENTO

LABOR COMPLIANCE REQUIREMENTS

DATE
PROJECT NAME
Project # xxxxxxxxxx

Contract Administrator:	CONTRACT ADMIN NAME, PHONE AND EMAIL
Labor Compliance Officer:	LC NAME, PHONE AND EMAIL
Project Manager:	PM NAME, PHONE AND EMAIL
Inspector:	INSPECTOR NAME, PHONE AND EMAIL
Prime Contractor:	PRIME NAME, PHONE AND EMAIL

In accordance to City of Sacramento Ordinance Section 360.180 the following is to comply with the City of Sacramento prevailing wage provision and contract provisions.

1. Payment of Prevailing Wage Rates

The award of a public works contract requires that all workers employed on the project be paid not less than the specified general prevailing wage rates by the contractor and its subcontractors. Owner Operators are not exempt from this requirement (LC § 1777.5). Prevailing Wage Rates can be accessed at http://www.dir.ca.gov/dlsr/pwd. NOTE: *The first bid advertisement date of the project determines the applicable wage for this project.*

Prevailing wage rates and rate changes are to be posted at the job site for workers to view.

If Federal Funded: Davis/Bacon prevailing wage rates apply, unless State prevailing wage rates are required.

2. Apprentices

Use of Apprentices LC § 1777.5 Requires all public works contractors and subcontractors to:

1) SUBMIT CONTRACT AWARD INFORMATION
DAS140 "Public Works Contract Award Notice (Prime and Sub-contractors)

2) EMPLOY REGISTERED APPRENTICES
DAS 142 "Request for Dispatch of Apprentice" (Prime and Sub-contractors)

3) MAKE TRAINING FUND CONTRIBUTIONS
CAC2 "Training Fund contributions" (Prime and Sub-contractors) Due monthly by the 15th.

All of these forms are located on LCPTracker.net under edocs.

3. Certified Payroll Records

- **Certified Payroll Reports *(CPR)*** Input into LCPTracker.net. Due within ten (10) days of pay period end date. CPR's shall contain the same information for compliance with ***LC § 1776.*** Due minimum of bi-weekly with a Statement of Compliance for each pay period. (Located on LCPTracker.net under edocs) Reminder: wage increase for Master Agreements usually occurs on 06/15 and 06/29 or 06/30.

- **Negative Payroll Report** Due within ten (10) days of pay period end date if there is five (5) or more consecutive non-work days within any single pay period.

- **Fringe Benefit Statement: Form 420 (Located on LCPTracker.net under edocs)** Paid in cash or contributions to plans/programs are due with first certified payroll report.

4. **Listing of Subcontractors**

Contractors and subcontractors are required to list all suppliers and tier subcontractors hired to perform work on a public works project (in accordance to contract standard specification).

List of Subcontractors & Suppliers: Form 300 (Located on LCPTracker.net under edocs) Per Government Section 4100 et seq; prohibition against unfair competition Business & Professions Code Section 17200-17208, you must list suppliers and the amount of their product (s). Due within ten (10) days of pre-construction meeting.

5. **Pay Requests**

The Labor Compliance Officer shall notify the contractor and the Project Manager of non compliance and labor issues prior to pay requests approval. You must submit a current schedule of values with each pay request and you must have all labor compliance requirements met before submitting a pay request. Failure to meet the labor compliance requirements will result in your pay request being denied and returned to you for full compliance. Pay request must be submitted to the inspector for his/her review first. The inspector will then forward the request to the Project Manager and the Labor Compliance Officer for their review.

6. **Completion of Project**

- **Contractor Notification of Completion:** ***Form 264*** must be submitted into LCP Tracker, due upon completion of all punch list items established during final job walk.

- **Final Report of SBE/EBE Utilization:** ***Form 441*** final actual contract amounts paid to subcontractors performing on the project to include amount of supplier(s) payment(s).

All of these forms are located on LCPTracker.net under edocs.

In accordance with city policy and contract documents, the undersigned contractor herein certifies that it will comply with the foregoing prevailing wage requirements; and fully understands that failure to comply with these requirements will subject it to the penalties cited herein.

Contractor:

Signature	**Title**	**Date**

City of
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LABOR COMPLIANCE REFERENCE GUIDE

Start- Up Documents Due Prior to Construction:

1. **Certification Statement of Contractor:**
   a) If there is any contractor working as an "Independent Contractor", "Owner-Operator", "Sole Proprietor" or "Leased Worker" the certification form must be filled out.
   b) The original is to be submitted prior to, or concurrent with, the first payroll in which the Independent Contractor, Owner-Operator, Sole Proprietor or Leased Worker commences work.

2. **Fringe Benefit Statement:**
   a) Asterisk or note any form of benefits that are included in the payroll reports "hourly" rate of pay for each trade used.
   b) If fringe payments are made directly to the employee in lieu of fringes please note "paid in cash" under the applicable fringe payment and breakdown that amount paid in cash.
   c) Must be re-submitted when wage rates are updated, with effective dates and/or any changes in fringes are made.

3. **DAS-140- Public Works Contract Award Information Form:**
   a) Contract award information must be sent to your Apprenticeship Committee if you are approved to train apprentices. If you are NOT approved to train apprentices you must send the information to ALL applicable Apprenticeship Committees in your craft or trade in the area of the Public Works Project.
   b) After you have completed the DAS-140 Form mail the original(s) to the appropriate Joint Apprentice Training Committee(s) within (10) days of the date of the execution of the prime contractors subcontract, but in no even later than the first day in which the contractor has workers employed upon the public work (CA Labor Code 1777.5 (e))
   c) Upload a copy of the form or all forms submitted with proof of deliver to the LCPtracker.net program under the e-Documents Tab. The form of proof can be certified mail or fax confirmation.
   d) All Applicable Joint Apprentice Training Committee (s) may be found at: http://www.dir.ca.gov/Databases/das/pwaddrstart.asp/
   e) Templates available for download can be found at: http://www.dir.ca.gov/DAS/PublicWorksForms.htm or on LCPTracker.net under the e-Documents tab.

4. **DAS-7- Agreement to Train Apprentices Form:**
   a) IF Applicable:
      i. Submit your DAS-7 or equivalent certification and upload into LCPtracker.net under the e-Documents tabs and inform the labor compliance person monitoring your project. This form can be submitted with your DAS-140 form.

5. **DAS-142 Request for Dispatch of an Apprentice Form:**
   a) Send to the Joint Apprentice Training Committees (JATC) in your craft or trade in the geographic area of the Public Works Project to request the dispatch of an apprentice before starting work at the site and as needed throughout the project.
   b) Employment of Apprentices on Public Works project- (a) Contractor(s) shall employ registered apprentice(s), as defined by Chapter 4 (commencing with Section 3070) of Division 3, during the performance of a Public Work Project in accordance with the required (1) hour of work performed by an apprentice for every (5) hours of labor performed by a journeyman, unless covered by one of the exemptions enumerated in the Labor Code Section 1777.5 or this subchapter.
   c) Provide a copy of your apprenticeship program's standards if they operate under a different ration then the California Labor Codes & Regulations.
   d) Template available for download can be found at: http://www.dir.ca.gov/DAS/PublicWorksForms.htm

Documents Required During the Life of the Construction Project

1. **CAC-2- Training Fund Contribution Form:**
   a) All Contractors must submit a CAC-2 Form monthly for the prior month's hours.
   b) If applicable fringes are paid directly to an approved Union Shop please state so on the CAC-2 form and upload into LCPtracker.net under e-Documents tab.

2. **Training Fund Contribution Letter Form:**
   a) All Contractors must submit a Training Fund Contribution Letter monthly for the prior month's hours.
   b) If applicable and fringes are paid directly to an approved Union Shop please submitted the Union Status Letter stating that the Contractor is up to date with all fringe and training fund contributions for the requested month. The letter should specify the month, project name, and project number.
   c) If you can't provide a letter and the DAS has not been updated with your contribution at Contractor may provide a copy of a cancelled check submitted to the proper JATC or the DAS with the amount that matches that on the CAC-2. You may check the status of your contributions submitted to DAS online at: http://www.dir.ca.gov/CAC/trainingfund/Tfsearch.html. This may also be submitted in lieu of the Training Fund Contribution Letter.

3. **Certified Payroll Reports CPR's and/or Non-Performance Reports:**
   a) To be submitted by all Contractors working on the project. These reports are submitted via the City of Sacramento contracted electronic reporting program, LCPtracker.net which can be found online at www.lcptracker.net . If you do not already have a user name and password for this website please contact your labor compliance officer with the City of Sacramento to be set up.
   b) Submit CPR/NPR weekly; starting (10) calendar days after the close of your pay period. This is when you begin onsite/offsite "craft" labor. This may mean you have weeks in between work on a particular job. NPR's will need to be submitted for that timeframe.

4. **Apprenticeship Certification and/or Apprentice Agreement:**
   a) The first time an apprentice is listed on a certified payroll report an "Apprenticeship Certification" or Apprentice Agreement (DAS-1 form) must be submitted for each apprentice utilized.
   b) Please upload the Apprenticeship Certification or DAS-1 form in the e-Documents section of LCPtracker.net, add the apprentice ID and pertinent information under the employee information and notify the labor compliance officer in your department that approval is need prior to certification of payroll.

5. **Miscellaneous Documents:**
   a) Authorization for Deductions:
      i. Voluntary deductions require an Authorization for Deductions form; garnishments require a copy of notice (redact personal information).
   b) Receipt for Payment of Back Wages:
      i. For use when wage errors require supplemental wage payment (s).

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Helpful Links and Contact Information:

1. **Department Of Industrial Relations (DIR):**
   Web-Link: http://www.dir.ca.gov/
   Contact DIR: http://www.dir.ca.gov/Contactus.html

2. **Division of Labor Standards Enforcement (DLSE):**
   Web-Link: http://www.dir.ca.gov/dlse/dlsepublicworks.html

3. **Division of Apprenticeship Standards (DAS):**
   Web-Link: http://www.dir.ca.gov/das/das.html

   Apprentice Certification:
   Web-Link: http://www.dir.ca.gov/das/appcertpw/AppCertSearch.asp

   CAC Public Works Training Fund Contributions:
   Web-Link: http://www.dir.ca.gov/CAC/trainingfund/Tfsearch.html

4. **California General Prevailing Wage Determination:**
   Web-Link: http://www.dir.ca.gov/OPRL/pwd/ (Journeymen)
   http://www.dir.ca.gov/OPRL/PWAppWage/PWAppWageStart.asp (Apprentice)

5. **Davis Bacon Wage Determination Rates:**
   Web-Link: http://www.wdol.gov/dba.aspx

6. **Public Works Information- Frequently Asked Questions:**
   Web-Link: http://www.dir.ca.gov/das/publicworksfaq.html

7. **LCPtracker.net**
   Web-link: https://lcpprod.lcptracker.net/Lcp/WebForms/Login.aspx
   Support Phone Number: 714-669-0052 Option 4
   E-mail: support@lcptracker.com

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FORMS

All of these forms are avaialbe on LCPtracker.net under the eDocuments tab and by clicking on the Download Document Templates button.

If you have your own form please contact your Labor Compliance Officer with the City of Sacramento prior to uploading or submitting in LCPtracker.

City of Sacramento

PW-300 Form

Instructions: The Prime Contractor and all Subcontractors are required to submit the PW-300 via LCPTracker.net. If there are no subs or suppliers, simply state on the PW-300 and upload. Please refer to Public Contract Code 4107 regarding changes to subcontractor listing. If any changes are made, a revised PW-300 Form is required.

PRIME CONTRACTOR			
Date		**Project #**	
Name		**Project Name**	
Address:		**Contract #**	
City, State, Zip		**Total Contract Amount**	
Contact		**Estimated Start Date**	
Phone		**Estimated Completion Date**	
Email		**Federal Tax ID #**	
Contractor Lic. #		**State Tax ID #**	
SUBCONTRACTORS LIST			
SUBCONTRACTOR			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Contractor Lic. #		**Estimated Start Date:**	
Description of services		**Estimated Completion Date**	
Contract $ Value		**SBE/EBE/LBE**	
SUBCONTRACTOR			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Contractor Lic. #		**Estimated Start Date:**	
Description of services		**Estimated Completion Date**	
Contract $ Value		**SBE/EBE/LBE**	
SUBCONTRACTOR			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Contractor Lic. #		**Estimated Start Date:**	
Description of services		**Estimated Completion Date**	
Contract $ Value		**SBE/EBE/LBE**	
SUBCONTRACTOR			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Contractor Lic. #		**Estimated Start Date:**	
Description of services		**Estimated Completion Date**	
Contract $ Value		**SBE/EBE/LBE**	
Add additional pages if necessary.			

Revised 1/23/2013

City of Sacramento

PW-300 Form

SUPPLIERS LIST			
SUPPLIER			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Description of materials		**$ Amount**	
SUPPLIER			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Description of materials		**$ Amount**	
SUPPLIER			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Description of materials		**$ Amount**	
SUPPLIER			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Description of materials		**$ Amount**	
SUPPLIER			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Description of materials		**$ Amount**	
SUPPLIER			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Description of materials		**$ Amount**	
SUPPLIER			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Description of materials		**$ Amount**	
SUPPLIER			
Name		**Contact**	
Address:		**Phone**	
City, State, Zip		**Email**	
Description of materials		**$ Amount**	

Checklist of Labor Law Requirements

(CCR Title 8, Section 16421)

Ultimately the prime contractor is liable for their sub and specialty contractors. This checklist is a useful tool for the prime contractor to ensure that their sub and specialty contractors know their responsibilities on public works projects. Contractors who understand and comply with the law are more likely to deliver the job on time, on budget and done right the first time. We suggest the prime contractor encourage completion of this checklist by their sub and specialty contractors.

NAME (PRINT) _____ DATE _____

COMPANY _____ PHONE _____

ADDRESS _____ FAX _____

CITY _____ STATE _____ ZIP CODE _____

PROJECT MANAGER _____ SUPERINTENDENT/FOREMAN _____

CERTIFIED PAYROLL _____ PHONE/EXT. _____

CONTRACTOR LICENSE NO. _____ EXP. DATE _____ SPECIALTY LICENSE NO. _____

SELF-INSURED CERTIFICATE NO. _____ WORKERS COMP. POLICY NO. _____

PROJECT NAME _____ PROJECT #/BID PACKAGE# _____

AWARDING BODY _____ ADVERTISEMENT DATE _____

IF SUB-CONTRACTING, LIST YOUR PRIME/GENERAL CONTRACTOR _____

CONTRACT AWARD AMOUNT _____

THE FEDERAL AND STATE LABOR LAW REQUIREMENTS APPLICABLE TO THE CONTRACT ARE COMPOSED OF, BUT NOT LIMITED TO, THE FOLLOWING:

☐ Payment of Prevailing Wage Rates

The contractor to whom the contract is awarded and its subcontractors hired for the public works project are required to pay not less than the specified general prevailing wage rates to all workers employed in the execution of the contract. *Labor Code Section 1770 et seq.*

The contractor is responsible for ascertaining and complying with all current general prevailing wage rates for crafts and any rate changes that occur during the life of the contract. Information on all prevailing wage rates and all rate changes are to be posted at the job site for all workers to view. Additionally, current wage rate information can be found at the DLSR web site, *www.dir.ca.gov/dlsr/statistics_research.html.*

☐ Apprentices

It is the duty of the contractor and subcontractors to employ registered apprentices on the public works project and to comply with all aspects of *Labor Code Section 1777.5*, relating to Apprentices on Public Works. (1) Notify approved apprenticeship programs of contract award; (2) employ apprentices; (3) pay training fund contributions.

☐ Penalties

There are penalties required for contractor's/subcontractor's failure to pay prevailing wages and for failure to employ apprentices, including forfeitures and debarment under *Labor Code Sections 1775; 1776; 1777.1; 1777.7 and 1813.*

☐ Certified Payroll Reports

Under *Labor Code Section 1776*, contractors and subcontractors are required to keep accurate payroll records showing the name, address, social security number and work classification of each employee and owner performing work; also the straight time and overtime hours worked each day for each week, the fringe benefits, and, the actual per diem wage paid to each owner, journey person, apprentice worker or other employee hired in connection with the public works project.

This requirement includes and applies to all subcontractors performing work on Awarding Body projects even if their portion of the work is less than one half of one percent (0.05%) of the total amount of the contract.

The certified payroll records shall contain the same data fields listed on the *Public Works Payroll Reporting Form (A-1-131)* and contain or is accompanied by a declaration made under penalty of perjury. *(California Code of Regulations, Section 16401).*

Prime Contractors are responsible for submittal of their payrolls and those of their respective subcontractors as one package. Any payroll not submitted in the proper form will be rejected. In the event that there has been no work performed during a

Checklist of Labor Law Requirements, continued

given week, the Certified Payroll Report shall be annotated: "No work" for that week or a Non-Performance Statement must be submitted.

Employee payroll records shall be certified and shall be made available for inspection at all reasonable hours at the principal office of the contractor/subcontractor, or shall be furnished to any employee, or his/her authorized representative on request, pursuant to *Labor Code Section 1776.*

Under *Labor Code Section 1776(g)* there are penalties required for contractor's/subcontractor's failure to maintain and submit copies of certified payroll records on request.

☐ **Nondiscrimination in Employment**

There exist prohibitions against employment discrimination under *Labor Code Sections 1735 and 1777.6,* the *Government Code,* the *Public Contracts Code,* and *Title VII of the Civil Rights Act of 1964.*

☐ **Kickbacks Prohibited**

Contractors and subcontractors are prohibited from recapturing wages illegally by accepting or extracting "kickbacks" from employee wages under *Labor Code Section 1778.*

☐ **Acceptance of Fees Prohibited**

There exists a prohibition against contractor/subcontractor acceptance of fees for registering any person for public work under *Labor Code Section 1779;* or for filling work orders on public works contracts pursuant to *Labor Code Section 1780.*

☐ **Listing of Subcontractors**

All prime contractors are required to list properly all subcontractors hired to perform work on the public works projects covering more than one-half of one percent, pursuant to *Government Code Section 4104.*

☐ **Proper Licensing**

Contractors are required to be licensed properly and to require that all subcontractors be properly licensed. Penalties are required for employing workers while unlicensed under *Labor Code Section 1021* and under the California Contractor License Law found at *Business and Professions Code Section 7000 et seq.*

☐ **Unfair Competition Prohibited**

Contractors and sub-contractors are prohibited from engaging in unfair competition as specified under *Business and Professions Code Sections 17200 to 17208.*

☐ **Workers Compensation Insurance**

Labor Code Section 1861 requires that contractors and subcontractors be insured properly for Workers Compensation.

☐ **OSHA**

Contractors and subcontractors are required to abide by the Occupational, Safety and Health laws and regulations that apply to the particular construction project.

☐ **Proof of Eligibility/Citizenship**

The federal prohibition against hiring undocumented workers, and the requirement to secure proof of eligibility/citizenship from all workers, is required.

☐ **Itemized Wage Statement**

Labor Code Section 226 requires that employees be provided with itemized wage statements.

CERTIFICATION

I acknowledge that I have been informed and am aware of the foregoing requirements and that I am authorized to make this certification on behalf of _____
(COMPANY NAME)

I fully understand that failure to comply with any of the above requirements may subject me, or my company, to penalties as provided above.

Contractor _____ _____
(SIGNATURE) (DATE)

Awarding Agency /Labor Compliance Program _____ _____
(SIGNATURE) (DATE)

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Certification Statement of Contractor
(Independent Contractor, Owner Operator, Sole Proprietor, or Leased Worker)

This form must be submitted prior to, or concurrent with, the first payroll in which the Independent Contractor, Owner Operator, Sole Proprietor, or Leased Worker commences work.

Project Name & Number	
Contractor Name	

I, _____ certify under penalty of perjury that the following statements are true:

1. I am licensed and authorized to do business in the State of California for the services I provide and I'm responsible for obtaining all necessary license or certificates for my services.
2. My California Contractor's License number is _____.
3. I am not required to follow, nor am I furnished with, detailed instructions in the manner in which my services are to be provided. The Prime and/or subcontractor may provide job specifications and retains the right to specify, control, and direct the desired results.
4. I am not receiving any employee benefits such as, but not limited to: vacation, sick leave, insurance, worker's compensation, pension and retirement benefits.
5. I am responsible for all federal, State and local taxes and fees applicable to payments for services which I render, including but not limited to: income tax, self-employment tax, workers compensation insurance, unemployment tax, and social security.
6. I am customarily engaged in providing my services as an independent business and maintain a separate set of books and records that reflect the income and expenses for the business.
7. ☐ I primarily carry out my services: a) at a location that is separate from my residence; or b) in a specific portion of my residence which is set aside as the business location.
   ☐ I bear the risk of loss related to the services that I provide.
   ☐ a) I provide my services to two (2) or more persons within a 12-month period; or b) I routinely engage in advertising (newspapers, yellow pages, etc.), solicitation or other marketing efforts (cards, brochures, hats, shirts, etc.) that are reasonably calculated to obtain new contracts for similar services.
   ☐ I have made a significant business investment in equipment, tools or required material.
   ☐ I have the authority to: a) hire additional persons to provide my services; and b) fire such persons.
   *** Note:** If you are unable to certify (check boxes) to at least three (3) of the above items (as being applicable to the services which you provide) then, for purposes of this Contract you will be considered/treated as an employee.

_____	_____	_____
Contractor Signature	**Printed Name**	**Date**

I, _____ certify under penalty of perjury that I have on file documentation that substantiates my reasonable basis for concluding that the behavioral control; financial control; and relationship between the Contractor listed above and the Project Prime and/or Subcontractor (s) is solely contractual and that there is no legal agency (power of attorney) or employment relationship between the two.

_____	_____	_____
Prime Contractor Signature	**Printed Name**	**Date**

_____
Prime CSLB License #

Note: There is a rebuttable presumption that where a worker performs services that require a license pursuant to Business and Professions Code § 7000, et seq., or who performs services for a person who is required to obtain such a license, the worker is an employee and not an independent contractor (State of California Labor Code § 2750.5)

SACRAMENTO

Classification Worksheet

A separate form must be filled out for each contractor/subcontractor performing on the project.

Project Name	
Project Number	
Contractor Name	
Contact Name	
Contact Phone	
Contact Email	
CSLB/Certificate #	

Classification(s) being Utilized (check all that apply)

- ☐ Asbestos
- ☐ Electricians
- ☐ Pile Drivers
- ☐ Boilermaker
- ☐ Elevator Mechanic
- ☐ Pipe Trades
- ☐ Bricklayers
- ☐ Glaziers
- ☐ Plasterer
- ☐ Carpenter
- ☐ Iron Workers
- ☐ Roofers
- ☐ Tile Workers
- ☐ Carpet/Linoleum
- ☐ Laborers
- ☐ Sheet Metal
- ☐ Cement Mason
- ☐ Millwrights
- ☐ Sound/Communication
- ☐ Drywall Finisher
- ☐ Operating Engineer
- ☐ Surveyor
- ☐ Drywall/Lather
- ☐ Painters
- ☐ Teamster
- ☐ Other (specify) _____

Statement of Employer Payments
"Fringe Benefit Statement"

Date _____ In Reply, Refer to Case No.: _____

Prime: _____

Subcontractor: _____

PROJECT NAME: _____

PROJECT CONTRACT NO.: _____ County/location: _____

HEALTH AND WELFARE

NAME OF PLAN _____ Address, City, State, Zip _____, _____, _____

ADMINISTRATOR _____ Address, City, State, Zip _____, _____, _____

CLASSIFICAITON(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR

CONTRIBUTIONS: WEEKLY ☐ MONTHLY ☐ QUARTERLY ☐ ANNUALLY ☐

PENSION

NAME OF PLAN _____ Address, City, State, Zip _____, _____, _____

ADMINISTRATOR _____ Address, City, State, Zip _____, _____, _____

CLASSIFICAITON(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR

CONTRIBUTIONS: WEEKLY ☐ MONTHLY ☐ QUARTERLY ☐ ANNUALLY ☐

VACATION/HOLIDAY

NAME OF PLAN _____ Address, City, State, Zip _____, _____, _____

ADMINISTRATOR _____ Address, City, State, Zip _____, _____, _____

CLASSIFICAITON(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR

CONTRIBUTIONS: WEEKLY ☐ MONTHLY ☐ QUARTERLY ☐ ANNUALLY ☐

TRAINING

NAME OF PLAN _____ Address, City, State, Zip _____, _____, _____

ADMINISTRATOR _____ Address, City, State, Zip _____, _____, _____

CLASSIFICAITON(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR

CONTRIBUTIONS: WEEKLY ☐ MONTHLY ☐ QUARTERLY ☐ ANNUALLY ☐

IF YOU USE OTHER PLANS NOT LISTED ABOVE, YOU MAY USE THE NEXT PAGE TO PROVIDE THIS ADDITIONAL INFORMATION.

NAME OF PLAN _____ Address, City, State, Zip _____, _____, _____

ADMINISTRATOR _____ Address, City, State, Zip _____, _____, _____

CLASSIFICAITON(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR
CONTRIBUTIONS: WEEKLY ☐ MONTHLY ☐ QUARTERLY ☐ ANNUALLY ☐	

NAME OF PLAN _____ Address, City, State, Zip _____, _____, _____

ADMINISTRATOR _____ Address, City, State, Zip _____, _____, _____

CLASSIFICAITON(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR
CONTRIBUTIONS: WEEKLY ☐ MONTHLY ☐ QUARTERLY ☐ ANNUALLY ☐	

NAME OF PLAN _____ Address, City, State, Zip _____, _____, _____

ADMINISTRATOR _____ Address, City, State, Zip _____, _____, _____

CLASSIFICAITON(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR
CONTRIBUTIONS: WEEKLY ☐ MONTHLY ☐ QUARTERLY ☐ ANNUALLY ☐	

NAME OF PLAN _____ Address, City, State, Zip _____, _____, _____

ADMINISTRATOR _____ Address, City, State, Zip _____, _____, _____

CLASSIFICAITON(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR
CONTRIBUTIONS: WEEKLY ☐ MONTHLY ☐ QUARTERLY ☐ ANNUALLY ☐	

NAME OF PLAN _____ Address, City, State, Zip _____, _____, _____

ADMINISTRATOR _____ Address, City, State, Zip _____, _____, _____

CLASSIFICAITON(S) USED	CONTRIBUTION PER CLASSIFICATION PER HOUR
CONTRIBUTIONS: WEEKLY ☐ MONTHLY ☐ QUARTERLY ☐ ANNUALLY ☐	

AGREEMENT TO TRAIN APPRENTICES

District No. .....

DAS File No. .....

NAME OF EMPLOYER				
MAILING ADDRESS (STREET AND NUMBER)	CITY	STATE	ZIP CODE	TELEPHONE NUMBER
ADDRESS OF TRAINING LOCATION (IF DIFFERENT)				
OCCUPATION(S)				O*Net Code
NAME OF APPRENTICESHIP COMMITTEE AND STANDARDS				
AREA COVERED BY APPRENTICESHIP STANDARDS *or* NAME AND ADDRESS OF PROJECT				

THE OFFICIAL, whose signature follows, agrees on behalf of the above named employer to train apprentices in the designated occupation in accordance with the apprenticeship standards and apprentice agreement and to comply with the provisions thereof.

[SIGNED] **By** .....

Printed name .....

Title ..... **Date** .....

THE APPRENTICESHIP COMMITTEE accepts and approves the employer as qualified to train apprentices under its standards in the designated occupation.

[SIGNED] **By** .....

Printed name .....

Title ..... **Date** .....

Accepted:
DIVISION OF APPRENTICESHIP STANDARDS

Effective until:

☐ **Revoked**

☐ **End of Project** (Enter project name and address in Area Covered above)

☐ **Date** .....
Date

☐ **Other** .....
Specify

EFFECTIVE DATE

[SIGNED] **By** ..... **Date** .....
Apprenticeship Consultant

REMARKS:

STATE OF CALIFORNIA
DEPARTMENT OF INDUSTRIAL RELATIONS
DIVISION OF APPRENTICESHIP STANDARDS

DAS 7 (REV 11/09)

D. O.	FILE NUMBER

A	B	C	D	E	Official Use
Gender	Ethnic	Dependents	Education	Yrs Employ	STATUS

State of California -- Department of Industrial Relations --DIVISION OF APPRENTICESHIP STANDARDS

APPRENTICE AGREEMENT

APPRENTICE LAST NAME	FIRST NAME	MIDDLE	SOCIAL SECURITY NUMBER

APPRENTICE ADDRESS (NUMBER AND STREET / CITY, STATE & ZIP)	BIRTHDATE (mm/dd/yyyy)	F - VETERAN
		Yes: ☐ No: ☐
	COUNTY OF RESIDENCE	

OCCUPATION	O*Net code

TERM OF APPRENTICESHIP	STRAIGHT TIME
Hours Within Years	Hours per day: 8 Hours per week: 40

This agreement is between the above named apprentice employed by the below named employer, and

PROGRAM SPONSOR

AGREEMENT: The undersigned parties mutually agree that they will use their best endeavors to secure employment and training for the apprentice. The apprentice agrees to perform satisfactorily all work and learning assignments. The provisions of the Apprenticeship Standards for the above occupation adopted by the program sponsor and approved by the Chief of the Division of Apprenticeship Standards, are hereby made a part of this agreement. An official copy of the standards is on file in the headquarters of the Division of Apprenticeship Standards. This apprentice agreement will continue in effect until the training is completed or otherwise terminated in accordance with the standards.

The apprentice commences participation under these standards on the date of execution of this agreement by the Apprentice. The signatory apprentice is credited with having _____ months toward completion of the term of apprenticeship. The apprentice is expected to complete training on or about _____, 20____ , upon satisfactory completion of the total remaining hours of on-the-job training and hours and/or units of related and supplemental instruction.

APPRENTICE: I, the undersigned apprentice, understand and agree that there is a valid and reasonable necessity that those academic records accumulated throughout related and supplemental instruction during my period of apprenticeship be made available to the apprenticeship committee. Further, I agree to release to the apprenticeship committee any other academic records which I feel may enhance my status as an apprentice.

I, the undersigned apprentice, hereby request that the Administrator of Apprenticeship terminate any other apprenticeship agreements in which I am currently registered.

Executed this _____ day of _____ , 20____ by _____
DAY MONTH YEAR SIGNATURE OF APPRENTICE

AGREED TO BY THE EMPLOYER

_____
SIGNATURE OF PARENT OR GUARDIAN (IF APPRENTICE IS 16 OR 17)

_____
SIGNATURE OF EMPLOYER OR ITS REPRESENTATIVE TITLE

AGREED TO AND APPROVED BY, FOR THE COMMITTEE

NAME OF EMPLOYER
ADDRESS

_____ _____
SIGNATURE – SECRETARY / CHAIR / COORDINATOR DATE

ACCEPTED BY DAS

_____ _____
SIGNATURE – APPRENTICESHIP CONSULTANT DATE

for unilateral programs only]
This agreement is approved by _____ for the Administrator of Apprenticeship

TO THE APPRENTICE: California Civil Code Sec. 1798.17 requires State agencies which collect personal information to indicate the authority under which the data are requested. If personal information not specifically authorized by law is requested, individuals must be informed that supplying the information is voluntary. It also provides that state agencies may change or modify records at the request of the individual.

Questions C and E below are voluntary. All others are authorized by law, as indicated by the reference in each section. If the authorized questions are not answered, the apprentice agreement cannot be accepted.

The Division hopes, through collection of this data, to improve the apprenticeship program both for those presently enrolled and for future apprentices. Thank you.

CALIFORNIA APPRENTICE QUESTIONNAIRE

(USE INK OR BALLPOINT PEN)

A. Gender

☐ Male ☐ Female

(Cal. Code of Regulations, Title 8, Ch. 2, Sec. 215

B. Ethnic or Race Derivation (**Check only one**)

1 ☐ WHITE (Not of Hispanic Origin) -- A person having origins in any of the original peoples of Europe, North Africa or the Middle East.

2 ☐ BLACK (Not of Hispanic Origin) -- A person having origins in any of the Black racial groups of Africa.

ASIAN OR PACIFIC ISLANDER -- A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent or the Pacific Islands. The area includes, for example, China, Japan, Korea and Samoa.

A	☐	Asian	Asian Indian
B	☐	Asian	Bangladeshi
C	☐	Asian	Chinese
D	☐	Asian	Cambodian
6	☐	Asian	Filipino
E	☐	Asian	Hmong
I	☐	Asian	Indonesian
J	☐	Asian	Japanese
K	☐	Asian	Korean
L	☐	Asian	Laotian
M	☐	Asian	Malaysian
P	☐	Asian	Pakistani
R	☐	Asian	Sri Lankan
T	☐	Asian	Taiwanese
U	☐	Asian	Thai
V	☐	Asian	Vietnamese
F	☐	Native Hawaiian	Fijian
G	☐	Native Hawaiian	Guamanian
H	☐	Native Hawaiian	Hawaiian
S	☐	Native Hawaiian	Samoan
W	☐	Native Hawaiian	Tongan

4 ☐ AMERICAN INDIAN OR ALASKAN NATIVE -- A person having origins in any of the original peoples of North America, and who maintains cultural identification through tribal affiliation or community recognition.

7 ☐ HISPANIC -- A person of Mexican, Puerto Rican, Cuban, South Central American or other Spanish culture or origin, regardless of race.

(Cal. Labor Code, Ch. 4, div. 3, Sec. 151)

C. Number of Dependents (Do not count yourself)

0	☐ None	4	☐ Four
1	☐ One	5	☐ Five
2	☐ Two	6	☐ Six of More
3	☐ Three		

(Voluntary)

D. Highest Year of Education Completed

1	☐ 8th Grade or less	6	☐ 1 Year of College
2	☐ 9th Grade	7	☐ 2 Years of College
3	☐ 10th Grade	8	☐ 3 Years of College
4	☐ 11th Grade	9	☐ 4 or more Years of College
5	☐ 12th Grade (or GED Certificate)		

(Cal. Labor Code, Ch. 4, div. 3, Sec. 3076.3)

E. Number of Years You Have Been Employed Full Time to Date (Except for Military Service)

0	☐	None
1	☐	Less Than 1 Year
2	☐	1 But Less Than 2 Years
3	☐	2 But Less Than 3 Years
4	☐	3 But Less Than 4 Years
5	☐	4 But Less Than 5 Years
6	☐	5 Years or More

(Voluntary)

F. Have You Served on Active Duty (other than reserve status) in the U. S. Armed Forces?

☐ Yes ☐ No

If yes, Please Enter:

Month and Year Entered _____

Month and Year Separated _____

Total Months served on Active Duty _____

Apprentice's Signature _____

State of California
Department of Industrial Relations
California Apprenticeship Council
P.O. Box 420603
San Francisco, CA 94142

TRAINING FUND CONTRIBUTIONS

Please use a separate ***form*** for each jobsite, listing the occupations for the jobsite. One ***check*** payable to the California Apprenticeship Council, may be submitted for all jobsites and/or occupations. Training fund contributions are ***not accepted*** by the California Apprenticeship Council for federal public works projects, or for non-apprenticeable occupations such as utility technicians, teamsters, et.

California Apprenticeship Council

NAME AND ADDRESS OF CONTRACTOR/SUBCONTRACCTOR MAKING CONTRIBUTION	CONTRACTOR'S LICENSE NUMBER CONTRACT OR PROJECT NUMBER
NAMES AND ADDRESS OF PUBLIC AGENCY AWARDING CONTRACT	JOBSITE LOCATION (INCLUDE COUNTY) IF APPLICABLE. GIVE NAME OF SCHOOL, HOSPITAL, BUILDING, ETC. PERIOD COVERED BY CONTRIBUTION (FROM-TO)

CLASSIFICATIONS) OF WORKERS (CARPENTER, PLUMBER, ELECTRICAN, ETC.)	COUNTY WORK PERFORMED IN	HOURS	CONTRIBUTION RATE PER HOUR	AMOUNT
			Total	

SIGNATURE PLEASE TYPE OR PRINT YOUR NAME	DATE
TITLE	AREA CODE & TELEPHONE NUMBER ( )- - ext.

PUBLIC WORKS CONTRACT AWARD INFORMATION

Contract award information must be sent to your Apprenticeship Committee if you are approved to train. If you are not approved to train, you must send the information (which may be this form) to ALL applicable Apprenticeship Committees in your craft or trade in the area of the site of the public work. Go to: http://www.dir.ca.gov/das/PublicWorksForms.htm for information about programs in your area and trade. You may also consult your local Division of Apprenticeship Standards (DAS) office whose telephone number may be found in your local directory under California, State of, Industrial Relations, Division of Apprenticeship Standards.

Do not send this form to the Division of Apprenticeship Standards.

NAME OF YOUR COMPANY	CONTRACTOR'S STATE LICENSE NO
MAILING ADDRESS- NUMBER & STREET, CITY, ZIP CODE	AREA CODE & TELEPHONE NO.
NAME & ADDRESS OF PUBLIC WORKS PROJECT	DATE YOUR CONTRACT EXECUTED
	DATE OF EXPECTED OR ACTUAL START OF PROJECT
NAME & ADDRESS OF PUBLIC AGENCY AWARDING CONTRACT	ESTIMATED NUMBER OF JOURNEYMEN HOURS
	OCCUPATION OF APPRENTICE
THIS FORM IS BEING SENT TO: (NAME & ADDRESS OF APPRENTICESHIP PROGRAM(S))	ESTIMATED NUMBER OF APPRENTICE HOURS
	APPROXIMATE DATES TO BE EMPLOYED

This is not a request for dispatch of apprentices.

Contractors must make a separate request for actual dispatch, in accordance with Section 230.1(a) California Code of Regulations

Check One Of The Boxes Below

1. ☐ We are already approved to train apprentices by the _____ Apprenticeship Committee. We will employ and train under their Standards. Enter name of the Committee

2. ☐ We will comply with the standards of _____ Apprenticeship Committee for the duration of this job only. Enter name of the Committee

3. ☐ We will employ and train apprentices in accordance with the California Apprenticeship Council regulations, including § 230.1 (c) which requires that apprentices employed on public projects can only be assigned to perform work of the craft or trade to which the apprentice is registered and that the apprentices must at all times work with or under the direct supervision of journeyman/men.

Signature _____ *Date* _____

Typed Name _____

Title _____

State of California - Department of Industrial Relations DIVISION OF APPRENTICESHIP STANDARDS

DAS 140 (REV. 1/04)

REQUEST FOR DISPATCH OF AN APPRENTICE – DAS 142 FORM

DO NOT SEND THIS FORM TO DAS

You may use this form to request dispatch of an apprentice from the Apprenticeship Committee in the craft or trade in the area of the public work. Go to: http://www.dir.ca.gov/DAS/PublicWorksForms.htm for information about programs in your area and trade. You may also consult your local Division Apprenticeship Standards (DAS) office whose telephone number may be found in your local directory under California, State of, Industrial Relations, Division of Apprenticeship Standards. **Except for projects with less than 40 hours of journeyman work, you must request and employ apprentices in no less than 8 hour increments.**

Date:

To Applicable Apprenticeship Committee:

Name: _____

Address: _____

_____

Tel. No. _____ **Fax No.** _____

Contractor Requesting Dispatch:

Name: _____

Address: _____

_____

License No. _____

Tel. No. _____ **Fax No.** _____

Project Information:

Contract No. _____

Name of the Project: _____

Address: _____

Dispatch Request Information:

Number of Apprentice(s) Needed: _____ **Craft or Trade:** _____

Date Apprentice(s) to Report: _____ **(72 hrs. notice required)** **Time to Report:** _____

Name of Person to Report to: _____

Address to Report to: _____

_____

You may use this form to make your written request for the dispatch of an apprentice. Requests for dispatch must be in writing and submitted at least 72 hours in advance (excluding weekends and holidays) via first class mail, fax or email. ***Proof of submission may be required.*** *Please take note of California Code of Regulations, Title 8, § 230.1 (a) for all applicable requirements regarding apprenticeship requests and/or visit*
http://www.dir.ca.gov/DAS/DASApprenticesOnPublicWorksSummaryOfRequirements.htm

DAS 142 (Revised 12/11)

BID PROPOSAL CHECKLIST

Included: Please (√)	Pages
☐ Bid Proposal Form	1 – 5
☐ Bid Proposal Guarantee	1 only
☐ Drug Free Work Place Certification	1 only
☐ Minimum Qualifications Questionnaire	1 - 6
☐ LBE Prime Contractor Form **(NEW)**	1 only
☐ LBE Subcontractor Form **(NEW)**	1 only
☐ Non-Discrimination in Employee Benefits Ordinance Certification	1 – 7
☐ Cost Breakdown for Lump Sum Electrical Items. *	1 only

*Bidder generated document
Provide a Schedule of Values (cost break-down) for each lump sum electrical item(s) due with submission of bid

FD Thomas Inc.

CITY OF SACRAMENTO
Department of Public Works
Engineering Services Division

Bid Proposal
Page

TO THE HONORABLE CITY COUNCIL
SACRAMENTO, CALIFORNIA:

In compliance with the Contract Documents, the undersigned hereby proposes to furnish all required labor, materials, supervision, transportation, equipment, services, taxes and incidentals required for:

GUY WEST BRIDGE PAINTING AND REHABILTATION PROJECT
(K15105000)

in the City and County of Sacramento, California.

The Work is to be done in strict conformity with the Contract Documents now on file in the Office of the City Clerk, for the following sum:

Item No.	Item	Estimated Quantity	Unit	Unit Price	Total
1.	MOBILIZATION	1	LS	$ 30,000.00	$ 30,000.00
2.	FURNISH FIELD OFFICE	7	EA	$ 1,150.00	$ 8,050.00
3.	TEMPORARY FENCE	1827	LF	$ 1.70	$ 3,105.90
4.	TEMPORARY FENCE (TYPE ESA)	658	LF	$ 4.45	$ 2,928.10
5.	CONSTRUCTION SITE MANAGEMENT	1	LS	$ 64,900.00	$ 64,900.00
6.	PREPARE STORM WATER PREVENTION PLAN	1	LS	$ 19,462.00	$ 19,462.00
7.	TEMPORARY FIBER ROLL	2385	LF	$ 4.90	$ 11,686.50
8.	TEMPORARY SILT FENCE	2020	LF	$ 8.55	$ 17,271.00
9.	TEMPORARY CONSTRUCTION ENTRANCE	2	EA	2,850.00	5,700.00
10.	RAIN EVENT ACTION PLAN	4	EA	570.00	2,280.00
11.	STORM WATER ANNUAL REPORT	1	EA	1,700.00	1,700.00
12.	STORM WATER SAMPLING AND ANALYSIS DAY	1	EA	570.00	570.00
13.	CONSTRUCTION AREA SIGNS	1	LS	2,960.00	2,960.00

14.	MAINTAINING PUBLIC ACCESS	1	LS	3,400.00	3,400.00
15.	REMOVE CHAIN LINK FENCE	50	LF	14.00	700.00
16.	REPAIR SUSPENDER CONNECTION	2	EA	6,830.00	13,660.00
17.	RELOCATE CABLE CLAMP	4	EA	1,425.00	5,700.00
18.	WRAP MAIN CABLE	1	LS	6,300.00	6,300.00
19.	REMOVE UNSOUND CONCRETE	20	CF	960.00	19,200.00
20.	REPAIR HANDRAILS	1	LS	8,500.00	8,500.00
21.	BRIDGE REMOVAL (PORTION)	1	LS	35,900.00	35,900.00
22.	CLEARING AND GRUBBING	1	LS	5,700.00	5,700.00
23.	EROSION CONTROL (HYDROSEED)	37103	SQFT	.19	7,049.50
24.	SLURRY SEAL (TYPE II)	1	LS	11,400.00	11,400.00
25.	MINOR CONCRETE (MINOR STRUCTURE) (F)	3	CY	7,850.00	23,550.00
26.	RAPID SETTING CONCRETE (PATCH)	20	CF	790.00	15,800.00
27.	REPLACE BEARING PAD	4	EA	25,000.00	100,000.00
28.	JOINT SEAL (TYPE A) (F)	300	LF	22.00	6,600.00
29.	TEMPORARY STRUCTURES	1	LS	101,620.00	101,620.00
30.	FURNISH STRUCTURAL STEEL (BRIDGE) (F)	38	LB	46.00	1,748.00
31.	ERECT STRUCTURAL STEEL (BRIDGE) (F)	38	LB	148.00	5,624.00
32.	SURFACE PREPARATION AND PAINTING OF STEEL AND GALVANIZED STEEL	1	LS	866,250.00	866,250.00
33.	WORK AREA MONITORING	1	LS	35,900.00	35,900.00

34.	CHAIN LINK FENCE (TYPE CL-6)	50	LF	34.00	1,700.00
35.	TRAFFIC STRIPE PAINT	1	LS	1,750.00	1,750.00
36.	STRUCTURAL CONCRETE, BRIDGE (F)	1	CY	15,550.00	15,550.00
37.	BAR REINFORCING STEEL (BRIDGE)	1200	LB	15.80	18,960.00
38.	REPLACE ELECTRICAL CONDUIT	1	LS	48,700.00	48,700.00

(F) – denotes final pay quantity

CONTRACTOR NAME: FD Thomas, Inc TOTAL $ 1,531,875.00

It is understood that this Bid Proposal is based upon completion of the Work within a period of **ONE HUNDRED AND THIRTY (130) WORKING DAYS,** commencing on the date set forth in the written Notice to Proceed issued by the City to the Contractor. The Contractor is hereby notified and reminded that per City Contract requirements, the City will issue a Notice to Proceed within 15 calendar days of execution of contract by City. Contact work days will start immediately on the date of the Notice to Proceed. Attached is a sample of a Notice to Proceed.

A schedule of values (cost break-down) for lump-sum Replace Electrical Conduit items shall be included with the bid.

In determining the amount bid by each bidder, the City may disregard mathematical errors in addition, subtraction, multiplication, and division that appear obvious on the face of the Proposal. When such a mathematical error appears on the face of the Proposal, the City shall have the right to correct such error and to compute the total amount bid by said bidder on the basis of the corrected figure or figures.

The City Council may reject any and all bids and waive any informalities or minor irregularities in the bids.

When an item price is required to be set forth in the Proposal, and the total for the item set forth separately does not agree with a figure which is derived by multiplying the item price times the Engineer's estimate of the quantity of work to be performed for said item, the item price shall prevail over the sum set forth as the total for the item unless, in the sole discretion of the City, such a procedure would be inconsistent with the policy of the bidding procedure. The total paid for each such item of work shall be based upon the item price and not the total price. Should the Proposal contain only total price for the item and the item price is omitted, the City shall determine the item price by dividing the total price for the item by the Engineer's estimate of the estimated quantities of work to be performed as items of work.

If the Proposal contains neither the item price nor the total price for the item, then it shall be deemed incomplete and the Proposal shall be disregarded.

The undersigned has examined the location of the proposed Work, the local conditions at the place where the Work is to be done, is familiar with the Contract Documents and is familiar and expressly agrees to the liquidated damages provision of the Contract Documents.

The undersigned has checked carefully all of the foregoing figures and understands that the City of Sacramento will not be responsible for any errors or omissions on the part of the undersigned in making up this Bid Proposal.

Enclosed is a Bid Proposal Guarantee, as required, consisting of a bidder's bond or other acceptable security for not less than ten percent (10%) of the amount Bid Proposal.

The undersigned agrees that all addenda received and acknowledged herein shall become a part of and be included in this Bid Proposal. This Bid Proposal includes the following addenda:

Add. #	1	DATE	March 21, 2014
Add. #		DATE	
Add. #		DATE	

NOTE: State whether your concern is a corporation, a co-partnership, private individual, or individuals doing business under a firm name.

Corporation

If the Bidder is a corporation, the Bid Proposal must be executed in the name of the corporation and must be signed by a duly authorized officer of the corporation.

If the Bidder is a partnership, the Bid Proposal must be executed in the name of the partnership and one of the partners must subscribe their signature thereto as the authorized representative of the partnership.

AMOUNT OF BID PROPOSAL GUARANTEE ENCLOSED:

($_____) not less than ten percent (10%) of amount Bid Proposal

_____ CERTIFIED CHECK
_____ CASHIER'S CHECK
x BID BOND
_____ MONEY ORDER
_____ OTHER SECURITY

CONTRACTOR:

By _____
(Signature)

F. Dan Thomas
(Print or Type)

Title President
Address 217 Batemen Dr
Central Point OR, 97502
Telephone No. 541-664-3010

Fax No. 541-664-1105

Email Address estimating.med@fdthomas.com

Date March 31, 2014

FOR CITY USE ONLY

Bid Bond Security
☐ Properly Signed ☐ *Improperly Signed*
☐ *Not Included* ☐ Not Required

Type of Deposit
☑ Bid Bond ☐ Cashier/Certified Check
☐ Other_____ Initial:_____

Contractor's License No. 610403 Type C33, B, C39, A

Expiration Date 01/31/2015

Tax I.D. Nos.- Fed. 93-1017129 State SR KH 100-976866

City of Sacramento Business Operation Tax Certificate No. 146237
(City will not award contract if Certificate Number is missing.)

Please indicate if you are any of the following:

EBE_____ Cert #_____ SBE_____ Cert #_____

UDBE_____ Cert #_____ M/WBE_____ Cert #_____

City of SACRAMENTO
Department of Public Works

KNOW ALL MEN BY THESE PRESENTS,

That we, F.D. Thomas, Inc.

as Principal, and Western Surety Company

a corporation duly organized under the laws of the State of South Dakota and is duly licensed to become sole surety on bonds required or authorized by the State of California, as Surety, are held and firmly bound unto the City of Sacramento, hereinafter called the City, in the penal sum of ten percent (10%) of the (BASE OR LUMP SUM) Proposal of the Principal above named, or other amount as set forth in the Invitation to Bidders, submitted by said Principal to the City for the Work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH
That whereas the Principal has submitted the above-mentioned Proposal to the City, for which Proposals are to be opened by the City Clerk's Office, City of Sacramento, located at 915 I Street, Historic City Hall, Closed Session Room #CH1104, Sacramento, CA 95814 up to the hour of 2:00 p.m. on April 2, 2014 for the Work specifically described as follows:

Guy West Bridge Painting & Rehabilitation Project
(PN: K15105000)

NOW, THEREFORE, if the aforesaid Principal is awarded the Contract and within the time and manner required under the Contract Documents, enters into a written Contract, in the prescribed form, in accordance with the Proposal, and files two (2) bonds with the City, one to guarantee faithful performance and the other to guarantee payment for labor and materials, and files the required insurance policies with the City, all as required by the Contract Documents or by law, then the obligation shall be null and void; otherwise it shall be and remain in full force and effect.

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the Surety shall pay all costs incurred by the Obligee in such suit, including a reasonable attorney's fee to be fixed by the court, which sums shall be additional to the principal amount of this bond.

IN WITNESS THEREOF We have hereunto set our hands and seal this 24th day of March 2014.

F.D. Thomas, Inc.
(Contractor) (Seal)
By
Title President

ORIGINAL APPROVED AS TO FORM:

City Attorney

Western Surety Company
(Surety) (Seal)
By
Title Attorney-in-Fact, Yvonne Roncagliolo
Agent Name and Address Woodruff-Sawyer & Co.
50 California St., 12th Floor, San Francisco, CA 94111
Agent Phone # (415) 391-2141
Surety Phone # (415) 932-7500
California License # 0761-7 (Western Surety Company)
California License #0329598 (Woodruff-Sawyer & Co.)

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

State of California

County of San Francisco

On 3/24/2014 (Date) before me, Nerissa S. Bartolome, Notary Public (Here Insert Name and Title of the Officer)

personally appeared Yvonne Roncagliolo (Name(s) of Signer(s))

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.

NERISSA S. BARTOLOME
Commission # 1938778
Notary Public - California
San Francisco County
My Comm. Expires Jun 24, 2015

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.

Signature: _____ (Signature of Notary Public)

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: Yvonne Roncagliolo	Signer's Name:
☐ Corporate Officer — Title(s):	☐ Corporate Officer — Title(s):
☐ Individual	☐ Individual
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☒ Attorney in Fact	☐ Attorney in Fact
☐ Trustee	☐ Trustee
☐ Guardian or Conservator	☐ Guardian or Conservator
☐ Other:	☐ Other:
Signer Is Representing:	Signer Is Representing:
RIGHT THUMBPRINT OF SIGNER — Top of thumb here	RIGHT THUMBPRINT OF SIGNER — Top of thumb here

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Item #5907

Western Surety Company

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

Lawrence J Coyne, Charles R Shoemaker, Nancy L Hamilton, Roger C Dickinson, Stanley D Loar, Kelly Holtemann, Mark M Munekawa, Nerissa S Bartolome, Joan De Luca, Yvonne Roncagliolo, Thomas E Hughes, S Nicole Evans, Individually

of San Francisco, CA, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Vice President and its corporate seal to be hereto affixed on this 20th day of November, 2013.

WESTERN SURETY COMPANY

Paul T. Bruflat, Vice President

State of South Dakota
County of Minnehaha } ss

On this 20th day of November, 2013, before me personally came Paul T. Bruflat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires
June 23, 2015

J. MOHR
NOTARY PUBLIC
SOUTH DAKOTA

J. Mohr, Notary Public

CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 24th day of March, 2014.

WESTERN SURETY COMPANY

L. Nelson, Assistant Secretary

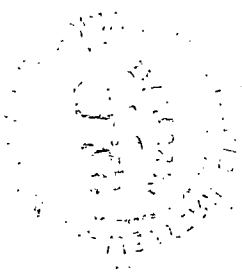
Form F4280-7-2012

Authorizing By-Law

ADOPTED BY THE SHAREHOLDERS OF WESTERN SURETY COMPANY

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the shareholders of the Company.

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, and Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.



City of
SACRAMENTO
Department of Public Works

DRUG-FREE WORKPLACE POLICY AND AFFIDAVIT

BID PROPOSAL MAY BE DECLARED NONRESPONSIVE IF THIS FORM (COMPLETED) IS NOT ATTACHED.
Pursuant to City Council Resolution CC90-498 dated 6/26/90 the following is required.

The undersigned contractor certifies that it and all subcontractors performing under this Agreement will provide a drug-free workplace by:

1. Publishing a "Drug-Free Workplace" statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Establishing a Drug-Free Awareness Program to inform employees about:

   a. The dangers of drug abuse in the workplace.
   b. The contractor's policy of maintaining a drug-free workplace.
   c. Any available drug counseling, rehabilitation, and employee assistance program.
   d. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace.

3. Notify employees that as a condition of employment under this Agreement, employees will be expected to:

   a. Abide by the terms of the statement.
   b. Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace.

4. Making it a requirement that each employee to be engaged in the performance of the Agreement be given a copy on the "Drug-Free Workplace" statement.

5. Taking one of the following appropriate actions, within thirty (30) days of receiving notice from an employee or otherwise receiving such notice, that said employee has received a drug conviction for a violation occurring in the workplace:

   a. Taking appropriate disciplinary action against such an employee, up to and including termination; or
   b. Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement or other appropriate agency.

* I certify that no person employed by this company, corporation, or business has been convicted of any criminal drug statute violation on any job site or project where this company, corporation or business was performing was within three years of the date of my signature below.

EXCEPTION: N/A _____ _____ _____
Date **Violation Type** **Place of Occurrence**

If additional space is required use back of this form.

*** The above statement will also be incorporated as a part of each subcontract agreement for any and all subcontractors selected for performance on this project.**

IN THE EVENT THIS COMPANY, CORPORATION, OR BUSINESS IS AWARDED THIS CONSTRUCTION AGREEMENT, AS A RESULT OF THIS BID; THE CONTRACTOR WITH HIS/HER SIGNATURE REPRESENTS TO THE CITY THAT THE INFORMATION DISCLOSED IN THIS DOCUMENT IS COMPLETE AND ACCURATE. IT IS UNDERSTOOD AND AGREED THAT FALSE CERTIFICATION IS SUBJECT TO IMMEDIATE TERMINATION BY THE CITY.

The Representations Made Herein On This Document Are Made Under Penalty Of Perjury.

CONTRACTOR'S NAME: FD Thomas, Inc.

BY: _____ President **Date:** March 31, 2014
Signature **Title**

Effects of violations: **a.** Suspension of payments under the Agreement. **b.** Suspension or termination of the Agreement. **c.** Suspension or debarment of the contractor from receiving any Agreement from the City of Sacramento for a period not to exceed five years.

MINIMUM QUALIFICATIONS QUESTIONNAIRE

Sacramento City Code Section 3.60.020 authorizes the Sacramento City Council to adopt standard minimum qualifications for bidders on competitively bid public works construction projects, and requires, among other provisions, that a bidder meet such minimum qualifications at the time of bid opening in order to bid. On July 31, 2007, the City Council adopted Resolution No. 2007-574 establishing these standard minimum qualifications. Pursuant to City Code section 3.60.020, a bidder failing to meet these minimum qualifications at the time of bid opening shall not be considered a responsible bidder for purposes of bidding on the subject project.

All bidders must demonstrate compliance with the minimum qualifications established by Resolution No. 2007-574 by completing all of the questions contained in this questionnaire. Bidder responses shall be limited to those operating business units, offices, branches and/or subsidiary divisions of the bidder that will be involved with the performance of any project work if awarded the contract. If a bidder answers "yes" to any single question, fails to submit a fully completed questionnaire, or submits false information, this will result in a determination that the minimum qualifications are not met, and the bidder shall not be considered a qualified bidder for purposes of bidding on this contract. If two or more entities submit a bid on a contract as a Joint Venture, each entity within the Joint Venture must separately meet these minimum qualifications for the Joint Venture to be considered a qualified bidder.

The City of Sacramento ("City") shall make its determination on the basis of the submitted questionnaire, as well as any relevant information that is obtained from others or as a result of investigation by the City. While it is the intent of this questionnaire to assist the City in determining whether bidders possess the minimum qualifications necessary to submit bids on the City's competitively bid public works construction contracts, the fact that a bidder submits a questionnaire demonstrating that it meets these minimum qualifications shall not in any way limit or affect the City's ability to: (1) review other information contained in the bid submitted by the bidder, and additional relevant information, and determine whether the contractor is a responsive and/or responsible bidder; or (2) establish pre-qualification requirements for a specific contract or contracts.

By submitting this questionnaire, the bidder consents to the disclosure of its questionnaire answers: (i) to third parties for purposes of verification and investigation; (ii) in connection with any protest, challenge or appeal of any action taken by the City; and (iii) as required by any law or regulation, including without limitation the California Public Records Act (Calif. Gov't Code sections 6250 et seq.). Each questionnaire must be signed under penalty of perjury in the manner designated at the end of the form, by an individual who has the legal authority to bind the bidder submitting the questionnaire. If any information provided by a bidder becomes inaccurate, the bidder shall immediately notify the City and provide updated accurate information in writing, under penalty of perjury.

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2007-574

DATE ADOPTED: July 31, 2007

QUESTIONNAIRE

NOTICE: **For firms that maintain other operating business units, offices, branches and/or subsidiary divisions that will not be involved with the performance of any project work if the firm is awarded the contract, references hereafter to "your firm" shall mean only those operating business units, offices, branches and/or subsidiary divisions that will be involved with the performance of any project work.**

All of the following questions regarding "your firm" refer to the firm (corporation, partnership or sole proprietor) submitting this questionnaire, as well as any firm(s) with which any of your firm's owners, officers, or partners are or have been associated as an owner, officer, partner or similar position within the last five years
The firm submitting this questionnaire shall not be considered a responsible bidder if the answer to any of these questions is "yes", or if the firm submits a questionnaire that is not fully completed or contains false information.

1. **Classification & Expiration Date(s) of California** Contractor's License Number(s) held by firm:

   C33, B, C39, A - Expires 01/31/2015

2. Has a contractor's license held by your firm and/or any owner, officer or partner of your firm been revoked at anytime in the last five years?

   ☐ Yes ☒ No

3. Within the last five years, has a surety firm completed a contract on your firm's behalf, or paid for completion of a contract to which your firm was a party, because your firm was considered to be in default or was terminated for cause by the project owner?

   ☐ Yes ☒ No

4. At the time of submitting this minimum qualifications questionnaire, is your firm ineligible to bid on or be awarded a public works contract, or perform as a subcontractor on a public works contract, pursuant to either California Labor Code section 1777.1 (prevailing wage violations) or Labor Code section 1777.7 (apprenticeship violations)?

   ☐ Yes ☒ No

5. At any time during the last five years, has your firm, or any of its owners, officers or partners been convicted of a crime involving the awarding of a contract for a government construction project, or the bidding or performance of a government contract?

   ☐ Yes ☒ No

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2007-574

DATE ADOPTED: July 31, 2007

6.☐ Answer either subsection A or B, as applicable:

A.☒ Your firm has completed three or more government construction contracts in Sacramento County within the last five years: Within those five years, has your firm been assessed_liquidated damages on three or more government construction contracts in Sacramento County for failure to complete contract work on time?

NOTE: If there is a pending administrative or court action challenging the assessment of liquidated damages on a government contract within the last five years, you need not include that contract in responding to this question.

☐ Yes ☒ No ☐ Not applicable

OR

B. Your firm has not completed at least three government construction contracts in Sacramento County within the last five years: Within the last three years, has your firm been assessed liquidated damages on three or more government construction contracts for failure to complete contract work on time?

NOTE: If there is a pending administrative or court action challenging an assessment of liquidated damages on a government contract within the last three years, you need not include that contract in responding to this question.

☐ Yes ☐ No ☐ Not applicable

7. In the last three years has your firm been debarred from bidding on, or completing, any government agency or public works construction contract for any reason?

NOTE: If there is a pending administrative or court action challenging a debarment, you need not include that debarment in responding to this question.

☐ Yes ☒ No

8.☐ Has CAL OSHA assessed a total of three or more penalties against your firm for any "serious" or "willful" violation occurring on construction projects performed in Sacramento County at any time within the last three years?

NOTE: If there is a pending administrative or court action appealing a penalty assessment, you need not include that penalty assessment in responding to this question.

☐ Yes ☒ No

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2007-574

DATE ADOPTED: July 31, 2007

9. Answer either subsection A or B, as preferred:

A. ☒ In the last three years has your firm had a three year average Workers' Compensation experience modification rate exceeding 1.1?

☐ Yes ☒ No

OR

B. ☐ In the last three years has your firm had a three-year average incident rate for total lost workday cases exceeding 10?

NOTE: Incident rates represent the number of lost workday cases per 100 full-time workers and is to be calculated as: (N/EH) x 200,000, where

N = number of lost workday cases (as defined by the U.S. Dept. of Labor, Bureau of Labor Statistics)
EH = total hours worked by all employees during the calendar year
200,000 = base for 100 equivalent full-time working (working 40 hours per week, 50 weeks per year)

☐ Yes ☐ No

10. In the past three years, has the federal EPA, Region IX or a California Air Quality Management District or Regional Water Quality Control Board assessed penalties three or more times, either against your firm, or against the project owner for a violation resulting in whole or in part from any action or omission by your firm on a project on which your firm was a contractor in Sacramento County?

NOTE: If there is a pending administrative or court action appealing a penalty assessment, you need not include that penalty assessment in responding to this question.

☐ Yes ☒ No

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2007-574

DATE ADOPTED: July 31, 2007

11.☐ In the past three years, has the federal EPA, Region IX or a California Air Quality Management District or Regional Water Quality Control Board assessed a single penalty of $100,000 or more, either against your firm, or against the project owner for a violation resulting in whole or in part from any action or omission by your firm on a project on which your firm was the contractor in Sacramento County?

NOTE: If there is a pending administrative or court action appealing a penalty assessment, you need not include that penalty assessment in responding to this question.

☐ Yes ☒ No

12. In the past three years, have civil penalties been assessed against your firm pursuant to California Labor Code 1777.7 for violation of California public works apprenticeship requirements, three or more times?

NOTE: If there is a pending administrative or court action appealing a penalty assessment, you need not include that penalty assessment in responding to this question.

☐ Yes ☒ No

13. In the past three years, has a public agency in California withheld contract payments or assessed penalties against your firm for violation of public works prevailing wage requirements, three or more times?

NOTE: If there is a pending administrative or court action appealing a withholding or penalty assessment, you need not include that withholding or penalty assessment in responding to this question.

☐ Yes ☒ No

14. Has your firm been assessed penalties for violation of public works prevailing wage requirements in California, in an aggregate amount for the past three years of $50,000 or more?

NOTE: If there is a pending administrative or court action appealing a penalty assessment, you need not include that penalty assessment in responding to this question.

☐ Yes ☒ No

FOR CITY CLERK USE ONLY

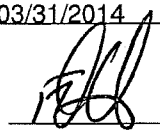
RESOLUTION NO.: 2007-574

DATE ADOPTED: July 31, 2007

VERIFICATION AND SIGNATURE

I, the undersigned, certify and declare that I have read all the foregoing answers to this Minimum Qualifications Questionnaire, and know their contents. The matters stated in these Questionnaire answers are true of my own knowledge and belief, except as to those matters stated on information and belief, and as to those matters I believe them to be true. I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Signed at Jackson County Oregon, on 03/31/2014.
(Location) (Date)

Signature: 

Print name: F. Dan Thomas

Title: President

NOTE: If two or more entities submit a bid on a contract as a Joint Venture, each entity within the Joint Venture must submit a separate Minimum Qualifications Questionnaire.

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2007-574

LOCAL BUSINESS ENTERPRISE (LBE) PARTICPATION PROGRAM

NOTE: Proposers must provide responses to the following items. Failure to provide a response to each of the items in this section may be grounds for rejection of the proposal.

1. LBE FIVE PERCENT (5%) PARTICIPATION

On April 3, 2012, the Sacramento City Council adopted a Local Business Enterprise (LBE) Preference Program to provide enhanced opportunities for the participation of local business enterprises (LBEs) in the City's contracting and procurement activities. On November 19, 2013, City Council increased the LBE preference and authorized City departments to require minimum LBE participation levels in individual contracts. Under City Code section 3.60.270 , when the bid specifications for a City contract establish a minimum participation level for LBEs, no bidder on the contract shall be considered responsive unless its bid meets the minimum LBE participation level required by the bid specifications.

The City has established a minimum 5% participation level for LBEs on this contract. Pursuant to City Code Section 3.60.270, no bidder on this contract shall be considered responsive unless its bid meets or exceeds this minimum participation level.

Local Business Enterprise means a business enterprise, including but not limited to, a sole proprietorship, partnership, limited liability company, corporation, or other business entity that has a legitimate business presence in the city or unincorporated county of Sacramento. Evidence of legitimate business presence in the city or unincorporated county of Sacramento shall include:

1. Having a current City of Sacramento Business Operation Tax or County of Sacramento Business License; and
2. Having either of the following types of offices or workspace operating legally within the city or unincorporated county of Sacramento:
    a. The LBE's principle business office or workspace; or
    b. The LBE's regional, branch or satellite office with at least one full time employee located in the city or unincorporated county of Sacramento.

A. LOCAL BUSINESS ENTERPRISE (LBE)

Is the firm submitting the bid qualified as a local business enterprise? Check the appropriate box below:

[X] **YES** - the firm submitting the bid is qualified as a local business enterprise.

[ ] **NO** - the firm submitting the bid is not qualified as a local business enterprise.

If the response to the above is YES, provide the City of Sacramento Business Operations Tax Certificate Number and/or County of Sacramento Business License Number:

146237

If the response to the above is YES, provide a current copy of the City of Sacramento Business Operations Tax Certificate and/or County of Sacramento Business License.

If the response to the above is YES, provide business office or workspace address*:

200 Harris Ave

Sacramento, CA 95838

* Address must be a physical address for the basis of location, this excludes P.O. Box addresses.

MUST BE POSTED IN CONSPICUOUS PLACE

CITY OF SACRAMENTO

146237

146237

BUSINESS OPERATIONS TAX CERTIFICATE

Business Name	F.D. THOMAS, INC
Business Address	200 HARRIS AVE
Owner	THOMAS, F DAN
Type of Business	CONTRACTOR
Tax Classification	401

FROM Mo. Day Yr.	TO Mo. Day Yr.
07/01/2013	06/30/2014
	Expires

TOTAL PAID: $579.44

F.D. THOMAS, INC
MELODY
PO BOX 4663
MEDFORD, OR 97501-0188

CITY OF SACRAMENTO
JUL 03 2013
PAID

VOID IF NOT VALIDATED

THIS STUB MAY BE FOLDED/DETACHED BEFORE POSTING

This certificate is not to be construed as a business license or imply that the City of Sacramento has investigated, or approves or recommends, the holder of this certificate. Any representation to the contrary is fraudulent. (This certificate must be renewed within 30 days of expiration).

City of
SACRAMENTO

Subcontractor and Local Business Enterprise (LBE) Participation Form

THIS FORM MUST BE SUBMITTED WITH THE SEALED BID PROPOSAL
USE ONLY BASE BID AMOUNT TO ESTIMATE DOLLAR VALUE

To be eligible for award of this contract, the bidder shall list the business entities used to attain the 5% LBE requirement. Additionally, the bidder shall list all other subcontractors who perform work, render service, or provide materials in an amount in excess of one-half of 1 percent of the total bid amount. In the case of bids for the construction of streets and highways, including bridges, subcontractors whose subcontract value exceeds one-half of 1 percent of the total bid or ten thousand dollars ($10,000), whichever is greater, shall be listed. Estimated dollar values shall be provided for all work / services listed. The failure to attain the 5% LBE participation or the inclusion of false information or the omission of required information will render the bid non-responsive.

Prime Contractor Name: F.D. Thomas Inc. Base Bid Amount: 1,531,875.00 Is the Prime Contractor a LBE? XX Yes ___ No

Business Entity/Subcontractor Name and Address	Subcontractor License No.	Indicate LBE (subject to verification)	Items of Work and/or Description of Work, Services, or Materials to be provided to complete contract	Estimated Dollar Value of Work, Services, or Materials to be provided for Base Bid
Adams and Smith 1380 West Center Street Lindon UT 84042	311967		Partial Bid Items: 16,17,18,27,30,31	120,000.00
Nitta Erosion Control 3778 Del Mar Ave Loomis CA 95650	401640		Partial Bid Items: 4,7,8,23	30,000.00
Martin Brothers 8801 Folsom BLVD Suite 260 Sacramento CA 95826	726454	YES	Partial Bid Items: 9, and temporary access ramps	50,000.00
Peterson Industrial Scaffolding 1990 Olivera Road Suite F Concord CA 94520	970819		Partial Bid Item: 29	70,000.00
Bockman & Woody Electric 1528 El Pinal Drive Stockton CA 95205	588308		Partial Bid Item: 38	30,000.00

The Prime Contractor hereby certifies that each subcontractor listed on this Subcontractor and LBE Participation Form has been notified that it has been listed and has consented in writing to its name being submitted for this contract. The Prime Contractor also certifies that it will notify each subcontractor listed on this Form in writing if the contract award is made to the Prime Contractor, and will make all documentation relevant to the subcontractor and LBE participation available to City of Sacramento upon request. The Prime Contractor further certifies that all of the information contained in this Form is true and correct and acknowledges that the City will rely on the accuracy of this information in awarding the contract.

COPY AND ATTACH ADDITIONAL SHEETS AS NECESSARY

LBE PRIME CONTRACTOR AND SUBCONTRACTOR PARTICIPATION VERIFICATION INFORMATION ARE DUE BY CLOSE OF BUSINESS TWO DAYS AFTER BID OPENING.
THE SUBCONTRACTOR LICENSING NUMBER IS DUE WITHIN 24 HOURS OF THE BID DUE DATE AND TIME.

NON-DISCRIMINATION IN EMPLOYEE BENEFITS BY CITY CONTRACTORS ORDINANCE

INTRODUCTION

The Sacramento Non-Discrimination In Employee Benefits By City Contractors Ordinance (the "Ordinance"), codified as Sacramento City Code Chapter 3.54, prohibits City contractors from discriminating in the provision of employee benefits between employees with spouses and employees with domestic partners, and between the spouses and domestic partners of employees.

APPLICATION

The provisions of the Ordinance apply to any contract or agreement (as defined below), between a Contractor and the City of Sacramento, in an amount exceeding $25,000.00. The Ordinance applies to that portion of a contractor's operations that occur: (i) within the City of Sacramento; (ii) on real property outside the City of Sacramento if the property is owned by the City or if the City has a right to occupy the property; or (iii) at any location where a significant amount of work related to a City contract is being performed. The provisions apply only to those employee(s) actually working on the City contract and only for the actual amount of time the employee(s) spend working on such contract.

The Ordinance does not apply: to subcontractors or subcontracts of any Contractor or contractors; to transactions entered into pursuant to cooperative purchasing agreements approved by the Sacramento City Council; to legal contracts of other governmental jurisdictions or public agencies without separate competitive bidding by the City; where the requirements of the ordinance will violate or are inconsistent with the terms or conditions of a grant, subvention or agreement with a public agency or the instructions of an authorized representative of any such agency with respect to any such grant, subvention or agreement; to contracts for excavation or street construction; or to agreements for the use of City right-of-way where a contracting utility has the power of eminent domain.

DEFINITIONS

As set forth in the Ordinance, the following definitions apply:

"Contract" means an agreement for public works or improvements to be performed, or for goods or services to be purchased or grants to be provided, at the expense of the City or to be paid out of moneys deposited in the treasury or out of the trust money under the control or collected by the City. "Contract" also means a written agreement for the exclusive use ("exclusive use" means the right to use or occupy real property to the exclusion of others, other than the right reserved by the fee owner) or occupancy of real property for a term exceeding 29 days in any calendar year, whether by singular or cumulative instrument, (i) for the operation or use by others of real property owned or controlled by the City for the operation of a business, social, or other establishment or organization, including leases, concessions, franchises and easements, or (ii) for the City's use of occupancy of real property owned by others, including leases, concessions, franchises and easements.

"Contract" shall not include: a revocable at-will use or encroachment permit for the use of or encroachment on City property regardless of the ultimate duration of such permit; excavation, street construction or street use permits; agreements for the use of City right-of-way where a contracting utility has the power of eminent domain; or agreements governing the use of City property that constitute a public forum for activities that are primarily for the purpose of espousing or advocating causes or ideas and that are generally protected by the First Amendment to the United States Constitution or that are primarily recreational in nature.

"Contractor" means any person or persons, firm partnership or corporation, company , or combination thereof, that enters into a Contract with the City. "Contractor" does not include a public entity.

"Domestic Partner" means any person who has a currently registered domestic partnership with a governmental entity pursuant to state or local law authorizing the registration.

"Employee Benefits" means bereavement leave; disability, life, and other types of insurance; family medical leave; health benefits; membership or membership discounts; moving expenses; pension and retirement benefits; vacation; travel benefits; and any other benefit given to employees;. "Employee benefits" shall not include benefits to the extent that the application of the requirements of this chapter to such benefits may be preempted by federal or state.

CONTRACTOR'S OBLIGATION TO PROVIDE THE CITY WITH DOCUMENTATION AND INFORMATION

Contractor shall provide the City with documentation and information verifying its compliance with the requirements of the Ordinance within ten (10) days of receipt of a request from the City. Contractors shall keep accurate payroll records, showing, for each City Contract, the employee's name, address, Social Security number, work classification, straight time pay rate, overtime pay rate, overtime hours worked, status and exemptions, and benefits for each day and pay period that the employee works on the City Contract. Each request for payroll records shall be accompanied by an affidavit to be completed and returned by the Contractor, as stated, attesting that the information contained in the payroll records is true and correct, and that the Contractor has complied with the requirements of the Ordinance. A violation of the Ordinance or noncompliance with the requirements of the Ordinance shall constitute a breach of contract.

EMPLOYER COMPLIANCE CERTIFICATE AND NOTICE REQUIREMENTS

(a) All contractors seeking a Contract subject to the Ordinance shall submit a completed Declaration of Compliance Form (attachment "A"), signed by an authorized representative, with each proposal, bid or application. The Declaration of Compliance shall be made a part of the executed contract, and will be made available for public inspection and copying during regular business hours.

(b) The Contractor shall give each existing employee working directing on a City contract, and (at the time of hire), each new employee, a copy of the notification provided as attachment "B."

(c) Contractor shall post, in a place visible to all employees, a copy of the notice provided as attachment "C."

DECLARATION OF COMPLIANCE
Equal Benefits Ordinance

FD Thomas, Inc
Name of Contractor

217 Bateman Dr, Central Point, OR 97502
Address

The above named contractor ("Contractor") hereby declares and agrees as follows:

1. I have read and understand the Non-Discrimination In Employee Benefits By City Contractors Ordinance ("Ordinance") provided to me by the City of Sacramento ("City") in connection with the City's request for proposals or other solicitations for the performance of services, or for the provision of commodities, under a City contract or agreement ("Contract").

2. As a condition of receiving the City Contract, I agree to fully comply with the requirements of the Ordinance, codified as Chapter 3. 54 of the Sacramento City Code.

3. If the face amount of this City Contract is less than $100,000.00 as a condition of receiving this Contract, I agree to notify the City in writing if the aggregate value of the City Contract referenced herein, after changes, modifications, or similar actions, equals or exceeds $100,000.00 in total value.

4. I understand, to the extent that such benefits are not preempted or prohibited by federal or state law, employee benefits covered by the Ordinance, are any of the following:

   a. Bereavement Leave
   b. Disability, life, and other types of insurance
   c. Family medical leave
   d. Health benefits
   e. Membership or membership discounts
   f. Moving expenses
   g. Pension and retirement benefits
   h. Vacation
   i. Travel benefits
   j. Any other benefit offered to employees

   I agree that should I offer any of the above listed employee benefits, that I will offer those benefits, without discrimination between employees with spouses and employees with domestic partners, and without discrimination between the spouses and domestic partners of such employees.

5. I understand that I will not be considered to be discriminating in the provision or application of employee benefits under the following conditions or circumstances:

   a. In the event that the actual cost of providing a benefit to a domestic partner or spouse, exceeds the cost of providing the same benefit to a spouse or domestic partner of an employee, I will not be required to provide the benefit, nor shall it be deemed discriminatory, if I require the employee to pay the monetary difference in order to provide the benefit to

the domestic partner or to the spouse.

b. In the event I am unable to provide a certain benefit, despite taking reasonable measures to do so, if I provide the employee with a cash equivalent, I will not be deemed to be discriminating in the application of that benefit.

c. If I provide employee benefits neither to employee's spouses nor to employee's domestic partners.

d. If I provide employee benefits to employees on a basis unrelated to marital or domestic partner status.

e. If I submit, to the Program Coordinator, written evidence of making reasonable efforts to end discrimination in employee benefits by implementing policies which are to be enacted before the first effective date after the first open enrollment process following the date the Contract is executed with the City.

I understand that any delay in the implementation of such policies may not exceed one (1) year from the date the Contract is executed with the City, and applies only to those employee benefits for which an open enrollment process is applicable.

f. Until administrative steps can be taken to incorporate, in the infrastructure, nondiscrimination in employee benefits

The time allotted for these administrative steps will apply only to those employee benefits for which administrative steps are necessary and may not exceed three (3) months from the date the Contract is executed with the City.

g. Until the expiration of a current collective bargaining agreement(s) where, in fact, employee benefits are governed by a collective bargaining agreement(s).

h. I take all reasonable measures to end discrimination in employee benefits by either requesting the union(s) involved agree to reopen the agreement(s) in order for me to take whatever steps are necessary to end discrimination in employee benefits or by my ending discrimination in employee benefits without reopening the collective bargaining agreement(s).

i. In the event I cannot end discrimination in employee benefits despite taking all reasonable measures to do so, I provide a cash equivalent to eligible employees for whom employee benefits (as listed previously), are not available.

Unless otherwise authorized in writing by the City Manager, I understand this cash equivalent must begin at the time the union(s) refuse to allow the collective bargaining agreement(s) to be reopened or no longer than three (3) months from the date the Contract is executed with the City.

6. I understand that failure to comply with the provisions of Section 5. (a) through 4. (i), above, will subject me to possible suspension and/or termination of this Contract for cause; repayment of any or all of the Contract amount disbursed by the City; debarment for future contracts until all penalties and restitution have been paid in full; deemed ineligible for future contracts for up to two (2) years; the imposition of a penalty, payable to the City, in the sum of $50.00 for each employee,

for each calendar day during which the employee was discriminated against in violation of the provisions of the Ordinance.

7. I understand and do hereby agree to provide each current employee and, within ten (10) days of hire, each new employee, of their rights under the Ordinance. I further agree to maintain a copy of each such letter provided, in an appropriate file for possible inspection by an authorized representative of the City. I also agree to prominently display a poster informing each employee of these rights.

8. I understand that I have the right to request an exemption to the benefit provisions of the Ordinance when such a request is submitted to the Procurement Services Division, in writing with sufficient justification for resolution, prior to contract award.

   I further understand that the City may request a waiver or exemption to the provisions or requirements of the Ordinance, when only one contractor is available to enter into a contract or agreement to occupy and use City property on terms and conditions established by the City; when sole source conditions exist for goods, services, public project or improvements and related construction services; when there are no responsive bidders to the EBO requirements and the contract is for essential goods or services; when emergency conditions with public health and safety implications exist; or when the contract is for specialized legal services if in the best interest of the City.

9. In consideration of the foregoing, I shall defend, indemnify and hold harmless, the City, its officers and employees, against any claims, actions, damages, costs (including reasonable attorney fees), or other liabilities of any kind arising from any violation of the City's Equal Benefits Requirements or of the Ordinance by me.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am authorized to bind the Contractor to the provisions of this Declaration.

Signature of Authorized Representative

March 31, 2014
Date

F. Dan Thomas
Print Name

President
Title

YOUR RIGHTS UNDER THE CITY OF SACRAMENTO'S NON-DISCRIMINATION IN EMPLOYEE BENEFITS BY CITY CONTRACTORS ORDINANCE

On ..... (date), your employer (the "Employer") entered into a contract with the City of Sacramento (the "City") for ..... (contract details), and as a condition of that contract, agreed to abide by the requirements of the City's Non-Discrimination In Employee Benefits By City Contractors Ordinance (Sacramento City Code Section 3.54).

The Ordinance does not require the Employer to provide employee benefits. The Ordinance does require that if certain employee benefits are provided by the Employer, that those benefits be provided without discrimination between employees with spouses and employees with domestic partners, and without discrimination between the spouse or domestic partner of employees.

The Ordinance covers any employee working on the specific contract referenced above, but only for the period of time while those employees are actually working on this specific contract.

The included employee benefits are:

- Bereavement leave
- Disability, life and other types of insurance
- Family medical leave
- Health benefits
- Membership or membership discounts
- Moving expenses
- Pension and retirement benefits
- Vacation
- Travel benefits
- Any other benefits given to employees

(Employee Benefits does not include benefits that may be preempted by federal or state law.)

If you feel you have been discriminated or retaliated against by your employer in the terms and conditions of your application for employment, or in your employment, or in the application of these employee benefits, because of your status as an applicant or as an employee protected by the Ordinance, or because you reported a violation of the Ordinance, and after having exhausted all remedies with your employer,

You May . . .

- Submit a written complaint to the City of Sacramento, Contract Services Unit, containing the details of the alleged violation. The address is:

  City of Sacramento
  Contract Services Unit
  915 I St, 2nd Floor
  Sacramento, CA 95814-2714

- Bring an action in the appropriate division of the Superior Court of the State of California against the Employer and obtain the following remedies:

  - Reinstatement, injunctive relief, compensatory damages and punitive damages

  - Reasonable attorney's fees and costs

YOUR RIGHTS UNDER THE CITY OF SACRAMENTO'S NON-DISCRIMINATION IN EMPLOYEE BENEFITS BY CITY CONTRACTORS ORDINANCE

If your employer provides employee benefits, they must be provided to those employees working on a City of Sacramento contract without discriminating between employees with spouses and employees with domestic partners.

The included employee benefits are:

- Bereavement leave
- Disability, life and other types of insurance
- Family medical leave
- Health benefits
- Membership or membership discounts
- Moving expenses
- Pension and retirement benefits
- Vacation
- Travel benefits
- Any other benefits given to employees

If you feel you have been discriminated against by your employer . . .

You May . . .

- Submit a written complaint to the City of Sacramento, Contract Services Unit, containing the details of the alleged violation. The address is:

  City of Sacramento
  Contract Services Unit
  915 I St, 2nd Floor
  Sacramento, CA 95814-2714

- Bring an action in the appropriate division of the Superior Court of the State of California against the employer and obtain reinstatement, injunctive relief, compensatory damages, punitive damages and reasonable attorney's fees and costs.

Discrimination and Retaliation Prohibited.

If you feel you have been discriminated or retaliated against by your employer in the terms and conditions of your application for employment, or in your employment, because of your status as an applicant or as an employee protected by the Ordinance, or because you reported a violation of this Ordinance . . .

You May Also . . .

Submit a written complaint to the City of Sacramento, Contract Services Unit, at the same address, containing the details of the alleged violation.

SSPC
The Society For Protective Coatings

F.D. Thomas, Inc.

of

Central Point, OR

has met or exceeded the requirements set forth in the SSPC Painting Contractor Certification Program for

FIELD APPLICATION OF COATINGS
COMPLEX STRUCTURES
SSPC-QP1

SSPC CERTIFIED CONTRACTOR
SSPC
QP1

President, SSPC

March 31, 2014 – March 31, 2015

Validation Period

Owners are advised to contact SSPC at 412-281-2331 ext. 2235 or ext. 2209 to verify authenticity of certification.

SSPC
The Society For Protective Coatings

F.D. Thomas, Inc.

of

Central Point, OR

has met or exceeded the requirements set forth in the SSPC Painting Contractor Certification Program for

SSPC CERTIFIED CONTRACTOR
SSPC
QP2

INDUSTRIAL HAZARDOUS PAINT REMOVAL
SSPC-QP2

"A"
Category

President, SSPC

March 31, 2014 – March 31, 2015
Validation Period

Owners are advised to contact SSPC at 412-281-2331 ext. 2235 or ext. 2209 to verify authenticity of certification.

F.D. Thomas Incorporated
COATING & SPECIALTY CONTRACTOR

SAFETY STATISTICS

Worker Compensation Experience Modification Rate						
POLICY YEAR	*ERM Date	2012-13	2011-12	2010-11	2009-10	2008-09
CALENDAR YEAR		2013	2012	2011	2010	2009
Interstate Rating: *(Except States Below)*	1-Oct	0.82	0.98	1.02	1.36	1.21
California	1-Oct	0.91	1.03	0.83	1.18	1.28
Washington	1-Jan	0.80	0.76	0.78	0.81	1.05

*EMR changes each year on date indicated

Our Combined EMR for 2012/2013 is: 0.84 (Including Interstate & Monopolistic State Rates)
Our 3 Year Combined Average is: 0.87

OSHA Inspection History 2008-2012

F.D. Thomas, Inc. has not had ANY serious, repeat or willful citations over the last 5 years.
We have had several successful OSHA inspections and Partnerships without any citations issued.

OSHA 300 Summary					
CALENDAR YEAR	2012	2011	2010	2009	2008
Average Number of Employees	212	194	176	149	170
1. Total Man Hours Worked	478, 036	426,557	361,225	310,852	356,132
2. Days away from Work Cases (H)	0	0	0	2	0
3. Restricted Work Activity Cases (I)	4	5	2	4	1
4. Other Recordable Cases (J)	1	1	3	1	4
5. Fatalities (G)	0	0	0	0	0
6. Total Recordable Cases	5	6	5	7	5
Total Incident Rate (TIR)	2.09	2.81	2.77	4.50	2.81
Days Away/Restricted/Transfer (DART)	1.67	2.34	1.10	3.86	0.56
Lost Workday Incident Rate (LWDIR)	0.00	0.00	0.00	1.29	0.00

F.D. Thomas Incorporated
COATING & SPECIALTY CONTRACTOR

CURRENT PROJECTS 2013

PROJECT NAME	GENERAL CONTRACTOR	CONTRACT VALUE ($)	% & EST COMPLETION
Confidential Client **Richland, WA**	**Bechtel National** 2435 Stevens Center Place Richland, WA 99352 Contact: Marylin Logan Corporate: (509) 373-8038 Fax: 509-373-8416 Email: mmlogan@bechtel.com	$ 29,220,262	16 % 2016
Work Performed: **Performed as:** **Bonded:**	**CRC Coatings** **Subcontractor** **Yes – Western Surety Company**		(71-)
EBMUD WWTP Digester Upgrade Phase II Oakland, CA	**Proven Management** 706 Sansome Street San Francisco, CA 94111 Contact: Todd Gates Office: (415) 421-9500 Fax: (415) 421-9600 Email: TODD@provenmanagement.com	$ 2,696,189	84 % Feb. 2013
Work Performed: **Performed as:** **Bonded:**	**WWTP Painting/Coating** **Subcontractor** **Yes – St. Paul/Travelers Casualty and Surety**		(09-01029)
Foresthill Bridge Auburn, CA	**Golden State Bridge, Inc.** 901 Howe Road Martinez, CA 94553 Contact: David Riccitiello Office: 925-372-8000 Fax: 925-372-8001 Email: dave@gsbridge.com	$23,559,969	74% Oct. 2013
Work Performed: **Performed as:** **Bonded:**	**Prep & Paint of Steel** **Subcontractor** **Yes – Western Surety Company**		(38)
South Bay Advanced Recycle WTP San Jose, CA	**J.R. Filanc Construction Co, Inc.** 740 N. Andreasen Drive Escondido, CA 92029 Contact: Jason Burden Office: 760-941-7130 Fax: 760-941-3969 Email: jburden@Filanc.com	$790,421	98% Jan. 2013
Work Performed: **Performed as:** **Bonded:**	**Painting & Specialty Coating** **Subcontractor** **No**		(37)

F.D. Thomas incorporated
COATING & SPECIALTY CONTRACTOR

CURRENT PROJECTS 2013

PROJECT NAME	GENERAL CONTRACTOR	CONTRACT VALUE ($)	% & EST COMPLETION
Samoa Chip Tower Samoa, CA	**California Redwood Company** PO Box 1089 Arcata, CA 95518 Contact: Brian Griffin Office: 707-268-3023 Fax: 707-268-3071 Email: bgriffin@calredco.com	$792,895	71% June 2013
Work Performed: **Performed as:** **Bonded:**	**Surface Prep & Paint Chip Conveyor & Tower** **Subcontractor** **NO**		(123-)
Confidential Client Hamilton, MT	**Skanska USA Building, Inc.** 221 Yale Ave North Suite 400 Seattle, WA 98109 Contact: Steve Houston Office: 206-726-8000 Fax: 206-328-9235 Email: Steve.Houston@skanska.com	$1,709,713	87% Feb. 2013
Work Performed: **Performed as:** **Bonded:**	**CRC LAB/Containment Coatings** **Subcontractor** **Yes – Western Surety Company**		(128-)
RP-1 Primary Clarifier Ontario, CA	**JR Filanc Construction** 740 N. Andersen Dr Escondido, CA 92029 Contact: Tom Holley Office: 760-941-7130 Fax: 760-941-3969 Email: tholley@filanc.com	$664,000	-0-% July 2013
Work Performed: **Performed as:** **Bonded:**	**Prep & Paint Primary Clarifier – Plural Component** **Subcontractor** **NO**		(133-)
Oceanside WPCP Digester San Francisco, CA	**Shimmick Construction** 8201 Edgewater Drive, Suite 202 Oakland, CA 94621 Contact: Henry Chiang Office: 510-777-5000 Fax: 510-777-5099 Email: hchiang@shimmick.com	$1,692,123	-0-% Oct. 2013
Work Performed: **Performed as:** **Bonded:**	**Surface Prep & Paint Digesters & Foam Insulation** **Subcontractor** **NO**		(138-)

F.D. Thomas Incorporated
COATING & SPECIALTY CONTRACTOR

CURRENT PROJECTS 2013

PROJECT NAME	GENERAL CONTRACTOR	CONTRACT VALUE ($)	% & EST COMPLETION
SeaTac 8th Flr Waterproof Seattle, WA	**PCL Construction** 15405 SE 37th Bellevue, WA 98006 Contact: Adam Running Office: 425-454-8020 Fax: 425-454-5924 Email: AGRunning@pcl.com	$2,785,635	56% June 2013
Work Performed: **Performed as:** **Bonded:**	**Traffic Topping Replacement** **Subcontractor** **NO**		(118-)
Sutro Reservoir San Francisco, CA	**S.J Amoroso Construction** 390 Bridge Parkway Redwood Shores, CA 94065 Contact: Norm Hayes Office: 650-654-1900 Fax: 650-654-9002 Email: job736@sjamoroso.com	$3,058,500	-0-% Dec. 2013
Work Performed: **Performed as:** **Bonded:**	**Fiber Reinforced Polymer & Traffic Coating** **Subcontractor** **NO**		(135-)
SR 99 Bored Tunnel Seattle, WA	**Seattle Tunnel Partners a JV** 999 Third Ave, Suite 2424 Seattle, WA 98104 Contact: Michael J Kerchner Office: 206-812-1937 Fax: Email:	$3,585,750	-0-% Aug. 2013
Work Performed: **Performed as:** **Bonded:**	**Waterproofing** **Subcontractor** **NO**		(143-)
Kern County Bridge Kern County, CA	**CalTrans** 1727 30th Street Sacramento, CA 95816 Contact: Oscar Sherill Office: 559-243-3812 Fax: Email: Oscar_sherrill@dot.ca.gov	$1,784,000	-0-% Aug. 2013
Work Performed: **Performed as:** **Bonded:**	**Paint Structural Steel/Replace Joint Seals** **General Contractor** **YES**		(152-)

F.D. Thomas Incorporated
COATING & SPECIALTY CONTRACTOR

COMPLETED PROJECTS 2012

PROJECT NAME	GENERAL CONTRACTOR	CONTRACT VALUE ($)	DATE COMPLETE
Intel FAB 42 Chandler, AZ	**Hoffman General Contracting** 4500 S. Dobson Road Chandler, AZ 85248 Contact: Jeff Gardner Office: 503-720-1340 Fax: 503-221-8934 Email: jeff-gardner@hoffmancorp.com	$916,819	Dec 2012
Work Performed: **Performed as:** **Bonded:**	**Below Grade Waterproofing** **Subcontractor** **NO**		(74-)
Sacramento Railyards Sacramento, CA	**Granite Construction Co** PO Box 15287 Sacramento, CA 95851 Contact: George Delano Office: 916-855-4416 Fax: 916-369-0429 Email: georg.delano@gcinc.com	$1,113,967	Nov. 2012
Work Performed: **Performed as:** **Bonded:**	**Waterpoofing – Track Relocation** **Subcontractor** **Yes – Western Surety Company**		(73-)
Caltrans Bridges- Quincy Hwy 70, CA	**J.F. Shea Construction** PO Box 494519 Redding, CA 96049 Contact: Fred Dohle Office: 530-246-4292 Fax: 530-246-9940 Email: fred.dohle@jfshea.com	$430,000	Nov. 2012
Work Performed: **Performed as:** **Bonded:**	**Surface Prep & Paint 2 Bridges** **Subcontractor** **NO**		(124-)
Alaskan Way SR 99 Bored Tunnel Project Seattle, WA	**Frank Coluccio Construction** 9600 Martin Luther King Jr. Way S Seattle, WA 98118 Contact: Bill Austell Office: 206-722-5306 Fax: 206-725-4764 Email: bill@coluccio.com	$4,430,434	Dec. 2012
Work Performed: **Performed as:** **Bonded:**	**Install Carbon Fiber Reinforcement** **Subcontractor** **Yes – Western Surety Company**		(113-)

F.D. Thomas Incorporated
COATING & SPECIALTY CONTRACTOR

COMPLETED PROJECTS 2011

PROJECT NAME	GENERAL CONTRACTOR	CONTRACT VALUE ($)	DATE COMPLETE
Shasta River Bridge Yreka, CA	**CalTrans** 1727 30th St. Sacramento, CA 95816 Contact: John Hinton Office: 530-841-0173 Fax: 530-841-1089 Email: john_hinton@dot.ca.gov	$2,076,767	Dec. 2011
Work Performed: **Performed as:** **Bonded:**	**Prep/Paint Steel** **Prime Contractor** **Yes – Western Surety Company**		(11-)
Tri-City WPCP Phase 1 Oregon City, OR	**Slayden Construction** 15941 S Agnes Avenue Oregon City, OR 97045 Contact: Jeff Wall Office: 503-769-1969 Fax: 503-769-4525 Email: jeffw@slayden.com	$864,485	Oct. 2011
Work Performed: **Performed as:** **Bonded:**	**Tank & Pipeline Protective Coatings** **Subcontractor** **Yes – Travelers Surety Company**		(09-1067)
Portland Int. Airport Portland, OR	**Port of Portland** PO Box 3529 Portland, OR 97208 Contact: Craig Redlinger Office: 503-460-4707 Fax: 503-913-2494 Email: Craig.Redlinger#portofportland.com	$1,253,448	Oct. 2011
Work Performed: **Performed as:** **Bonded:**	**P1 Parking Structure Rehab** **General** **Yes – Western Surety Company**		(79-)
SFO Parking Garage San Francisco, CA	**American Civil Constructors** 3701 Mallard Drive Benicia, CA 94510 Contact: Cliff Barber Office: 707-746-8028 Fax: 707-746-0936 Email: cbarber@accbuilt.com	$372,844	Dec. 2011
Work Performed: **Performed as:** **Bonded:**	**Expansion Joint Repairs** **Subcontractor** **NO**		(85-)

F.D. Thomas Incorporated
COATING & SPECIALTY CONTRACTOR

COMPLETED PROJECTS 2010

PROJECT NAME	GENERAL CONTRACTOR	CONTRACT VALUE ($)	% & EST COMPLETION
Clear Creek WWTP Rehab Clear Creek, CA	**Ray Toney & Associates** 9614 Tanqueray Court Redding, CA 96003 Contact: Mark Trawick Office: (530) 223-1100 Fax: (530) 223-6320 Email: mtrawick@rta-assoc.com	$ 658,963	July 2010
Work Performed: **Performed as:** **Bonded:**	**WWTP Painting / Containment Lining** **Subcontractor** **NO**		(07-01159)
El Dorado Hills WWTP El Dorado Hills, CA	**GSE Construction** 1020 Shannon Court Livermore, CA 94550 Contact: Scott Anderson Office: (925) 447-0292 Fax: (925) 447-0962 Email: Sanderson@gseconstruction.com	$ 928,352	July 2010
Work Performed: **Performed as:** **Bonded:**	**WWTP Painting** **Subcontractor** **NO**		(08-01012)
National Enrichment Facility **Louisiana Energy Services, LP** Eunice, NM	**Washington Group Intern.** 275 Andrews Highway Eunice, NM 88231 Contact: Jim Johns Office: (505) 394-5120 Fax: (505) 394-6524 Email: jjohns@nefnm.com	$ 4,834,961	Aug. 2010
Work Performed: **Performed as:** **Bonded:**	**CRC Walls & Floors/Painting** **Prime Contractor** **Yes – St. Paul/Travelers Casualty and Surety**		(08-01105)
Red Bluff Bridges Red Bluff, CA	**C.C. Meyers, Inc.** P.O. Box 881639 San Diego, CA 92168 Contact: Dion Carr Office: (530) 527-4956 Fax: (530) 527-1168 Email: dcarr@ccmyersinc.com	$1,039,768	May 2010
Work Performed: **Performed as:** **Bonded:**	**Repaint Bridges** **Subcontractor** **Yes – St Paul/Travelers Casualty and Surety**		(09-01101)

F.D. Thomas Incorporated
Coating & Specialty Contractor

COMPLETED PROJECTS 2010

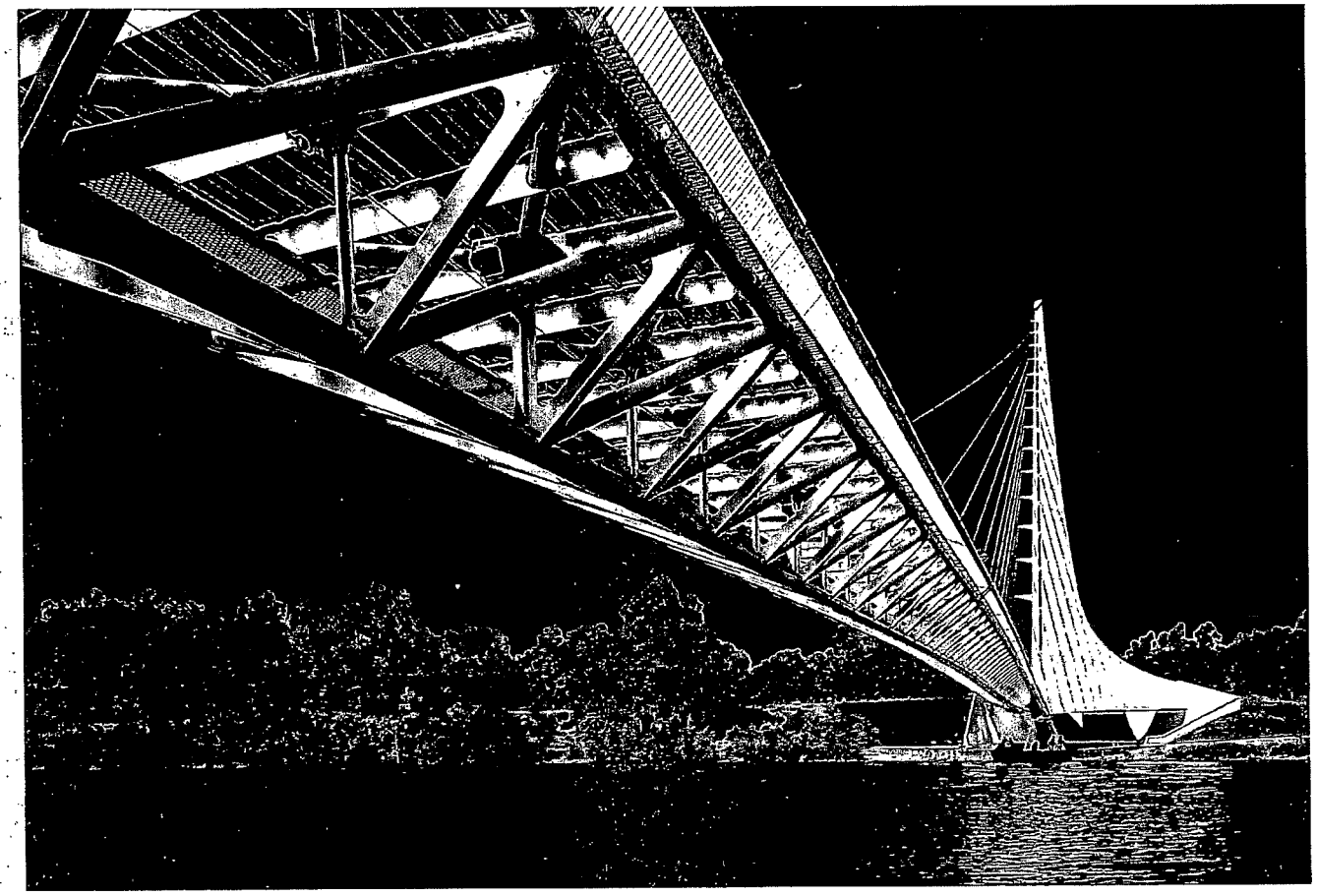
PROJECT NAME	GENERAL CONTRACTOR	CONTRACT VALUE ($)	% & EST COMPLETION
San Jose International Airport – ConRAC Garage San Jose, CA	**Hensel Phelps Construction** 1732 N. First Street, Suite 470 San Jose, CA 95112 Contact: Jason Conrad Office: (408) 441-4098 Fax: (408) 441-4062 Email: jconrad@helselphelps.com	$ 4,145,610	June 2010
Work Performed: **Performed as:** **Bonded:**	**Waterproofing/Special Coating/Caulking** **Subcontractor** **Yes – St. Paul/Travelers Casualty and Surety**		(08-01167)
Pentagon Arlington, VA	**Physical Securities, LLC** 600 Belview Street Bessemer, AL 35020 Contact: Jeff Bice Office: (205) 425-4072 Fax: (205) 426-3937 Email: jbice@physec.com	$ 717,207	April 2010
Work Performed: **Performed as:** **Bonded:**	**Security Coatings** **Subcontractor** **Yes – St. Paul/Travelers Casualty and Surety**		(09-01037)
Historic Pipeline Pedestrian Bridge Wenatchee, WA	**City of Wenatchee** 1350 McKittrick Street, Ste A Wenatchee, WA 98807 Contact: Gary Owen Office: (509) 888-3200 Fax: (509) 888-3201 Email: GOwen@WenatcheeWA.Gov	$1,279,281	June 2010
Work Performed: **Performed as:** **Bonded:**	**Bridge Repaint** **Prime Contractor** **Yes - St. Paul/Travelers Casualty and Surety**		(09-01111)
Tunnel Coating Project Wenatchee, WA	**Dynegy Moss Landing, LLC** P.O. Box 690 Moss Landing, CA 95039 Contact: Kathy Genasci Office: 831-229-5868 Email: Kathy.genasci@dynegy.com	$1,915,426	Jan. 2010
Work Performed: **Performed as:** **Bonded:**	**CWP Linings** **Prime Contractor** **No**		(09-01117)

F.D. Thomas Incorporated
COATING & SPECIALTY CONTRACTOR

COMPLETED PROJECTS 2008

PROJECT NAME	OWNER/GENERAL CONTRACTOR	CONTRACT VALUE ($)	DATE COMPLETED
Caltrans Oakland Skyway Oakland, Ca	**Kiewit/FCI/Manson JV** P.O. Box 23223 Oakland, Ca 94623 Contact: Angela Haack, Proj Eng Phone: (510) 419-0120 Fax: (510) 839-0666	$ 2,786,190	June 2008
Work Performed: **Performed as:** **Bonded:**	**Painting of Structural Steel** **Subcontractor** **Yes – St. Paul/Travelers Casualty and Surety**		(05-01055)
WPCF Improvements Phase I Hayward, CA	**Kiewit Pacific** 500 Marsh Drive Concord, CA 94520 Contact: John Schonenberger Corporate: (925) 686-3030 Fax: (925) 356-6025	$ 452,143	March 2008
Work Performed: **Performed as:** **Bonded:**	**Application of Special Coating** **Subcontractor** **Yes – St. Paul/Travelers Casualty and Surety**		(05-01282)
Hollister WWTP Hollister, CA	**C. Overaa Construction** 200 Parr Blvd. Richmond, CA 94801 Contact: Jeff Naff Office: (510) 234-0926 Fax: (510) 237-2435	$ 681,671	Dec. 2008
Work Performed: **Performed as:** **Bonded:**	**WWTP Painting / Containment Lining** **Subcontractor** **Yes – St. Paul/Travelers Casualty and Surety**		(07-01010)
Capitol Mall Renovation Sacramento, CA	**Hensel Phelps Construction** 621 Capitol Mall Sacramento, CA 95814 Contact: Bryan Amarel Site: (916) 497-0861 Fax: (916) 497-0869	$ 960,922	April 2008
Work Performed: **Performed as:** **Bonded:**	**Waterproofing / Deck Coating** **Subcontractor** **Yes – St. Paul/Travelers Casualty and Surety**		(06-01022)

PROJECT PROFILE - SPECIALTY COATING



PROJECT TYPE: SPECIALTY COATING

NAME & LOCATION:
Sundial Bridge at Turtle Bay, Redding, California

OWNER:
Turtle Bay

PROJECT LEADER & TEAM:
Project Leader: Grover Lee
Team: Dave Sykes, Jeff Jones, Jack Jackson & Carl Buell

PROJECT DESCRIPTION:
Swiss architect Santiago Calatrava turned a normal pylon into a hollowed out, 218-foot sundial with irregular geometry that doubles as a suspension bridge. This $19.7 million-dollar Sundial Bridge project at Turtle Bay in Redding, CA, provided an opportunity for F.D. Thomas to use their 25 years experience in solving difficult coating challenges to the test. The three-sided triangular pylon served as a suspension bridge over the Sacramento River, connecting the north and south campuses of Turtle Bay Exploration Park. The result was a step-by-step plan for coating the structure from base to tip inside and out. The result is a aesthetically beautiful piece of construction art.

F.D. Thomas Incorporated

F.D. Thomas Inc. Corporate Office
217 Bateman Drive
Central Point. OR 97502
(541) 664-3010
www.fdthomas.com

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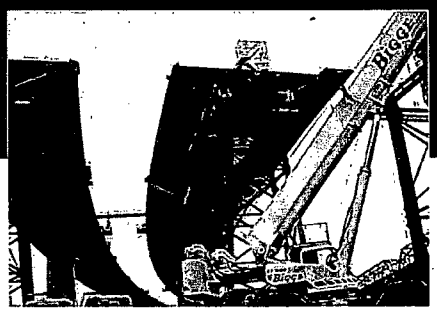
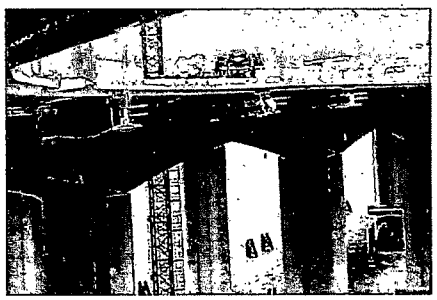
PROJECT PROFILE - INDUSTRIAL PAINTING





PROJECT TYPE: INDUSTRIAL PAINTING IN A MARINE ENVIRONMENT

NAME & LOCATION:
San Francisco / Oakland Bay Bridge Skyway
Hwy 80 in Alameda County, California

OWNER:
State of California

PROJECT LEADER & TEAM:
Project Leader: Grover Lee
Project Superintendent: Jeff Jones, Mike Parnell

PROJECT DESCRIPTION:
The scope of this project included field surface preparation of shop primed or galvanized metals, application of primers and finish coats suitable for service in a marine environment to the 1.2 mile long Skyway segment of the new San Francisco / Oakland Bay Bridge. F.D. Thomas provided technical expertise, management, labor, materials, equipment and third party inspection services to ensure that our work was done safely and that quality was able to meet or exceed the project expectations. F.D. Thomas maintained a crew of six to fifteen painters between May 2007 and March 2008. F.D. Thomas was able to manage the crew size in order to meet scheduling and work around weather delays through the winter months. F.D. Thomas provided suspended mobile platforms with containment to access the work surfaces below the pedestrian walkway approximately 120' above the surface of the San Francisco Bay. Please visit http://baybridgeinfo.org/projects/skyway for additional information.

F.D. Thomas Incorporated est. 1979

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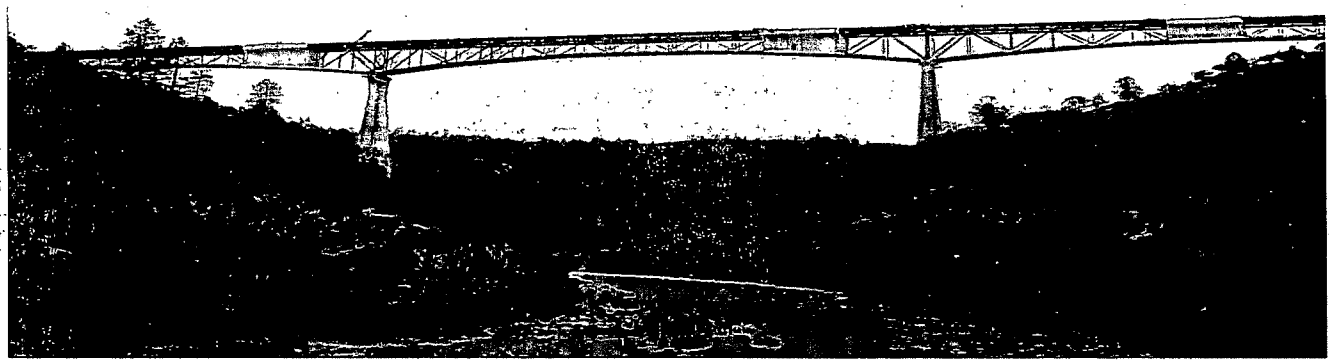
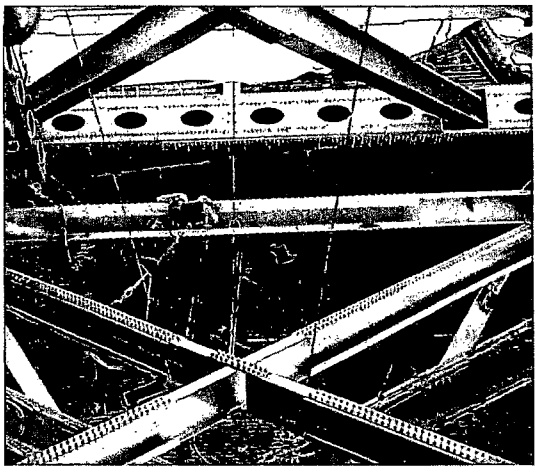
PROJECT PROFILE

INDUSTRIAL PAINTING

F.D. THOMAS, INC.



Foresthill Bridge, Auburn CA



Owner/General Contractor

Placer County Department of Public Works

Golden State Bridge

Project Description

- At more than 730 feet above the American River, it is the highest bridge in California, the fourth highest in the United States and the ninth highest bridge in the world.
- This project required the construction of a class A1 containment to remove existing lead and chromium bearing coatings, abrasive blast as per SSPC-SP10 requirements and apply an organic zinc, epoxy, polyurethane system to one million square feet of steel at dizzying heights.
- This $74.4 million dollar retrofit required a SSPC-QP1 and QP2 contractor.
- This project won the George Campbell award at the national SSPC show for outstanding achievement in the completion of a difficult or complex industrial coatings project.
- FD Thomas received the Golden Gate Partnership award from the State of California Department of Industrial Relations Cal/OSHA for it's outstanding safety program.

FOLLOWING FORMS TO BE FILLED OUT AND SIGNED ONLY IF AWARDED CONTRACT

AGREEMENT
(Construction Contract Over $25,000)

THIS AGREEMENT, dated for identification May 13, 2014, is made and entered into between the CITY OF SACRAMENTO, a municipal corporation ("City"), and F. D. Thomas, 200 Harris Avenue, Sacramento CA 95838("Contractor").

The City and Contractor hereby mutually agree as follows:

1. CONTRACT DOCUMENTS

The Contract Documents, sometimes also referred to as the "Contract," consist of the following items, which are hereby incorporated by reference as if set forth in full in this Agreement:

The Notice to Contractors
The Proposal Form submitted by the Contractor
The Instructions to Bidders
The Local Business Enterprise (LBE) Requirements
The Requirements for the Non-Discrimination in Employee Benefits by City Contractors Ordinance and the Declaration of Compliance
The City's Reference Guide for Construction Contracts
The Addenda, if any
This Agreement
The Standard Specifications
The Special Provisions
The Plans and Technical Specifications
The drawings and other data and all developments thereof prepared by City pursuant to the Contract
Any modifications of any of the foregoing made or approved by City, including but not limited to duly authorized change orders.

Unless specifically noted otherwise, references to the "Standard Specifications" shall mean and refer to the Standard Specifications for Public Construction of the City of Sacramento approved by the Sacramento City Council on June 4, 2007 (Resolution No. 2007-350), and any subsequent amendments thereto approved by the Sacramento City Council or the Sacramento City Manager. Work called for in any one Contract Document and not mentioned in another is to be performed and executed as if mentioned in all Contract Documents. The table of contents, titles and headings contained in the Contract Documents are provided solely to facilitate reference to various provisions of the Contract Documents and in no way affect or limit the interpretation of the provisions to which they refer.

2. DEFINITIONS

Unless otherwise specifically provided herein, all words and phrases defined in the Standard Specifications shall have the same meaning and intent in this Agreement.

3. AGREEMENT CONTROLS

In the event of a conflict between any of the terms and conditions set forth in this Agreement and the terms and conditions set forth in other Contract Documents, the terms and conditions set forth in this Agreement shall prevail, except that the provisions of any duly authorized change order shall prevail over any conflicting provisions of this Agreement.

4. SCOPE OF CONTRACT

Contractor agrees to furnish all tools, equipment, apparatus, facilities, labor, material and transportation necessary to perform and complete in a good and workmanlike manner to the satisfaction of City, all the Work called for in the Contract Documents entitled:

Guy West Bridge Painting & Rehabilitation Project
(PN: K15105000)

including the Work called for in the following alternative bid items described in the Proposal Form:

_____

Contractor agrees to perform such Work in the manner designated in and in strict conformity with the Contract Documents.

5. CONTRACT AMOUNT AND PAYMENTS

City agrees to pay and Contractor agrees to accept, as complete payment for the above Work, in accordance with the schedule and procedures set forth in the Contract Documents and subject to deductions, withholdings and additions as specified in the Contract Documents, a total sum that shall not exceed the total bid amount set forth in Contractor's Proposal Form. In addition, subject to deductions, withholdings and additions as specified in the Contract Documents, payment for individual items of the Work shall be computed as follows:

(A) For items of the Work for which a lump sum price is specified in Contractor's Proposal Form, Contractor shall be paid the lump sum price(s) specified in Contractor's Proposal Form; and

(B) For items of the Work for which a unit price is specified in Contractor's Proposal Form, Contractor shall be paid the sum computed at such unit price, or computed at a different price if such different price is determined by City in accordance with the Standard Specifications, based on the actual amount of each such item performed and/or furnished and incorporated in the Work; provided that in no event shall the total sum for a unit price item exceed the total bid amount set forth for such item in the Contractor's Proposal Form, unless authorized by Change Order.

6. PROGRESS PAYMENTS

Subject to the terms and conditions of the Contract, City shall cause payments to be made upon demand of Contractor as follows:

(A) On or about the first of the month, the Engineer shall present to the Contractor a statement showing the amount of labor and materials incorporated in the Work through the twentieth (20) calendar day of the preceding month. After both Contractor and Engineer approve the statement in writing, and the City's labor compliance officer provides written approval, the City shall issue a certificate for ninety-five (95) percent of the amount it shall find to be due, subject to any deductions or withholdings authorized or required under the Contract or any applicable Laws or Regulations.

(B) No inaccuracy or error in said monthly estimates shall operate to release Contractor from damages arising from such Work or from enforcement of each and every provision of the Contract Documents, and City shall have the right subsequently to correct any error made in any estimate for payment.

(C) Contractor shall not be paid for any defective or improper Work.

(D) The remaining five (5) percent of the value of the Work performed under the Contract, if unencumbered and subject to any deductions or withholdings authorized or required under the Contract or any applicable Laws or Regulations, shall be released not later than sixty (60) days after completion and final acceptance of the Work by City. Acceptance by Contractor of the final payment shall constitute a waiver of all claims against the City arising under the Contract Documents, except for disputed claims in stated amounts that the Contractor specifically reserves in writing, but only to the extent that the Contractor has complied with all procedures and requirements applicable to the presentation and processing of such claim(s) under the Contract Documents. Contractor shall be entitled to substitute securities for retention or to direct that payments of retention be made into escrow, as provided in Public Contract Code Section 22300, upon execution of the City's Escrow Agreement for Security Deposits in Lieu of Retention.

(E) The parties agree that, for purposes of the timely progress payment requirements specified in Public Contract Code Section 20104.50, the date that the City receives a statement jointly approved by the Contractor and the Engineer as provided above shall be deemed to constitute the date that City receives an undisputed and properly submitted payment request from the Contractor. Progress payments not made within 30 days after this date may be subject to payment of interest as provided in Public Contract Code Section 20104.50.

7. RETENTION OF SUMS CHARGED AGAINST CONTRACTOR

When, under the provisions of this Contract or any applicable Laws or Regulations, City is authorized or required to withhold, deduct or charge any sum of money against Contractor, City may deduct and retain the amount of such charge from the amount of the next succeeding progress estimate(s), or from any other moneys due or that may become due Contractor from City. If, on completion or termination of the Contract, sums due Contractor are insufficient to pay City's charges, City shall have the right to recover the balance from Contractor or its Sureties.

8. COMMENCEMENT AND PROSECUTION OF WORK

Contractor shall commence the Work not later than fifteen (15) working days after the date of the written Notice to Proceed from City to Contractor and shall diligently prosecute the Work to final completion. The phase "commence the Work" means to engage in a continuous program on-site including, but not limited to, site clearance, grading, dredging, land filling and the fabrications, erection, or installation of the Work. The Notice to Proceed shall be issued within fifteen (15) calendar days following execution of the Agreement by the City and the filing by Contractor of the required Bonds and proof of insurance, provided that the Engineer may delay issuance of the Notice to Proceed if the Engineer determines in the Engineer's sole discretion that conditions on the site of the Work are unsuitable for commencement of the Work. After the Notice to Proceed is issued, the continuous prosecution of Work by Contractor shall be subject only to Excusable Delays as defined in this Agreement.

9. TIME OF COMPLETION

The entire Work shall be brought to completion in the manner provided for in the Contract Documents on or before **130 WORKING DAYS** from the date of the Notice to Proceed (hereinafter called the "Completion Date") unless extensions of time are granted in accordance with the Contract Documents.

Failure to complete the entire Work by the Completion Date and in the manner provided for in the Contract Documents shall subject Contractor to liquidated damages as provided in this Agreement. Time is and shall be of the essence in the performance of the Contract and the Work.

10. PAYMENTS DO NOT IMPLY ACCEPTANCE OF WORK

The payment of any progress payment, or the acceptance thereof by Contractor, shall not constitute acceptance of the Work or any portion thereof and shall in no way reduce the liability of Contractor to replace unsatisfactory work or material, whether or not the unsatisfactory character of such work or material was apparent or detected at the time such payment was made.

11. ACCEPTANCE NOT RELEASE

Contractor shall correct immediately any defective or imperfect work or materials that may be discovered before final acceptance of the entire Work, whether or not such defect or imperfection was previously noticed or identified by the City. The inspection of the Work, or any part thereof, shall not relieve Contractor of any of its obligations to perform satisfactory work as herein specified.

Failure or neglect on the part of City or any of its officers, employees or authorized agents to discover, identify, condemn or reject defective or imperfect work or materials shall not be construed to imply an acceptance of such work or materials, if such defect or imperfection becomes evident at any time prior to final acceptance of the entire Work, nor shall such failure or neglect be construed as barring City from enforcing Contractor's warranty(ies) or otherwise recovering damages or such a sum of money as may be required to repair or rebuild the defective or imperfect work or materials whenever City may discover the same, subject only to any statutes of limitation that may apply to any such claim.

12. CITY'S RIGHT TO TAKE POSSESSION OF THE WORK IN WHOLE OR IN PART

The City shall have the right at any time to enter upon the Work and perform work not covered by this Contract, or to occupy and use a portion of the Work, prior to the date of the final acceptance of the Work as a whole, without in any way relieving Contractor of any obligations under this Contract.

13. NO WAIVER OF REMEDIES

Neither the inspection by City, its officers, employees or agents, nor any certificate or other approval for the payment of money, nor any payment for, nor acceptance of the whole or any part of the Work by City, nor any extensions of time, nor any position taken by City, its officers, employees or its agents shall operate as a waiver of any provision of the Contract Documents nor of any power herein reserved to City or any right to damages herein provided, nor shall any waiver of any breach of this Agreement be held to be a waiver of any other or subsequent breach. All remedies provided in the Contract Documents shall be taken and construed as cumulative; in addition to each and every other remedy herein provided, the City shall have any and all equitable and legal remedies that it would in any case have.

14. WARRANTY

Except as otherwise expressly provided in the Contract Documents, and excepting only items of routine maintenance, ordinary wear and tear and unusual abuse or neglect by City,

Contractor warrants and guarantees all Work executed and all supplies, materials and devices of whatsoever nature incorporated in or attached to the Work, or otherwise provided as a part of the Work pursuant to the Contract, to be absolutely free of all defects of workmanship and materials for a period of one year after final acceptance of the entire Work by the City. Contractor shall repair or replace all work or material, together with any other work or material that may be displaced or damaged in so doing, that may prove defective in workmanship or material within this one year warranty period without expense or charge of any nature whatsoever to City.

In the event that Contractor shall fail to comply with the conditions of the foregoing warranty within ten (10) days after being notified of the defect in writing, City shall have the right, but shall not be obligated, to repair, or obtain the repair of, the defect and Contractor shall pay to City on demand all costs and expense of such repair. Notwithstanding anything herein to the contrary, in the event that any defect in workmanship or material covered by the foregoing warranty results in a condition that constitutes an immediate hazard to public health or safety, or any property interest, or any person, City shall have the right to immediately repair, or cause to be repaired, such defect, and Contractor shall pay to City on demand all costs and expense of such repair. The foregoing statement relating to hazards to health, safety or property shall be deemed to include both temporary and permanent repairs that may be required as determined in the sole discretion and judgment of City.

In addition to the above, the Contractor shall make a written assignment of all manufacturer's and other product warranties to the City, prior to completion and final acceptance of the Work by City.

The Contractor's Performance Bond shall secure the performance of the Contractor's obligations under this Section 14, and the Contractor and its Surety shall be jointly and severally liable for these obligations.

15. LIQUIDATED DAMAGES IF WORK NOT COMPLETED ON TIME

(A) The actual fact of the occurrence of damages and the actual amount of the damages that City would suffer if the entire Work, and/or any specified portion thereof, were not completed within the time(s) specified herein are dependent upon many circumstances and conditions that could prevail in various combinations, and for this reason, it is impracticable and extremely difficult to fix the actual damages. Damages that City would suffer in the event of such delay include: loss of the use of the project; expenses of prolonged assignment to the project of an architectural and/or engineering staff; prolonged costs of administration, inspection, and supervision; increased operational expenses and/or impaired operation of other facilities dependent upon completion of the project; and the loss and inconvenience suffered by the public within the City of Sacramento by reason of the delay in the completion of the project or portion thereof. Accordingly, the parties agree, and by execution of this Agreement, Contractor acknowledges that it understands and agrees, that the amount(s) set forth herein as liquidated damages reflect the parties' best efforts at the time of entering into the Contract to estimate the damages that may be incurred by City and the public due to the Contractor's delay in completion of the Work and/or any specified portion thereof, and shall be presumed to be the amount of damages sustained by the failure of Contractor to complete the entire Work and/or any specified portion thereof within the time(s) specified herein.

(B) Contractor shall pay liquidated damages to City for failure to complete the entire Work by the Completion Date (as extended in accordance with the Contract Documents, if applicable) in the amount of **TWO THOUSAND DOLLARS ($2,000.00)** for each calendar day after the Completion Date (as extended in accordance with the Contract Documents, if applicable), continuing to the time at which the entire Work is completed. Such amount is

the actual cash value agreed upon by the City and Contractor as the loss to City and the public resulting from Contractor's default.

The parties agree, and by execution of this Agreement, Contractor acknowledges that it understands and agrees, that the foregoing provisions provide for the imposition of liquidated damages from the Completion Date (as extended in accordance with the Contract Documents, if applicable) until the date of completion of the entire Work as determined by the Engineer in accordance with Section 8-4 of the Standard Specifications, whether or not the Work or any portion thereof is claimed or determined to be substantially complete prior to such date of completion.

(C) In the event Contractor shall become liable for liquidated damages, City, in addition to all other remedies provided by law, shall have the right to withhold any and all payments that otherwise would be or become due Contractor until the liability of Contractor under this section is finally determined. City shall have the right to use and apply such payments, in whole or in part, to reimburse City for all liquidated damages due or to become due to City. Any remaining balance of such payments shall be paid to Contractor only after discharge in full of all liability incurred by Contractor under this section or otherwise under any provision of the Contract Documents or any applicable Law or Regulation. If the sum so retained by City is not sufficient to discharge all such liabilities of Contractor, Contractor shall continue to remain liable to City until all such liabilities are satisfied in full. No failure by City to withhold any payment as specified above shall in any manner be construed to constitute a release of any such liabilities nor a waiver of the City's right to withhold payment for such liabilities.

16. INDEMNITY AND HOLD HARMLESS

(A) Contractor shall defend, hold harmless and indemnify the City, its officers, employees, and agents, and each and every one of them, from and against any and all actions, damages, costs, liabilities, claims, demands, losses, judgments, penalties, costs and expenses of every type and description, whether arising on or off the site of the Work, including, but not limited to, any fees and/or costs reasonably incurred by City's staff attorneys or outside attorneys and any fees and expenses incurred in enforcing this provision (hereafter collectively referred to as "Liabilities"), including but not limited to Liabilities arising from personal injury or death, damage to personal, real or intellectual property or the environment, contractual or other economic damages, or regulatory penalties, arising out of or in any way connected with performance of or failure to perform the Work by the Contractor, any subcontractor or agent, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, whether or not (i) such Liabilities are caused in part by a party indemnified hereunder, or (ii) such Liabilities are litigated, settled or reduced to judgment; provided that the foregoing indemnity does not apply to liability for damages for death or bodily injury to persons, injury to property, or other loss, damage or expense to the extent arising from (i) the sole negligence or willful misconduct of, or defects in design furnished by, City, its agents, servants, or independent contractors who are directly responsible to City, or (ii) the active negligence of City.

(B) The existence or acceptance by City of any of the insurance policies or coverages described in this Agreement shall not affect or limit any of City's rights under this Section 16, nor shall the limits of such insurance limit the liability of Contractor hereunder. The provisions of this Section 16 shall survive any expiration or termination of the Contract.

17. CONTRACTOR SHALL ASSUME RISKS

Until the completion and final acceptance by City of all Work under this Contract, the Work shall be under Contractor's responsible care and charge, and Contractor, at no cost to City, shall rebuild, repair, restore and make good all injuries, damages, re-erections, and repairs occasioned or rendered necessary by accidental causes of any nature, to all or any portions of the Work.

18. GENERAL LIABILITY OF CONTRACTOR

Except as otherwise herein expressly stipulated, Contractor shall perform all the Work and furnish all the labor, materials, tools, equipment, apparatus, facilities, transportation, power and light, and appliances, necessary or proper for performing and completing the Work herein required in the manner and within the time herein specified. The mention of any specific duty or liability of Contractor shall not be construed as a limitation or restriction of any general liability or duty of Contractor, and any reference to any specific duty or liability shall be construed to be solely for the purpose of explanation.

19. INSURANCE

During the entire term of this Contract and until completion and final acceptance of the Work as provided in the Contract Documents, Contractor shall maintain in full force and effect the insurance coverage described in this section.

Full compensation for all premiums that Contractor is required to pay for the insurance coverage described herein shall be included in the compensation specified for performance of the Work under the Contract. No additional compensation will be provided for Contractor's insurance premiums.

It is understood and agreed by the Contractor that its liability to the City shall not in any way be limited to or affected by the amount of insurance coverage required of or carried by the Contractor.

(A) Minimum Scope and Limits of Insurance Coverage

(1) Commercial General Liability Insurance, providing coverage at least as broad as ISO CGL Form 00 01 on an occurrence basis for bodily injury, including death, of one or more persons, property damage and personal injury, with limits of not less than one million dollars ($1,000,000) per occurrence. The policy shall provide contractual liability and products and completed operations coverage for the term of the policy.

(2) Automobile Liability Insurance providing coverage at least as broad as ISO Form CA 00 01 on an occurrence basis for bodily injury, including death, of one or more persons, property damage and personal injury, with limits of not less than one million dollars ($1,000,000) per occurrence. The policy shall provide coverage for owned, non-owned and/or hired autos as appropriate to the operations of the Contractor.

(3) Workers' Compensation Insurance with statutory limits, and Employers' Liability Insurance with limits of not less than one million dollars ($1,000,000). The Worker's Compensation policy shall include a waiver of subrogation.

(B) Additional Insured Coverage

(1) Commercial General Liability Insurance: The City, its officials, employees and volunteers shall be covered by policy terms or endorsement as additional insureds as

respects general liability arising out of activities performed by or on behalf of Contractor, products and completed operations of Contractor, and premises owned, leased or used by Contractor. The general liability additional insured endorsement must be signed by an authorized representative of the insurance carrier.

If the policy includes a blanket additional insured endorsement or contractual additional insured coverage, the above signature requirement may be fulfilled by submitting that document with a signed declaration page referencing the blanket endorsement or policy form.

(2) Automobile Liability Insurance: The City, its officials, employees and volunteers shall be covered by policy terms or endorsement as additional insureds as respects auto liability.

(C) Other Insurance Provisions

The policies are to contain, or be endorsed to contain, the following provisions:

(1) Contractor's insurance coverage shall be primary insurance as respects City, its officials, employees and volunteers. Any insurance or self-insurance maintained by City, its officials, employees or volunteers shall be in excess of Contractor's insurance and shall not contribute with it.

(2) Any failure to comply with reporting provisions of the policies shall not affect coverage provided to City, its officials, employees or volunteers.

(3) Coverage shall state that Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

(4) City will be provided with thirty (30) days written notice of cancellation or material change in the policy language or terms.

(D) Acceptability of Insurance

Insurance shall be placed with insurers with a Bests' rating of not less than A:V. Self-insured retentions, policy terms or other variations that do not comply with the requirements of this Section 19 must be declared to and approved by the City Risk Management Division in writing prior to execution of this Agreement.

(E) Verification of Coverage

(1) Contractor shall furnish City with certificates and required endorsements evidencing the insurance required. The certificates and endorsements shall be forwarded to the City representative designated by City. Copies of policies shall be delivered to the City on demand. Certificates of insurance shall be signed by an authorized representative of the insurance carrier.

(2) The City may withdraw its offer of contract or cancel the Contract if the certificates of insurance and endorsements required have not been provided prior to execution of this Agreement. The City may withhold payments to Contractor and/or cancel the Contract if the insurance is canceled or Contractor otherwise ceases to be insured as required herein.

(F) Subcontractors

Contractor shall require and verify that all subcontractors maintain insurance coverage that meets the minimum scope and limits of insurance coverage specified in subsection A, above.

20. FAILURE TO MAINTAIN BONDS OR INSURANCE

If, at any time during the performance of this Contract, Contractor fails to maintain any item of the bonds and/or insurance required under the Contract in full force and effect, Contractor shall immediately suspend all work under the Contract and notify City in writing of such failure. After such notice is provided, or if City discovers such failure and notifies Contractor, the City thereafter may withhold all Contract payments due or that become due until notice is received by City that such bonds and/or insurance have been restored in full force and effect and that the premiums therefor have been paid for a period satisfactory to the Division of Risk Management. Contractor shall not resume work until notified by City to do so, and the City shall have no responsibility or liability for any costs incurred by Contractor as a result of such suspension of Work.

In addition to the foregoing, any failure to maintain any item of the required bonds and/or insurance at any time during the performance of this Contract will be sufficient cause for termination of the Contract by City.

The Contractor shall be solely responsible for, and shall defend, indemnify and hold harmless the City, its officers, employees and agents against and from, any and all damages, claims, losses, actions, costs or other expenses of any kind incurred by any party as a direct or indirect result of any suspension of Work or termination of the Contract under the provisions of this Section.

21. EXCUSABLE DELAYS

For the purpose of these Contract Documents, the term "Excusable Delay" shall mean, and is limited to, delay caused directly by: acts of God; acts of a public enemy; fires; inclement weather as determined by the Engineer; riots; insurrections; epidemics; quarantine restrictions; strikes; lockouts; sitdowns; acts of a governmental agency; priorities or privileges established for the manufacture, assemble, or allotment of materials necessary in the Work by order, decree or otherwise of the United States or by any department, bureau, commission, committee, agent, or administrator of any legally constituted public authority; changes in the Work ordered by City insofar as they necessarily require additional time in which to complete the Work; the prevention of Contractor from commencing or prosecuting the Work because of the acts of others, excepting Contractor's subcontractors or suppliers; or the prevention of Contractor from commencing or prosecuting the Work because of a Citywide failure of public utility service.

The term "Excusable Delay" shall specifically <u>not</u> include: (i) any delay that could have been avoided by the exercise of care, prudence, foresight and diligence on the part of Contractor; (ii) any delay in the prosecution of any part of the Work that does not constitute a Controlling Operation, whether or not such delay is unavoidable; (iii) any reasonable delay resulting from time required by City for review of any Contractor submittals and for the making of surveys, measurements and inspection; and, (iv) any delay arising from an interruption in the prosecution of the Work on account of reasonable interference by other Contractors employed by City that does not necessarily prevent the completion of the entire Work within the time specified. Excusable Delays, if any, shall operate only to extend the Completion Date (not in excess of the period of such delay as determined by City) and shall not under any circumstances increase the amount City is required to pay Contractor except as otherwise provided in these Contract Documents.

22. CONTRACTOR TO SERVE NOTICE OF DELAYS

Whenever Contractor foresees any delay in the prosecution of the Work, and in any event as soon as possible (not to exceed a period of ten (10) calendar days) after the initial occurrence of any delay that Contractor regards as or may later claim to be an Excusable Delay, the Contractor shall notify the Engineer in writing of such delay and its cause, in order that the Engineer: (i) may take immediate steps to prevent if possible the occurrence or continuance of the delay; or (ii) if this cannot be done, may determine whether the delay is to be considered excusable, how long it continues, and to what extent the prosecution and completion of the Work are delayed thereby. Said written notice shall constitute an application for an extension of time only if the notice requests such an extension and sets forth the Contractor's estimate of the additional time required together with a full description of the cause of the delay relied upon.

After the completion of any part or whole of the Work, the Engineer, in estimating the amount due Contractor, will assume that any and all delays that may have occurred in its prosecution and completion were not Excusable Delays, except for such delays for which the Contractor has provided timely written notice as required herein, and that the Engineer has found to be excusable. Contractor shall not be entitled to claim Excusable Delay for any delay for which the Contractor failed to provide such timely written notice.

23. EXTENSION OF TIME

If the Contractor complies with Section 22, above, and the Engineer finds a delay claimed by the Contractor to be an Excusable Delay, the Contractor shall be allowed an extension of time to complete the Work that is proportional to the period of Excusable Delay determined by the Engineer, subject to the approval by City of a change order granting such time extension. During a duly authorized extension for an Excusable Delay, City shall not charge liquidated damages against the Contractor for such delay.

If the City extends the time to complete the Work as provided herein, such extension shall in no way release any warranty or guarantee given by Contractor pursuant to the provisions of the Contract Documents, nor shall such extension of time relieve or release the sureties of the Bonds provided pursuant to the Contract Documents. By executing such Bonds, the Sureties shall be deemed to have expressly agreed to any such extension of time. The granting of any extension of time as provided herein shall in no way operate as a waiver on the part of City of its rights under this Contract, excepting only extension of the Completion Date for such period of Excusable Delay as may be determined by the Engineer and approved by a duly authorized change order.

24. NO PAYMENT FOR DELAYS

No damages or compensation of any kind shall be paid to Contractor or any subcontractor because of delays in the progress of the Work whether or not such delays qualify for extension of time under this Agreement; except that this provision shall not preclude the recovery of damages for a delay caused by the City that is unreasonable under the circumstances and that is not within the contemplation of the parties, provided that the Contractor timely submits all such written notice(s) and fully complies with such other procedures as may be specified in the Contract Documents or any Laws or Regulations for Contractor to claim damages for such delay.

25. CHANGES IN THE WORK

Changes in the Work authorized or directed in accordance with the Contract Documents and extensions of time of completion made necessary by reason thereof shall not in any way release any warranty or guarantee given by Contractor pursuant to the provisions of the Contract Documents, nor shall such changes in the Work relieve or release the Sureties on Bonds provided pursuant to the Contract Documents. By executing such Bonds, the Sureties shall be deemed to have expressly agreed to any such change in Work and to any extension of time made by reason thereof.

26. TERMINATION AFTER COMPLETION DATE

In addition to any other rights City may have, if any services or work required under the Contract (including but not limited to punch list items) are not completed as of the Completion Date (as adjusted by any extensions of time for Excusable Delays granted pursuant to the Contract Documents), City may terminate the Contract at any time after the Completion Date (as adjusted by any extensions of time for Excusable Delays granted pursuant to the Contract Documents), by providing a written notice to Contractor specifying the date of termination. Such notice also may specify conditions or requirements that Contractor must meet to avoid termination of the Contract on such date. If Contractor fails to fulfill all such conditions and requirements by such termination date, or, if no such conditions or requirements are specified, Contractor shall cease rendering services and performing work on such termination date, and shall not be entitled to receive any compensation for services rendered or work performed after such termination date. In the event of such termination, Contractor shall remain liable to City for liquidated damages incurred for any period of time prior to the termination date.

In addition to any other charges, withholdings or deductions authorized under the Contract or any Laws or Regulations, if City terminates the Contract pursuant to this section, City may withhold and deduct from any payment and/or retention funds otherwise due Contractor any sum necessary to pay the City's cost of completing or correcting, or contracting for the completion or correction of, any services or work under the Contract that are not completed to the satisfaction of the City or that otherwise are deficient or require correction as of such termination date, including but not limited to incomplete punch list items. Such costs shall include all of the City's direct and indirect costs incurred to complete or correct such services or work, including the City's administrative and overhead costs. If the amount of payment(s) and/or retention funds otherwise due the Contractor are insufficient to pay such costs, City shall have the right to recover the balance of such costs from the Contractor and/or its Surety(ies).

27. TERMINATION FOR CONVENIENCE

Upon written notice to the Contractor, the City may at any time, without cause and without prejudice to any other right or remedy of the City, elect to terminate the Contract for the convenience of City. In such case, the Contractor shall be paid (without duplication of any items, and after deduction and/or withholding of any amounts authorized to be deducted or withheld by the Contract Documents or any Laws or Regulations):

(A) For Work executed in accordance with the Contract Documents prior to the effective date of termination and determined to be acceptable by the Engineer, including fair and reasonable sums for overhead and profit on such Work;

(B) For reasonable claims, costs, losses, and damages incurred in settlement of terminated contracts with subcontractors, suppliers, and others; and

(C) For reasonable expenses directly attributable to termination.

Contractor shall not be paid for any loss of anticipated profits or revenue for any Work not performed prior to termination, nor for any economic loss arising out of or resulting from such termination, except for the payments listed in this section. Contractor's warranty under Section 14 of this Agreement shall apply, and Contractor shall remain responsible for all obligations related to such warranty, with respect to all portions of the Work performed prior to the effective date of the termination for convenience pursuant to this section. The City shall be entitled to have any or all remaining Work performed by other contractors or by any other means at any time after the effective date of a termination for convenience pursuant to this section.

28. TERMINATION FOR BREACH OF CONTRACT

If Contractor abandons the Work under this Contract, or if the Contract or any portion of the Contract is sublet or assigned without the consent of the City, or if the Engineer determines in the Engineer's sole discretion that the conditions of the Contract in respect to the rate of progress of the Work are not being fulfilled or any part thereof is unnecessarily delayed, or if Contractor violates or breaches, or fails to execute in good faith, any of the terms or conditions of the Contract, or if Contractor refuses or fails to supply enough properly skilled labor or materials or refuses or fails to make prompt payment to subcontractors for material or labor, or if Contractor disregards any Laws or Regulations or proper instruction or orders of the Engineer, then, notwithstanding any provision to the contrary herein, the City may give Contractor and its Sureties written notification to immediately correct the situation or the Contract shall be terminated.

In the event that such notice is given, and, in the event such situation is not corrected, or arrangements for correction satisfactory to the City are not made, within ten (10) calendar days from the date of such notice or within such other period of time as may be specified by the City in the notice, the Contract shall upon the expiration of said period cease and terminate. In the event of any such termination, City may take over the Work and prosecute the Work to completion, or otherwise, and the Contractor and its Sureties shall be liable to City for any cost occasioned City thereby, as hereinafter set forth.

In the event City completes the Work, or causes the Work to be completed, no payment of any kind shall be made to Contractor until the Work is complete. The cost of completing the Work, including but not limited to, extra costs of project administration and management incurred by City, both direct or indirect, shall be deducted from any sum then due, or that becomes due, to Contractor from City. If sums due to Contractor from City are less than the cost of completing the Work, Contractor and its Sureties shall pay City a sum equal to this difference on demand. In the event City completes the Work, and there is a sum remaining due to Contractor after City deducts the costs of completing the Work, then City shall pay such sum to Contractor. The Contractor and Contractor's Sureties shall be jointly and severally liable for all obligations imposed on Contractor hereunder.

No act by City before the Work is finally accepted, including, but not limited to, exercise of other rights under the Contract, actions at law or in equity, extensions of time, payments, assessments of liquidated damages, occupation or acceptance of any part of the Work, waiver of any prior breach of the Contract or failure to take action pursuant to this section upon the happening of any prior default or breach of Contractor, shall be construed to be a waiver or estoppel of the City's right to act pursuant to this Section upon any subsequent event, occurrence or failure by Contractor to fulfill the terms and conditions of the Contract. The rights of City to terminate the Contract pursuant to this Section and pursuant to Sections 26 and 27 are cumulative and are in addition to all other rights of City pursuant to the Contract and at law or in equity.

29. CONTRACTOR BANKRUPT

If Contractor should commence any bankruptcy proceeding, or if Contractor is adjudged a bankrupt, or if Contractor makes any assignment for the benefit of creditors, or if a receiver is appointed on account of Contractor's insolvency, then the City may, without prejudice to any other right or remedy, terminate the Contract and complete the work by giving notice as provided in Section 28 above.

30. SURETIES' OBLIGATIONS UPON TERMINATION

If the City terminates the Contract pursuant to Section 28 or Section 29 above:

(A) The Surety under Contractor's performance bond shall be fully responsible for all of the Contractor's remaining obligations of performance under the Contract as if the Surety were a party to the Contract, including without limitation Contractor's obligations, as provided in the Contract Documents, to complete and provide a one-year warranty of the entire Work, pay liquidated damages and indemnify, defend and hold harmless City, up to the full amount of the performance bond.

(B) The Surety under Contractor's payment bond shall be fully responsible for the performance of all of the Contractor's remaining payment obligations for work, services, equipment or materials performed or provided in connection with the Work or any portion thereof, up to the full amount of the payment bond.

31. ACCOUNTING RECORDS OF CONTRACTOR

During performance of the Contract and for a period of three (3) years after completing the entire Work, Contractor shall maintain all accounting and financial records related to the Contract and performance of the Work in accordance with generally accepted accounting practices, and shall keep and make such records available for inspection and audit by representatives of the City upon reasonable written notice.

32. USE TAX REQUIREMENTS

During the performance of this Agreement, CONTRACTOR, for itself, its assignees and successors in interest, agrees as follows:

(A) Use Tax Direct Payment Permit: For all leases and purchases of materials, equipment, supplies, or other tangible personal property used to perform the Agreement and shipped from outside California, the Contractor and any subcontractors leasing or purchasing such materials, equipment, supplies or other tangible personal property shall obtain a Use Tax Direct Payment Permit from the California State Board of Equalization ("SBE") in accordance with the applicable SBE criteria and requirements.

(B) Sellers Permit: For any construction contract and any construction subcontract in the amount of $5,000,000 or more, Contractor and the subcontractor(s) shall obtain sellers permits from the SBE and shall register the jobsite as the place of business for the purpose of allocating local sales and use tax to the City. Contractor and its subcontractors shall remit the self-accrued use tax to the SBE, and shall provide a copy of each remittance to the City.

(C) The above provisions shall apply in all instances unless prohibited by the funding source for the Agreement.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement on the date set for opposite their names.

CONTRACTOR

Under penalty of perjury, I certify that the taxpayer identification number and all other information provided here are correct.

DATE 4/29/2014

BY _____
Grover Lee
Print Name
V.P.
Title

BY Cindy Bales
Cindy Bales
Print Name
Controller
Title
931017129
Federal ID#
SR KH 100976816 0
State ID#
146237
City of Sacramento Business Operation Tax Certificate No. (City will not award contract until Certificate Number is obtained)

Type of Business Entity *(check one)*:

____ Individual/Sole Proprietor
____ Partnership
__✓__ Corporation
____ Limited Liability Company
____ Other (*please specify:*_____)

CITY OF SACRAMENTO
a municipal corporation

DATE _____

BY _____
For: _____
City Manager

Original Approved As To Form:

_____
City Attorney

Attest:

_____
City Clerk

CITY OF SACRAMENTO
PERFORMANCE BOND

Bond No.: 929592496
Premium: $12,334.00

Department of Public Works

WHEREAS, the City of Sacramento, State of California, hereinafter called City, has conditionally awarded to:
F. D. Thomas, 200 Harris Avenue, Sacramento CA 95838
as principal, hereinafter called Contractor, a contract for construction of:

Guy West Bridge Painting & Rehabilitation Project
(PN: K15105000)

which contract is by reference incorporated herein and made a part hereof as if the Surety named below were a party to the contract, and is hereinafter referred to as the Contract; and

WHEREAS, under the terms of the Contract, Contractor is required to furnish a bond for the faithful performance of the Contract.

NOW, THEREFORE, we the Contractor and *(here insert full name and address of Surety)*:
Western Surety Company, 555 Mission Street, Suite 200, San Francisco, CA 94105,
a corporation duly authorized and admitted to transact business and issue surety bonds in the State of California, hereinafter called Surety, are held and firmly bound unto the City, as obligee, in the sum of:
One million five hundred thirty one thousand eight hundred seventy five dollars and seven cent ($1,531,875.07),
for the payment of which sum well and truly to be made, we the Contractor and Surety bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally. The condition of this obligation is such that, if the Contractor, Contractor's heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and fully perform all covenants, conditions and agreements required to be kept and performed by Contractor in the Contract and any changes, additions or alterations made thereto, to be kept and performed at the time and in the manner therein specified, and in all respects according to their true intent and meanings, and shall indemnify and save harmless the City, its officers, employees and agents, as therein provided, then the Surety's obligations under the Contract and this bond shall be null and void; otherwise they shall be and remain in full force and effect. This obligation shall remain in full force and effect through the end of the Contract warranty period, which will expire one year after the completion of work date specified in the Notice of Completion filed for the above-named project.

As part of the obligations secured hereby and in addition to the sum specified above, there shall be included all costs, expenses and fees, including attorney's fees, reasonably incurred by City in successfully enforcing such obligations, all to be taxed as costs and included in any judgment rendered.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or to the specifications accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration or addition.

IN WITNESS WHEREOF, this instrument has been duly executed by authorized representatives of the Contractor and Surety. SIGNED AND SEALED on April 25, 2014.

F.D. Thomas, Inc.
(Contractor) (Seal)
By _____
Title Grover Lee, V.P.

ORIGINAL APPROVED AS TO FORM:
_____
City Attorney

Western Surety Company
(Surety) (Seal)
By _____
Title Nancy L. Hamilton, Attorney-in-Fact
Agent Name and Address Woodruff-Sawyer & Co.
50 California St., 12th Fl., San Francisco, CA 94111
Agent Phone # 415-391-2141
Surety Phone # 415-932-7500
California License # 0329598 (Woodruff-Sawyer & Co.)
0761-7 (Western Surety Company)

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

State of California

County of San Francisco

On 4/25/2014 (Date) before me, Nerissa S. Bartolome, Notary Public (Here Insert Name and Title of the Officer),

personally appeared Nancy L. Hamilton (Name(s) of Signer(s))

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.

NERISSA S. BARTOLOME
Commission # 1938778
Notary Public - California
San Francisco County
My Comm. Expires Jun 24, 2015

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.

Signature: _____ (Signature of Notary Public)

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: Nancy L. Hamilton	Signer's Name:
☐ Corporate Officer — Title(s):	☐ Corporate Officer — Title(s):
☐ Individual	☐ Individual
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☒ Attorney in Fact	☐ Attorney in Fact
☐ Trustee	☐ Trustee
☐ Guardian or Conservator	☐ Guardian or Conservator
☐ Other:	☐ Other:
Signer Is Representing:	Signer Is Representing:
RIGHT THUMBPRINT OF SIGNER — Top of thumb here	RIGHT THUMBPRINT OF SIGNER — Top of thumb here

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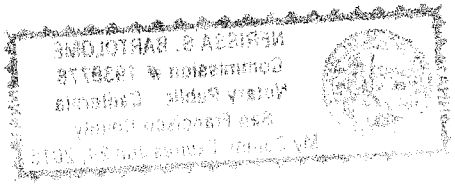
Item #5907



Western Surety Company

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

Lawrence J Coyne, Charles R Shoemaker, Nancy L Hamilton, Roger C Dickinson, Stanley D Loar, Kelly Holtemann, Mark M Munekawa, Nerissa S Bartolome, Joan De Luca, Yvonne Roncagliolo, Thomas E Hughes, S Nicole Evans, Individually

of San Francisco, CA, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Vice President and its corporate seal to be hereto affixed on this 11th day of September, 2013.

WESTERN SURETY COMPANY

Paul T. Bruflat, Vice President

State of South Dakota
County of Minnehaha } ss

On this 11th day of September, 2013, before me personally came Paul T. Bruflat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires

June 23, 2015

J. MOHR
NOTARY PUBLIC
SOUTH DAKOTA

J. Mohr, Notary Public

CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 25th day of April, 2014.

WESTERN SURETY COMPANY

L. Nelson, Assistant Secretary

Form F4280-7-2012

Authorizing By-Law

ADOPTED BY THE SHAREHOLDERS OF WESTERN SURETY COMPANY

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the shareholders of the Company.

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, and Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.

CITYOF SACRAMENTO
PAYMENT BOND

Department of Public Works
Page 1 of 1

Bond No.: 929592496
Premium: Included in Perf. Bond

WHEREAS, the City of Sacramento, in the State of California, hereinafter called City, has conditionally awarded to:
F. D. Thomas, 200 Harris Avenue, Sacramento CA 95838
hereinafter called Contractor, a contract for construction of:

Guy West Bridge Painting & Rehabilitation Project
(PN: K15105000)

Which contract is by reference incorporated herein and made a part hereof, and is hereinafter referred to as the Contract; and

WHEREAS, under the terms of the Contract and pursuant to Chapter 5 of Title 3 of Part 6 of Division 4 of the California Civil Code (commencing with Civil Code Section 9550), Contractor is required to furnish a good and sufficient payment bond to secure payment of the claims to which reference is made in Civil Code Section 9554.

NOW, THEREFORE, we the Contractor and (*here insert full name and address of Surety*):
Western Surety Company, 555 Mission Street, Suite 200, San Francisco, CA 94105,
a corporation duly authorized and admitted to transact business and issue surety bonds in the State of California, hereinafter called Surety, are held and firmly bound unto the City, and unto all persons or entities entitled to assert a claim against a payment bond under any of the aforesaid Civil Code provisions in the sum of One million five hundred thirty one thousand eight hundred seventy five dollars and seven cent ($1,531,875.07), on the condition that if Contractor shall fail to pay for any materials or equipment furnished or used in performance of the Contract, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, or for any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board or the Employment Development Department from the wages of employees of the Contractor and all subcontractors with respect to such work or labor, then the Surety shall pay the same in an amount not exceeding the sum specified above. If suit is brought upon this bond, Surety shall pay, in addition to the above sum, all costs, expenses and fees, including attorney's fees, reasonably incurred by any party in successfully enforcing the obligation secured hereby, all to be taxed as costs and included in any judgment rendered. Should the condition of this bond be fully performed, then this obligation shall become null and void, otherwise it shall be and remain in full force and effect, and shall bind Contractor, Surety, their heirs, executors, administrators, successors and assigns, jointly and severally.

It is hereby stipulated and agreed that this bond shall inure to the benefit of all persons, companies, corporations, political subdivisions, State agencies and other entities entitled to assert a claim against a payment bond under any of the aforesaid Civil Code provisions, so as to give a right of action to them or their assigns in any suit brought upon this bond. The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to the work to be performed thereunder or to the specifications accompanying the same shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension, alteration or addition.

IN WITNESS WHEREOF, this instrument has been duly executed by authorized representatives of the Contractor and Surety. SIGNED AND SEALED on April 25, 2014.

F.D. Thomas, Inc.
(Contractor) (Seal)
By _____
Title Grover Lee, V.P.

ORIGINAL APPROVED AS TO FORM:

_____
City Attorney

Western Surety Company
(Surety) (Seal)
By: _____
Title: Nancy L. Hamilton, Attorney-in-Fact
Agent name and Address: Woodruff-Sawyer & Co.
50 California St., 12th Fl., San Francisco, CA 94111
Agent Phone #: 415-391-2141
Surety Phone #: 415-932-7500
California License # 0329598 (Woodruff-Sawyer & Co.)
0761-7 (Western Surety Company)

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

CIVIL CODE § 1189

State of California

County of San Francisco

On 4/25/2014 (Date) before me, Nerissa S. Bartolome, Notary Public (Here Insert Name and Title of the Officer),

personally appeared Nancy L. Hamilton (Name(s) of Signer(s))

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.

NERISSA S. BARTOLOME
Commission # 1938778
Notary Public - California
San Francisco County
My Comm. Expires Jun 24, 2015

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.

Signature: Nerissa S. Bartolome (Signature of Notary Public)

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: Nancy L. Hamilton	Signer's Name: _____
☐ Corporate Officer — Title(s): _____	☐ Corporate Officer — Title(s): _____
☐ Individual	☐ Individual
☐ Partner — ☐ Limited ☐ General	☐ Partner — ☐ Limited ☐ General
☒ Attorney in Fact	☐ Attorney in Fact
☐ Trustee	☐ Trustee
☐ Guardian or Conservator	☐ Guardian or Conservator
☐ Other: _____	☐ Other: _____
Signer Is Representing: _____	Signer Is Representing: _____
RIGHT THUMBPRINT OF SIGNER — Top of thumb here	RIGHT THUMBPRINT OF SIGNER — Top of thumb here

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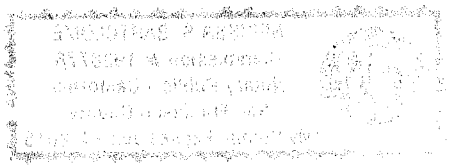
Item #5907



Western Surety Company

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

Lawrence J Coyne, Charles R Shoemaker, Nancy L Hamilton, Roger C Dickinson, Stanley D Loar, Kelly Holtemann, Mark M Munekawa, Nerissa S Bartolome, Joan De Luca, Yvonne Roncagliolo, Thomas E Hughes, S Nicole Evans, Individually

of San Francisco, CA, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Vice President and its corporate seal to be hereto affixed on this 11th day of September, 2013.

WESTERN SURETY COMPANY

Paul T. Bruflat, Vice President

State of South Dakota
County of Minnehaha } ss

On this 11th day of September, 2013, before me personally came Paul T. Bruflat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires

June 23, 2015

J. MOHR
NOTARY PUBLIC
SOUTH DAKOTA

J. Mohr, Notary Public

CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 25th day of April, 2014.

WESTERN SURETY COMPANY

L. Nelson, Assistant Secretary

Form F4280-7-2012

Authorizing By-Law

ADOPTED BY THE SHAREHOLDERS OF WESTERN SURETY COMPANY

This Power of Attorney is made and executed pursuant to and by authority of the following By-Law duly adopted by the shareholders of the Company.

Section 7. All bonds, policies, undertakings, Powers of Attorney, or other obligations of the corporation shall be executed in the corporate name of the Company by the President, Secretary, and Assistant Secretary, Treasurer, or any Vice President, or by such other officers as the Board of Directors may authorize. The President, any Vice President, Secretary, any Assistant Secretary, or the Treasurer may appoint Attorneys in Fact or agents who shall have authority to issue bonds, policies, or undertakings in the name of the Company. The corporate seal is not necessary for the validity of any bonds, policies, undertakings, Powers of Attorney or other obligations of the corporation. The signature of any such officer and the corporate seal may be printed by facsimile.

City of
SACRAMENTO
Department of Public Works

GUARANTEE

We hereby guarantee the: Guy West Bridge Painting & Rehabilitation Project (PN: K15105000) the City of Sacramento for one (1) year in accordance with the guarantee required in the specifications. We agree to repair or replace any or all such work, together with all or any other work which may be displaced in so doing, that may be proven defective in workmanship or material within the one-year period from the date of acceptance without any expense whatsoever to the City, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of our failure to comply with the above-mentioned conditions within five (5) days time after being notified in writing, we collectively or separately, do hereby authorize the City to proceed to have the defects repaired and made good at our expense and will pay the costs and damages, including but not limited to any related attorney fees and City staff and administrative expenses, therefor immediately upon demand.

Dated: 4/29/2013

Signed: _____

Grover Lee
Printed Name

F.D. Thomas, Inc.
Company

217 Bateman Dr.
Address

Central Point, OR 97504

(Rev. 5-6-91)

WORKER'S COMPENSATION CERTIFICATION

In accordance with Article 5 (commencing at Section 1860), Chapter 1, Part 7, Division 2 of the Labor Code, the below certificate must be signed and filed with the awarding body prior to performing any work under this contract. Labor Code Section 3700, inter alia, states the following:

"Every employer shall secure the payment of compensation in one or more of the following ways:

"(a) By being insured against liability to pay compensation in one or more insurers duly authorized to write compensation insurance in this State.

"(b) By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his employees.

To be signed by authorized corporate officer or partner or individual submitting the Proposal. If Bidder is: (example)

1. An individual using a firm name, sign: "John Doe, an individual doing business as Blank Company."
2. An individual doing business under his own name, Sign: your name only.
3. A co-partnership, sign: "John Doe and Richard Doe, co-partners doing business as Blank Company, by, John Doe, co-partner.
4. A corporation, sign: "Blank Company, by John Doe, Secretary." (or other title)

I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for worker's compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract.

DATE: 4/24/2014

Contractor F.D. Thomas, Inc.

By Cindy L Bales
Signature

(Rev. 5-6-91)

DEPARTMENT OF
TRANSPORTATION

ENGINEERING SERVICES
DIVISION

CITY OF SACRAMENTO
CALIFORNIA

915 I St, RM 2000

SACRAMENTO, CA
95814-2702

PH 916-808-8300
FAX 916-808-8281

NOTICE TO PROCEED

3rd Avenue and Broadway Urban Plaza
(PN: T15136102)

DATE

ABC Construction
Attn: John Construction
123 ABC Street
Sacramento, CA 95814

Notice is hereby given you are authorized to commence work on the above referenced project on _____. You are legally required to begin work within fifteen (15) working days of this date. The entire work on the project must be completed within **thirty (30) working days** from the date of this notice. Forty eight (48) hours prior to starting work, please notify the Project ManagerNader Kamal, 808-7035. Please address all correspondence to:

Engineering Services Division
915 I Street, Room 2000
Sacramento, CA 95814
(916) 808-7035
(916) 808-7903 FAX
Attn: Nader Kamal

Please reference City Project No. **T15136102** in all billing and correspondence. We look forward to a mutually successful project. The City of Sacramento is committed to the "Partnering Concept" of open communication and cooperative construction. In that spirit, please do not hesitate to contact us via phone at (916) 808-8195 or FAX at (916) 808-8281 if we can be of any assistance.

Respectfully,

_____
Jose R. Ledesma
Contract Services

cc:
Tim Mar
Risk Management
Shareen Kidd
Project File

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 4/25/2014

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	CONTACT NAME: Jessica Carpenter
Woodruff-Sawyer Oregon, Inc. 1001 SW 5th Avenue, Suite 1000 Portland OR 97204	PHONE (A/C, No, Ext): 503-416-7758 FAX (A/C, No): 503-243-1815 E-MAIL ADDRESS: jcarpenter@wsandco.com
	INSURER(S) AFFORDING COVERAGE / NAIC #
	INSURER A : Zurich American Insurance Company 16535
INSURED FDTHOMA-01 F.D. Thomas, Inc. PO Box 4663 Medford, OR 97501	INSURER B : INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** 75698176 **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 INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	GENERAL LIABILITY	Y		GLA373910208	12/31/2013	10/1/2014	EACH OCCURRENCE	$1,000,000
	X COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$300,000
	CLAIMS-MADE X OCCUR						MED EXP (Any one person)	$10,000
	X Stop Gap $1M						PERSONAL & ADV INJURY	$1,000,000
							GENERAL AGGREGATE	$2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG	$2,000,000
	POLICY X PRO-JECT LOC							$
A	AUTOMOBILE LIABILITY	Y		GLA373910208	12/31/2013	10/1/2014	COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	X HIRED AUTOS / X NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N						WC STATU-TORY LIMITS / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) N/A						E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Operations of the Named Insured subject to the terms, conditions and exclusions of the policy issued by the Insurance Company.

FDT Job # 250, Guy West Bridge Painting and Rehabilitation
Project #K15105000
SMUD, The City of Sacramento Public Works, its officials, employees and volunteers are included as additional insured per forms CA2048 and UGL1175F attached.

CERTIFICATE HOLDER

City of Sacramento Public Works
915 I Street, Room 2000
Sacramento CA 95814

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
Jessica Carpenter

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POLICY NUMBER: GLA373910208

COMMERCIAL AUTO
CA 20 48 02 99

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

DESIGNATED INSURED

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE FORM
GARAGE COVERAGE FORM
MOTOR CARRIER COVERAGE FORM
TRUCKERS COVERAGE FORM

With respect to coverage provided by this endorsement, the provisions of the Coverage Form apply unless modified by this endorsement.

This endorsement identifies person(s) or organization(s) who are "insureds" under the Who Is An Insured Provision of the Coverage Form. This endorsement does not alter coverage provided in the Coverage Form.

This endorsement changes the policy effective on the inception date of the policy unless another date is indicated below.

Endorsement Effective: 12/31/2013	Countersigned By: Jessica Carpenter (Authorized Representative)
Named Insured: F.D. Thomas, Inc.	

SCHEDULE

Name of Person(s) or Organization(s):

ANY PERSON OR ORGANIZATION TO WHOM OR WHICH YOU ARE REQUIRED TO PROVIDE ADDITIONAL INSURED STATUS OR ADDITIONAL INSURED STATUS ON A PRIMARY, NON-CONTRIBUTORY BASIS, IN A WRITTEN CONTRACT OR WRITTEN AGREEMENT EXECUTED PRIOR TO LOSS, EXCEPT WHERE SUCH CONTRACT OR AGREEMENT IS PROHIBITED BY LAW.

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to the endorsement.)

Each person or organization shown in the Schedule is an "insured" for Liability Coverage, but only to the extent that person or organization qualifies as an "insured" under the Who Is An Insured Provision contained in **Section II** of the Coverage Form.

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Additional Insured – Automatic – Owners, Lessees Or Contractors

ZURICH

Policy No.	Eff. Date of Pol.	Exp. Date of Pol.	Eff. Date of End.	Producer No.	Add'l. Prem	Return Prem.
GLA373910208	12/31/2013	10/01/2014	12/31/2013			

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

Named Insured: F.D. Thomas, Inc.

Address (including ZIP Code): PO Box 4663, Medford, OR 97501

This endorsement modifies insurance provided under the:

Commercial General Liability Coverage Part

A. Section **II – Who Is An Insured** is amended to include as an additional insured any person or organization whom you are required to add as an additional insured on this policy under a written contract or written agreement. Such person or organization is an additional insured 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 or "your work" as included in the "products-completed operations hazard", which is the subject of the written contract or written agreement.

However, the insurance afforded to such additional insured:

1. Only applies to the extent permitted by law; and
2. Will not be broader than that which you are required by the written contract or written agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following additional exclusion applies:

This insurance does not apply to:

"Bodily injury", "property damage" or "personal and advertising injury" arising out of the rendering of, or failure to render, any professional architectural, engineering or surveying services including:

a. The preparing, approving or failing to prepare or approve maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or

b. Supervisory, inspection, architectural or engineering activities.

This exclusion applies even if the claims against any insured allege negligence or other wrongdoing in the supervision, hiring, employment, training or monitoring of others by that insured, if the "occurrence" which caused the "bodily injury" or "property damage", or the offense which caused the "personal and advertising injury", involved the rendering of or the failure to render any professional architectural, engineering or surveying services.

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C. The following is added to Paragraph **2.** Duties In The Event Of Occurrence, Offense, Claim Or Suit of Section **IV – Commercial General Liability Conditions**:

The additional insured must see to it that:

1. We are notified as soon as practicable of an "occurrence" or offense that may result in a claim;
2. We receive written notice of a claim or "suit" as soon as practicable; and
3. A request for defense and indemnity of the claim or "suit" will promptly be brought against any policy issued by another insurer under which the additional insured may be an insured in any capacity. This provision does not apply to insurance on which the additional insured is a Named Insured if the written contract or written agreement requires that this coverage be primary and non-contributory.

D. For the purposes of the coverage provided by this endorsement:

1. The following is added to the Other Insurance Condition of Section **IV – Commercial General Liability Conditions**:

   Primary and Noncontributory insurance

   This insurance is primary to and 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 other insurance; and

   b. You are required by written contract or written agreement that this insurance be primary and not seek contribution from any other insurance available to the additional insured.

2. The following paragraph is added to Paragraph **4.b.** of the Other Insurance Condition of Section **IV – Commercial General Liability Conditions**:

   This insurance is excess over:

   Any of the other insurance, whether primary, excess, contingent or on any other basis, available to an additional insured, in which the additional insured on our policy is also covered as an additional insured on another policy providing coverage for the same "occurrence", offense, claim or "suit". This provision does not apply to any policy in which the additional insured is a Named Insured on such other policy and where our policy is required by a written contract or written agreement to provide coverage to the additional insured on a primary and non-contributory basis.

E. This endorsement does not apply to an additional insured which has been added to this policy by an endorsement showing the additional insured in a Schedule of additional insureds, and which endorsement applies specifically to that identified additional insured.

F. With respect to the insurance afforded to the additional insureds under this endorsement, the following is added to Section **III – Limits Of Insurance**:

The most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the written contract or written agreement referenced in Paragraph **A.** of this endorsement; 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.

All other terms and conditions of this policy remain unchanged.

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WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT—CALIFORNIA

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

You must maintain payroll records accurately segregating the remuneration of your employees while engaged in the work described in the Schedule.

The additional premium for this endorsement shall be 0.00 % of the California workers' compensation premium otherwise due on such remuneration.

Schedule

Person or Organization	Job Description
ALL PERSONS AND/OR ORGANIZATIONS THAT ARE REQUIRED BY WRITTEN CONTRACT OR AGREEMENT WITH THE INSURED, EXECUTED PRIOR TO THE ACCIDENT OR LOSS, THAT WAIVER OF SUBROGATION BE PROVIDED UNDER THIS POLICY FOR WORK PERFORMED BY YOU FOR THAT PERSON AND/OR ORGANIZATION	ALL CA LOCATIONS

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 4/25/2014

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	CONTACT NAME: Jessica Carpenter
Woodruff-Sawyer Oregon, Inc. 1001 SW 5th Avenue Portland OR 97204	PHONE (A/C, No, Ext): 503-416-7758 FAX (A/C, No): 503-243-1815 E-MAIL ADDRESS: jcarpenter@wsandco.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Zurich American Insurance Company	16535
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED	
F.D. Thomas, Inc. PO Box 4663 Medford, OR 97501	FDTHOMA-01

COVERAGES **CERTIFICATE NUMBER:** 180822144 **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 INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
	☐ CLAIMS-MADE ☐ OCCUR						MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
							GENERAL AGGREGATE	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG	$
	☐ POLICY ☐ PRO-JECT ☐ LOC							$
	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		Y	WC931890202	10/1/2013	10/1/2014	X WC STATU-TORY LIMITS ☐ OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y	N/A					E.L. EACH ACCIDENT	$1,000,000
	(Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$1,000,000
							E.L. DISEASE - POLICY LIMIT	$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Operations of the Named Insured subject to the terms, conditions and exclusions of the policy issued by the Insurance Company.

FDT Job # 250, Guy West Bridge Painting and Rehabilitation
Project #K15105000
Waiver of Subrogation included as per written contract per form WC040306 attached.

CERTIFICATE HOLDER

City of Sacramento Public Works
915 I Street, Room 2000
Sacramento CA 95814

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

Jessica Carpenter

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WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT—CALIFORNIA

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

You must maintain payroll records accurately segregating the remuneration of your employees while engaged in the work described in the Schedule.

The additional premium for this endorsement shall be 0.00 % of the California workers' compensation premium otherwise due on such remuneration.

Schedule

Person or Organization	Job Description
ALL PERSONS AND/OR ORGANIZATIONS THAT ARE REQUIRED BY WRITTEN CONTRACT OR AGREEMENT WITH THE INSURED, EXECUTED PRIOR TO THE ACCIDENT OR LOSS, THAT WAIVER OF SUBROGATION BE PROVIDED UNDER THIS POLICY FOR WORK PERFORMED BY YOU FOR THAT PERSON AND/OR ORGANIZATION	ALL CA LOCATIONS

Form **W-9**
(Rev. August 2013)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give Form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)
F.D. Thomas, Inc.

Business name/disregarded entity name, if different from above

Check appropriate box for federal tax classification:
☐ Individual/sole proprietor ☐ C Corporation ☑ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶

☐ Other (see instructions) ▶

Exemptions (see instructions):
Exempt payee code (if any)
Exemption from FATCA reporting code (if any)

Address (number, street, and apt. or suite no.)
217 Bateman Dr.

Requester's name and address (optional)

City, state, and ZIP code
Central Point, OR 97502

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

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

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

Social security number
			-			-				

Employer identification number
9	3	-	1	0	1	7	1	2	9

Part II Certification

Under penalties of perjury, I certify that:

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

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here Signature of U.S. person ▶ Cindy Bales Date ▶ 1/23/2014

General Instructions

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

Future developments. The IRS has created a page on IRS.gov for information about Form W-9, at *www.irs.gov/w9*. Information about any future developments affecting Form W-9 (such as legislation enacted after we release it) will be posted on that page.

Purpose of Form

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

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

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct.

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

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

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

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax under section 1446 on any foreign partners' share of effectively connected taxable income from such business. Further, in certain cases where a Form W-9 has not been received, the rules under section 1446 require a partnership to presume that a partner is a foreign person, and pay the section 1446 withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid section 1446 withholding on your share of partnership income.

Withholding Exemption Certificate -- This is a substitute for California FTB Form 590

(This form can only be used to certify exemption from nonresident withholding under California R&TC Section 18662. Do not use this form for exemption from wage withholding.) File this form with your withholding agent, State Compensation Insurance Fund.

Vendor/Payee's name	Internal Number
F.D. Thomas, Inc.	

Vendor/Payee's address (number and street, PO Box, Rural Route, APT no., Suite, Room, or PMB no.)	Vendor/Payee's daytime telephone number ( )
217 Bateman Dr	541-664-3010

City	State	Zip Code
Central Point	OR	97502

Note: Failure to furnish your identification number will make this certificate void.

Taxpayer Identification Number: 93-1017129

Social Security Number: _____ Employer Identification Number: _____

California Corporation Number: C1672718

Read the following carefully and check the box that applies to the vendor/payee:

I certify that for the reasons checked below, the vendor / payee named on this form is exempt from the California income tax withholding requirement on payment(s) made to the entity or individual.

☐ **Individuals - Certification of Residency:**
I am a resident of California and I reside at the address shown above. If I become a nonresident at any time, I will promptly inform the withholding agent. See instructions for Form 590, General Information D, Who is a Resident, for the definition of a resident.

☑ **Corporations:**
The above-named corporation has a permanent place of business in California at the address shown above or is qualified through the California Secretary of State (SOS) to do business in California. The corporation will file a California tax return and withhold on payments of California source income to nonresidents when required. If this corporation ceases to have a permanent place of business in California or ceases to do any of the above, I will promptly notify the withholding agent. See instructions for General Information F, What is a Permanent Place of business, for the definition of permanent place of business.

☐ **Partnerships or Limited Liability Companies (LLC):**
The above-named partnership or LLC has a permanent place of business in California at the address shown above or is registered with the California Secretary of State (SOS), and is subject to the laws of California. The partnership or LLC will file a California tax return and will withhold on foreign and domestic nonresident partners or members when required. If the partnership or LLC ceases to do any of the above, I will promptly inform the withholding agent. For withholding purposes, a Limited Liability Partnership (LLP) is treated like any other partnership.

☐ **Tax-Exempt Entities:**
The above-named entity is exempt from tax under California Revenue and Taxation Code (R&TC) Section 23701 _____ (insert letter) or Internal Revenue Code Section 501(c) _____ (insert number). The tax-exempt entity will withhold on payments of California source income to nonresidents when required. If this entity ceases to be exempt from tax, I will promptly inform the withholding agent. Individuals cannot be tax-exempt entities.

☐ **Insurance Companies, Individual Retirement Arrangements (IRAs), or Qualified Pension/Profit Sharing Plans:**
The above-named entity is an insurance company, IRA, or a federally qualified pension or profit-sharing plan.

☐ **California Trusts:**
At least one trustee and one noncontingent beneficiary of the above-named trust is a California resident. The trust will file a California fiduciary tax return and will withhold on foreign and domestic nonresident beneficiaries when required. If the trustee becomes a nonresident at any time, I will promptly notify the withholding agent.

☐ **Estates - Certification of Residency of Deceased Person:**
I am the executor of the above-named person's estate. The decedent was a California resident at the time of death. The estate will file a California fiduciary tax return and will withhold on foreign and domestic nonresident beneficiaries when required.

☐ **Nonmilitary Spouse of a Military Servicemember:**
I am a nonmilitary spouse of a military servicemember and I meet the Military Spouse Residency Relief Act (MSRRA) requirements. See instructions for General Information E, MSRRA.

☐ **Performs services totally outside California or provides only goods and materials.**

CERTIFICATE: Please complete and sign below.

Under penalties of perjury, I hereby certify that the information provided in this document is, to the best of my knowledge, true and correct. If conditions change, I will promptly inform the withholding agent.

Vendor/Payee's name (type or print) Cindy Bales Title: Controller

Vendor/Payee's signature Cindy Bales Date: 10/15/2013

e590 (New 04/11)

SPECIAL PROVISIONS

SPECIAL PROVISIONS

For

GUY WEST BRIDGE PAINTING AND REHABILITATION PROJECT

BETWEEN CALIFORNIA STATE UNIVERSITY, SACRAMENTO AND UNIVERSITY AVENUE

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For
Guy West Bridge Painting and Rehabilitation Project
(PN: K15105000)

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SPECIAL PROVISIONS
FOR
GUY WEST BRIDGE PAINTING AND REHABILITATION PROJECT ("Project")

CITY OF SACRAMENTO
("Owner" or "City")

SECTION 1.0 - GENERAL REQUIREMENTS

DEFINITIONS OF TERMS

Whenever in the City of Sacramento Standard Specifications, State Standard Specifications, Special Provisions, Notice to Contractors, Proposal, Contract or other contract documents the following abbreviations and terms are used, the intent and meaning shall be interpreted as follows:

Department or Department of Public Works: The City of Sacramento, Department of Public Works.

Director or Director of Public Works: Director of Public Works, City of Sacramento.

Design Engineer: Quincy Engineering, Inc., acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

Laboratory or Transportation Laboratory: Laboratories authorized by the Engineer to test materials and work involved in the contract.

Transportation Building Sacramento: City Hall, City of Sacramento, State of California.

State Highway Engineer: The Director of Transportation of the City of Sacramento, State of California.

State Standard Drawings: The 2006 edition of the Standard Drawings of the State of California, Department of Transportation and all updates to them.

State Standard Specifications: The 2006 edition of the Standard Specifications of the State of California, Department of Transportation and all updates to them.

City Standard Specifications: The June 2007 edition of the City of Sacramento Standard Specifications and all updates to them.

Attorney General: City Attorney, City of Sacramento

Required Meetings: All bidders are encouraged to attend required meetings; however bidders who do not attend shall be responsible for all information disseminated.

1.01 SPECIFICATIONS

The work to be performed under this contract shall be done in accordance with the Special Provisions contained herein. In these Special Provisions, reference is made to the Standard Specifications of the City of Sacramento, adopted June 2007 and all updates thereto, referred to herein as "City Standard Specifications", and State of California Standard Specifications, May 2006, referred to herein as "Standard Specifications" or "State Specifications" which shall apply to the work. The General Requirements of this contract shall be governed by Section 1 through 8 of the City of Sacramento's Standard Specifications, adopted in June of 2007 including all updates. The Special Provisions shall govern first, followed by the Standard Specifications.

The United States Standard Measures shall apply to this project.

Other standards specified in these Special Provisions govern only the applicable technical specifications.

1.02 SCOPE AND LOCATION OF WORK

The project consists of repairing and painting the Guy West Bridge, including cable and suspender repair, deck and joint seal repair, handrail repair and bearing pad replacement

1.03 PARTIAL SUSPENSION OF WORK AND EXCUSABLE DAYS

It is possible that the Engineer may request the Contractor suspend work or partially suspend work for the following reasons and/or during the following times including but not limited to:

- Until tests are performed; in the event of discovery of cultural resources;
- In the event of delay due to implementation of environmental mitigation measures and removal of suspect soil;
- In the event of delay due to unacceptable vibration levels due to construction and historic structures.
- In the event of delay due to manmade buried objects exceeded beyond those provided in the Contract Documents.
- In the event of conflict with the "Eppie's Great Race" Scheduled for July 19, 2014

The contractor may need to accelerate the schedule, with no additional compensation, to meet milestone dates.

Non-working days will be provided for the suspension of controlling items of work, and shall be indicated on the Weekly statement of working days. Contractor shall utilize the Weekly Statement of working Days to acknowledge or dispute the number of working days provided.

1.04 PRE-BID INTERPRETATION OF CONTRACT DOCUMENTS

No oral representations or interpretation will be made to any bidder as to the meaning of the contract documents. Requests for interpretation shall be made in writing and delivered to the City of Sacramento at least seven (7) calendar days before the time announced for opening the proposals. Interpretation, where necessary, will be made by the City of Sacramento in the form of an addendum to the contract documents and, when issued, will be sent as promptly as is

practicable to all parties to whom the bid documents have been issued. All such addenda shall become part of the contract. Requests for information regarding this procedure or other similar information shall be directed to City of Sacramento Representative Ricky Chuck, Project Manager, telephone (916) 808-5050.

It shall also be the bidder's responsibility to call to the attention of the City of Sacramento any missing pages or drawings in the contract documents including the addenda. These items shall be brought to the attention of the City at least seven (7) calendar days prior to the bid opening date.

1.05 PROJECT CLOSEOUT

The issuance of a punch list, final acceptance of the work, and the final payment shall be in accordance with Section 8-4 of the City Standard Specifications.

1.06 TIME OF COMPLETION AND LIQUIDATED DAMAGES

The Contractor shall complete all work within the time set forth in the Agreement and as specified in Section 7-8, "Time of Completion," of the City Standard Specifications and these Special Provisions.

The time limit for completion of all work is **One hundred thirty (130) working days** beginning on the date stated in the Notice to Proceed. The anticipated Notice to Proceed is approximately mid-May, 2014.

Contractor's attention is directed to work within the window restrictions related to the environmental permits and temporary construction easements for this project. The Contractor is responsible for any penalties, renewal fees and expenses, including monetary, for violating these windows. The Contractor shall contact the City to request any extensions; however, there is no guarantee the extension will be granted.

No payment for work performed by the Contractor prior to Notice to Proceed shall be provided.

The Contractor shall diligently prosecute the remaining work before the expiration of **ONE HUNDRED AND THIRTY (130) working days** beginning on the day stated in the Notice to Proceed. Should said work not be completed to the satisfaction of the City of Sacramento within said time, the Contractor shall pay to the City of Sacramento a sum of **TWO THOUSAND DOLLARS ($2,000.00)** as liquidated damages for each working day delay after the expiration of the entire project until acceptance of the said work by the City of Sacramento and its delivery to the City.

The Engineer will furnish the Contractor a weekly statement showing the number of working days charged to the contract for the preceding week and the number of working days charged to date. The Contractor will be allowed fifteen (15) calendar days in which to file a written protest setting forth in what respect the Contractor disagrees with the working day statement, otherwise the working day statement of the Engineer shall be deemed to have been accepted by the Contractor as correct.

1.07 TIME OF AWARD

Section 3-2, "Time of Award" of the City Standard Specifications is hereby amended for this project. Time of award shall be made within **Sixty (60)** calendar days after the opening of the proposals to the lowest responsible bidder, unless otherwise stated in the Contract Agreement.

1.08 REVIEW OF CONTRACTOR'S INFORMATION

Where specified in these Special Provisions, the Contractor shall prepare or secure, and submit for review, six (6) copies of any plan, calculation, drawing, or information regarding materials and equipment to the Engineer.

Within 15 working days after receipt of the submittal, the Engineer will coordinate with the Design Engineer and return two (2) marked copies indicating one (1) of the following four (4) actions:

1. If review and checking indicates no exceptions, copies will be returned marked "NO EXCEPTIONS TAKEN" and work may begin immediately upon incorporating the material and equipment covered by the submittal into the work.

2. If review and checking indicates limited corrections are required, copies will be returned marked "MAKE CORRECTIONS NOTED." Work may begin immediately on incorporating into the work the material and equipment covered by the corrected submittal.

3. If review and checking indicates insufficient or incorrect data has been submitted, copies will be returned marked "REVISE AND RESUBMIT." No work may begin on incorporating the material and equipment covered by this submittal into the work until the submittal is revised, resubmitted, and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

4. If review and checking indicates the material and equipment submittal is unacceptable, copies will be returned and market "REJECTED." No work may begin on incorporating the material and equipment covered by this submittal into the work until a new submittal is made and returned marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

1.09 PROJECT SCHEDULING

Progress schedules are required for this contract and shall be submitted in conformance with the provisions in Section 8-1.04, "Progress Schedule," of the Standard Specifications and these special provisions, unless otherwise authorized in writing by the Engineer.

The second paragraph of Section 8-1.04, "Progress Schedule," of the Standard Specifications shall not apply.

Within five (5) calendar days of award of contract, the Contractor shall submit a project schedule which shows the order and duration of the dependent and independent operations necessary to complete the work within the number of working days specified in the contract.

1.10 RECORD DRAWINGS

The Contractor shall maintain a neatly and accurately marked set of record drawings showing the final elevation, location, and/or layout of all improvements constructed, modified and/or adjusted. This shall include, but not be limited to, civil, electrical, conduit, structures, and utility facilities including water services, storm drain and sewer, and streetlights. Drawings shall be kept current weekly, showing all work instructions, field modifications and change orders. Drawings shall be subject to the inspection of the Engineer at all times. Progress payments, or portions thereof, may be withheld if drawings are not accurate and current. Prior to acceptance of the work, the Contractor shall deliver to the Engineer two (2) sets of neatly marked record drawings accurately showing the information required above.

No separate payment will be made to the Contractor for maintaining record drawings. Upon the completion of the project, the Contractor shall submit "as-built" drawings to the Engineer. The drawings shall completely reflect the work done on site and to the Engineer's satisfaction. Failure to submit the drawings or failure to complete the drawings in a satisfactory manner, the Engineer may hold back on the retention release and reduce an appropriate amount at the Engineer's sole discretion to prepare the "as-built" drawings. The cost of such work shall be included in whatever bid item the Contractor deems appropriate.

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

1.11 CERTIFICATE OF COMPLIANCE

The Contractor shall provide the Engineer with a manufacturer's "Certificate of Compliance" at the Engineer's request. The Certificate of Compliance shall clearly show that the material equipment and/or work are in compliance with the tests and specifications set forth in the contract documents.

The Certificate of Compliance shall be provided to the Engineer at the Contractor's expense. Failure to provide certifications of compliance will be cause to withhold payment for items of work requiring material certification.

1.12 WORK AFFECTING THE PUBLIC RIGHTS OF WAY

The Contractor shall refer to the City of Sacramento, Ordinance No. 2002-004, recently adopted and in effect as of March 19, 2002. Knowledge of, and compliance with, the provisions of this ordinance is required. Copies of this ordinance are available at the reception desk on the 1st floor of 927 10th Street, Sacramento, CA 95814-2702. The provisions of this contract require compliance with all City, State and Federal laws. Reference is made to this particular ordinance only because it may have significant impacts to construction operations, and associated traffic control, and it has only recently been adopted. The ordinance establishes criteria and restrictions as it relates to maintenance, damage, traffic control, construction noise, and various other issues on, or related to, a construction project or other permitted work within the City limits. It further establishes administrative penalties, in the order of $500, for each violation of the provisions of the ordinance.

1.13 ENVIRONMENTALLY SENSITVE AREA

An ESA exists on this project.

Before start of work, protect the ESA by installing temporary fence (Type ESA).

1.14 AREAS FOR CONTRACTOR'S USE

Attention is directed to the provisions in Section 7-1.19, "Rights in Land and Improvements," of the State Standard Specifications and these special provisions.

The project area shall be used only for purposes that are necessary to perform the required work. The Contractor shall not occupy the project area, or allow others to occupy the project area, for purposes which are not necessary to perform the required work.

Areas available for the exclusive use of the Contractor are designated on the plans. Use of the Contractor's work areas and other City-owned property shall be at the Contractor's own risk, and the City shall not be held liable for damage to or loss of materials or equipment located within these areas.

Residence trailers will not be allowed within the project area, except that one trailer will be allowed for yard security purposes.

The Contractor shall remove equipment, materials, and rubbish from the work areas and other property which the Contractor occupies. The Contractor shall leave the areas in a presentable condition in conformance with the provisions in Section 4-1.02, "Final Cleaning Up," of the State Standard Specifications.

The Contractor shall secure, at the Contractor's own expense, areas required for plant sites, storage of equipment or materials or for other purposes, if sufficient area is not available to the Contractor within the contract limits.

If the Contractor decides he/she needs additional working easement areas, work sites or material sites to facilitate his operation, it shall be his sole responsibility to locate, negotiate, obtain and pay for such additional working easements, work sites and material sites including permitting.

The Contractor must obtain written permission for storing material and equipment on private property. The Contractor shall submit to the Engineer written authorization from the property owner of private property being used for the storage of equipment or materials. A copy of any written agreements entered into between the Contractor and the property owner concerning encroachment onto private property shall be provided to the Engineer prior to beginning any work on the property. Furthermore, upon completing use of private property, the Contractor shall submit to the Engineer a signed notice from the property owner that the site has been left in an acceptable condition to him/her.

All areas lying outside of the street right-of-way which are affected by the work shall be restored to the same, or better condition existing prior to the commencement of the work, to the satisfaction of the Engineer.

The Contractor shall remove equipment, materials, and rubbish from the work areas and other property which the Contractor occupies. The Contractor shall leave the areas in a presentable condition in conformance with the provisions in Section 4-1.02, "Final Cleaning Up," of the State Standard Specifications.

The cost of necessary permits, all restoration, including but not limited to landscaping improvements, shall be included in the various items of work the Contractor deems appropriate, and no separate or additional compensation shall be made.

Full compensation for conforming to the provisions in this section is included in the contract price paid for the various items of work and no additional compensation will be allowed therefor.

1.15 INDEMNIFICATION

Attention is directed to Section 7-1.12A, "Indemnification," of the State Standard Specifications and these special provisions. For purposes of the Contractor's obligation to defend, indemnify, and save harmless as defined in Section 7-1.12A, "Indemnification," of the State Standard Specifications, the term State shall have the following meaning:

The City of Sacramento
Quincy Engineering, Inc.
KTA-TATOR, Inc.

including their officers, directors, employees, agents, and design professionals.

1.16 STORAGE OF MATERIALS AND EQUIPMENT

Materials and equipment shall **not** be stored within the public right-of-way during non-work hours.

The Contractor shall be responsible for all damages that occur in connection with the care and protection of all materials and equipment until the completion and final acceptance of the work by the City. The Contractor must obtain written permission for storing material and equipment on private property. A copy of the written permission shall be given to the Engineer.

The Contractor shall submit a plan to the Engineer for approval, which shows where materials and equipment will be stored within the public right-of-way during work and non-work hours. The plan shall provide for access to pedestrian, and vehicular traffic and minimize impacts to residents, the traffic and the general public and shall be approved by the Engineer prior to commencing work.

1.17 OPERATION AND MAINTENANCE OF EQUIPMENT

Construction equipment shall be maintained and tuned at the interval recommended by the manufacturers. Machinery used during construction shall be maintained according to the manufacturer's specifications to prevent accidental sparks.

Fire extinguishers shall be kept on-site during all construction activities.

The Contractor shall strictly comply with the City Code Chapter 66.02 for noise control.

This specification in no way relieves the Contractor from operations and maintenance requirements, noise standards, and responsibilities of State Specifications or Federal, State or Local regulations.

1.18 MATERIALS

PREQUALIFIED AND TESTED SIGNING AND DELINEATION MATERIALS

Caltrans maintains the following list of Prequalified and Tested Signing and Delineation Materials. The Engineer shall not be precluded from sampling and testing products on the list of Prequalified and Tested Signing and Delineation Materials.

The manufacturer of products on the list of Prequalified and Tested Signing and Delineation Materials shall furnish the Engineer a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the State Standard Specifications for each type of traffic product supplied.

For those categories of materials included on the list of Prequalified and Tested Signing and Delineation Materials, only those products shown within the listing may be used in the work. Other categories of products, not included on the list of Prequalified and Tested Signing and Delineation Materials, may be used in the work provided they conform to the requirements of the State Standard Specifications.

Materials and products may be added to the list of Prequalified and Tested Signing and Delineation Materials if the manufacturer submits a New Product Information Form to the New Product Coordinator at the Transportation Laboratory. Upon a Departmental request for samples, sufficient samples shall be submitted to permit performance of required tests. Approval of materials or products will depend upon compliance with the specifications and tests the Department may elect to perform.

PAVEMENT MARKERS, PERMANENT TYPE

Retroreflective With Abrasion Resistant Surface (ARS)

("length along the direction of travel" x "marker width")

1. Apex, Model 921AR (4" x 4")
2. Ennis-Flint, Models C88 (4" x 4"), 911 (4" x 4") and C80FH (3.1" x 4.5")
3. Ray-O-Lite, Models "AA" ARC II (4" x 4") and ARC Round Shoulder (4" x 4")
4. 3M Series 290 (3.5" x 4")
5. 3M Series 290 PSA
6. Glowlite, Inc Model 988AR (4" x 4")

Retroreflective With Abrasion Resistant Surface (ARS)

(for recessed applications only)

1. Ennis-Flint, Model 948 (2.3" x 4.7")
2. Ennis-Flint, Model 944SB (2" x 4")*
3. Ray-O-Lite, Model 2002 (2" x 4.6")
4. Ray-O-Lite, Model 2004 (2" x 4")*

*For use only in 4.5 inch wide (older) recessed slots

Non-Reflective, 4-inch Round

1. Apex Universal (Ceramic)
2. Apex Universal, Models 929 (ABS) and 929PP (Polypropylene)
3. Glowlite, Inc. (Ceramic) and PP (Polypropylene)
4. Hi-Way Safety, Inc., Models P20-2000W and 2001Y (ABS)
5. Interstate Sales, "Diamond Back" (Polypropylene)
6. Novabrite Models Cdot (White) Cdot-y (Yellow), Ceramic
7. Novabrite Models Pdot-w (White) Pdot-y (Yellow), Polypropylene
8. Three D Traffic Works TD10000 (ABS), TD10500 (Polypropylene)
9. Ray-O-Lite, Ray-O-Dot (Polypropylene)

PAVEMENT MARKERS, TEMPORARY TYPE

Temporary Markers For Long Term Day/Night Use (180 days or less)

1. Vega Molded Products "Temporary Road Marker" (3" x 4")
2. Pexco LLC, Halftrack model 25, 26 and 35

Temporary Markers For Short Term Day/Night Use (14 days or less)

(For seal coat or chip seal applications, clear protective covers are required)

1. Apex Universal, Model 932
2. Pexco LLC, Models T.O.M., T.R.P.M., and "HH" (High Heat)
3. Hi-Way Safety, Inc., Model 1280/1281
4. Glowlite, Inc., Model 932

STRIPING AND PAVEMENT MARKING MATERIAL

Permanent Traffic Striping and Pavement Marking Tape

1. Advanced Traffic Marking, Series 300 and 400
2. Brite-Line, Series 1000
3. Brite-Line, "DeltaLine XRP"
4. Swarco Industries, "Director 35" (For transverse application only)
5. Swarco Industries, "Director 60"
6. 3M, "Stamark" Series 380 and 270 ES
7. 3M, "Stamark" Series 420 (For transverse application only)

Temporary (Removable) Striping and Pavement Marking Tape (180 days or less)

1. Advanced Traffic Marking, Series 200
2. Brite-Line, "Series 100", "Deltaline TWR"
3. Garlock Rubber Technologies, Series 2000
4. Tape 4, Aztec, Grade 102
5. Swarco Industries, "Director-2", "Director 2-Wet Reflective"
6. Trelleborg Industries, R140 Series
7. 3M Series 620 "CR", Series 780 and Series 710
8. 3M Series A145, Removable Black Line Mask
   (Black Tape: for use only on Hot mix asphalt surfaces)
9. Advanced Traffic Marking Black "Hide-A-Line"
   (Black Tape: for use only on Hot mix asphalt surfaces)
10. Brite-Line "BTR" Black Removable Tape

(Black Tape: for use only on Hot mix asphalt surfaces)
11. Trelleborg Industries, RB-140
(Black Tape: for use only on Hot mix asphalt surfaces)

Preformed Thermoplastic (Heated in place)

1. Ennis-Flint, "Hot Tape"
2. Ennis-Flint, "Premark Plus"
3. Ennis-Flint, "Flametape"

Ceramic Surfacing Laminate, 6" x 6"

1. Highway Ceramics, Inc.

CLASS 1 DELINEATORS

One Piece Driveable Flexible Type, 66-inch

1. Pexco LLC, "Flexi-Guide Models 400 and 566"
2. Carsonite, Curve-Flex CFRM-400
3. Carsonite, Roadmarker CRM-375
4. FlexStake, Model 654 TM
5. GreenLine Model CGD1-66

Special Use Type, 66-inch

1. Pexco LLC, Model FG 560 (with 18-inch U-Channel base)
2. Carsonite, "Survivor" (with 18-inch U-Channel base)
3. Carsonite, Roadmarker CRM-375 (with 18-inch U-Channel base)
4. FlexStake, Model 604
5. GreenLine Model CGD (with 18-inch U-Channel base)
6. Impact Recovery Model D36, with #105 Driveable Base
7. Safe-Hit with 8-inch pavement anchor (SH248-GP1)
8. Safe-Hit with 15-inch soil anchor (SH248-GP2) and with 18-inch soil anchor (SH248-GP3)
9. Safe-Hit RT 360 Post with Soil Mount Anchor (GPS)
10. Shur-Tite Products, Shur-Flex Drivable

Surface Mount Type, 48-inch

1. Bent Manufacturing Company, Masterflex Model MFEX 180-48
2. Carsonite, "Channelizer"
3. FlexStake, Models 704, 754 TM, and EB4
4. Impact Recovery Model D48, with #101 Fixed (Surface-Mount) Base
5. Three D Traffic Works "Channelflex" ID No. 522248W
6. Flexible Marker Support, Flexistiff Model C-9484
7. Safe-Hit, SH 248 SMR

CHANNELIZERS

Surface Mount Type, 36-inch

1. Bent Manufacturing Company, Masterflex Models MF-360-36 (Round) MF-180-36 (Flat) and MFEX 180—36
2. Pexco LLC, Flexi-Guide Models FG300PE, FG300UR, and FG300EFX

3. Carsonite, "Super Duck" (Round SDR-336)
4. Carsonite, Model SDCF03601MB "Channelizer"
5. FlexStake, Models 703, 753 TM, and EB3
6. GreenLine, Model SMD-36
7. Hi-way Safety, Inc. "Channel Guide Channelizer" Model CGC36
8. Impact Recovery Model D36, with #101 Fixed (Surface-Mount) Base
9. Safe-Hit, Guide Post, Model SH236SMA and Dura-Post, Model SHL36SMA
10. Three D Traffic Works "Boomerang" 5200 Series
11. Flexible Marker Support, Flexistiff Model C-9484-36
12. Shur-Tite Products, Shur-Flex

Lane Separation System

1. Pexco LLC, "Flexi-Guide (FG) 300 Curb System"
2. Qwick Kurb, "Klemmfix Guide System"
3. Dura-Curb System
4. Tuff Curb
5. FG 300 Turnpike Curb
6. Shur-Tite Products, SHUR-Curb , Model No. SF0200

CONICAL DELINEATORS, 42-inch

(For 28-inch Traffic Cones, see Standard Specifications)

1. Bent Manufacturing Company "T-Top", TDSC Series
2. Plastic Safety Systems "Navigator-42"
3. TrafFix Devices "Grabber"
4. Three D Traffic Works "Ringtop" TD7000, ID No. 742143
5. Three D Traffic Works, TD7500
6. Work Area Protection Corp. C-42
7. Custom-Pak 4600 (Part No. 93005-0001)
8. Plasticade, Navicade, 650 RI

OBJECT MARKERS

Type "K", 18-inch

1. Pexco LLC, Model FG318PE
2. Carsonite, Model SMD 615
3. FlexStake, Model 701 KM
4. Safe-Hit, Model SH718SMA
5. Impact Recover Systems, Model 282-K

Type "Q" Object Markers, 24-inch

1. Bent Manufacturing "Masterflex" Model MF-360-24
2. Pexco LLC, Model FG324PE
3. Carsonite, "Channelizer"
4. FlexStake, Model 701KM
5. Safe-Hit, Models SH824SMA_WA and SH824GP3_WA
6. Three D Traffic Works ID No. 531702W and TD 5200
7. Three D Traffic Works ID No. 520896W
8. Safe-Hit, Dura-Post SHLQ-24"

9. Flexible Marker Support, IMC 9484-24
10. Impact Recover Systems, Model 282-Q

CONCRETE BARRIER MARKERS AND TEMPORARY RAILING (TYPE K) REFLECTORS

Impactable Type

1. ARTUK, "FB"
2. Pexco LLC, Models PCBM-12 and PCBM-T12, PCBM 912
3. Duraflex Corp., "Flexx 2020" and "Electriflexx"
4. Hi-Way Safety, Inc., Model GMKRM100
5. Plastic Safety Systems "BAM" Models OM-BARR and OM-BWAR
6. Three D Traffic Works "Roadguide" Model TD 9300

Non-Impactable Type

1. ARTUK, JD Series
2. Plastic Safety Systems "BAM" Models OM-BITARW and OM-BITARA
3. Vega Molded Products, Models GBM and JD
4. Plastic Vacuum Forming, "Cap-It C400"

METAL BEAM GUARD RAIL POST MARKERS

(For use to the left of traffic)

1. Pexco LLC, "Mini" (3" x 10"), I-Flex
2. Creative Building Products, "Dura-Bull, Model 11201"
3. Duraflex Corp., "Railrider"
4. Plastic Vacuum Forming, "Cap-It C300"

CONCRETE BARRIER DELINEATORS, 16-inch

(For use to the right of traffic)

1. Pexco LLC, Model PCBM T-16
2. Safe-Hit, Model SH216RBM
3. Three D Traffic Works "Roadguide" Model 9400

CONCRETE BARRIER-MOUNTED MINI-DRUM (10" x 14" x 22")

1. Stinson Equipment Company "SaddleMarker"

GUARD RAILING DELINEATOR

(Place top of reflective element at 48 inches above plane of roadway)

Wood Post Type, 27-inch

1. Pexco LLC, FG 427 and FG 527
2. Carsonite, Model 427
3. FlexStake, Model 102 GR
4. GreenLine GRD 27
5. Safe-Hit, Model SH227GRD
6. Three D Traffic Works "Guardflex" TD9100
7. New Directions Mfg, NDM27
8. Shur-Tite Products, Shur-Tite Flat Mount

9. Glasforms, Hiway-Flex, GR-27-00
10. Impact Recover Systems, 200-GRP

Barrier, Guardrail Visibility Enhancement

1. UltraGuard Safety System, Potters Industries, Inc.
2. Worldwide Safety and Irwin Hodson, Monarch Butterfly Reflective Device (MBGR only)

Steel Post Type

1. Carsonite, Model CFGR-327

RETROREFLECTIVE SHEETING

Channelizers, Barrier Markers, and Delineators

1. Avery Dennison T-6500 Series (For rigid substrate devices only)
2. Avery Dennison WR-7100 Series and WR-6100
3. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
4. Reflexite, PC-1000 Metalized Polycarbonate
5. Reflexite, AC-1000 Acrylic
6. Reflexite, AP-1000 Metalized Polyester
7. Reflexite, Conformalight, AR-1000 Abrasion Resistant Coating
8. 3M, High Intensity

Traffic Cones, 4-inch and 6-inch Sleeves

1. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
2. Reflexite, Vinyl, "TR" (Semi-transparent) or "Conformalight", C85
3. 3M Series 3840, Series 3340
4. Avery Dennison S-9000C

Drums

1. Avery Dennison WR-6100 Series
2. Nippon Carbide Industries, Flexible Ultralite Grade (ULG) II
3. Reflexite, "Conformalight", "Super High Intensity" or "High Impact Drum Sheeting"
4. 3M Series 3810

BARRICADE SHEETING

Type I, Medium-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Nippon Carbide Industries, CN8117
2. Avery Dennison, W 1100 series
3. 3M Series CW 44

Type II, Medium-High-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Avery Dennison, W-2100 Series

Type IV, High Intensity (Typically Unmetalized Microprismatic Retroreflective Element)

1. 3M Series 3334/3336

Vertical Clearance Signs: Structure Mounted

1. 3M Model 4061, Diamond Grade DG3, Fluorescent Yellow

Signs: Type II, Medium-High-Intensity (Typically Enclosed Lens, Glass-Bead Element)

1. Avery Dennison, T-2500 Series
2. Nippon Carbide Industries, Nikkalite 18000

Signs: Type III, High-Intensity (Typically Encapsulated Glass-Bead Element)

1. Avery Dennison, T-5500A and T-6500 Series
2. Nippon Carbide Industries, Nikkalite Brand Ultralite Grade II
3. 3M 3870 and 3930 Series
4. Changzhou Hua R Sheng, Series TM 1200
5. Oracal, Oralite Series 5800

Signs: Type IV, High-Intensity (Typically Unmetallized Microprismatic Element)

1. Avery Dennison, T-6500 Series
2. Nippon Carbide Industries, Crystal Grade, 94000 Series
3. Nippon Carbide Industries, Model No. 94847 Fluorescent Orange
4. 3M Series 3930 and Series 3924S

Signs: Type VI, Elastomeric (Roll-Up) High-Intensity, without Adhesive

1. Avery Dennison, WU-6014
2. Novabrite LLC, "Econobrite"
3. Reflexite "Vinyl"
4. Reflexite "SuperBright"
5. Reflexite "Marathon"
6. 3M Series RS20

Signs: Type VIII, Super-High-Intensity (Typically Unmetallized Microprismatic Element)

1. Avery Dennison, T-7500 Series
2. Avery Dennison, T-7511 Fluorescent Yellow
3. Avery Dennison, T-7513 Fluorescent Yellow Green
4. Avery Dennison, W-7514 Fluorescent Orange
5. Nippon Carbide Industries, Nikkalite Crystal Grade Series 92800
6. Nippon Carbide Industries, Nikkalite Crystal Grade Model 92847 Fluorescent Orange

Signs: Type IX, Very-High-Intensity (Typically Unmetallized Microprismatic Element)

1. 3M VIP Series 3981 Diamond Grade Fluorescent Yellow
2. 3M VIP Series 3983 Diamond Grade Fluorescent Yellow/Green
3. 3M VIP Series 3990 Diamond Grade
4. Avery Dennison T-9500 Series
5. Avery Dennison, T9513, Fluorescent Yellow Green
6. Avery Dennison, W9514, Fluorescent Orange

7. Avery Dennison, T-9511 Fluorescent Yellow

Signs: Type XI, Very High Intensity (Typically Unmetallized Microprismatic Element)

1 3M Diamond Grade, DG3, Series 4000
2. 3M Diamond Grade, DG3, Series 4081, Fluorescent Yellow
3. 3M Diamond Grade, DG3, Series 4083, Fluorescent Yellow/Green
4. 3M Diamond Grade, DG3, Series 4084, Fluorescent Orange
5. Avery Dennison, OmniCube, T-11500 Series
6. Avery Dennison, OmniCube, T-11511, Fluorescent Yellow
7. Avery Dennison, OmniCube, T-11513, Fluorescent Yellow Green
8. Avery Dennison, OmniCube, W-11514 Fluorescent Orange

SPECIALTY SIGNS

1. Reflexite "Endurance" Work Zone Sign (with Semi-Rigid Plastic Substrate)

ALTERNATIVE SIGN SUBSTRATES

Fiberglass Reinforced Plastic (FRP) and Expanded Foam PVC

1. Fiber-Brite (FRP)
2. Sequentia, "Polyplate" (FRP)
3. Inteplast Group "InteCel" (0.5 inch for Post-Mounted CZ Signs, 48-inch or less)(PVC)

Aluminum Composite, Temporary Construction Signs and Permanent Signs up to 4 foot, 7 Inches

1. Alcan Composites "Dibond Material, 80 mils"
2. Mitsubishi Chemical America, Alpolic 350
3. Bone Safety Signs, Bone Light ACM (temporary construction signs only)
4. Kommerling, USA, KomAlu 3 mm

1.19 PORTLAND CEMENT CONCRETE

Portland cement concrete shall conform to the provisions in Section 90, "Portland Cement Concrete," of the State Standard Specifications and these special provisions.

STRENGTH DEVELOPMENT TIME

The time allowed to obtain the minimum required compressive strength as specified in Section 90-1.01, "Description," of the State Standard Specifications will be 56 days when the Contractor chooses cementitious material that satisfies the following equation:

$$\frac{(41 \times UF) + (19 \times F) + (11 \times SL)}{TC} \geq 7.0$$

Where:

F = Fly ash or natural pozzolan conforming to the requirements in AASHTO Designation: M 295, Class F or N, including the amount in blended cement,

pounds per cubic yard. F is equivalent to the sum of FA and FB as defined in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials," of the State Standard Specifications

SL = GGBFS, including the amount in blended cement, pounds per cubic yard

UF = Silica fume, metakaolin, or UFFA, including the amount in blended cement, pounds per cubic yard

TC = Total amount of cementitious material used, pounds per cubic yard

For concrete satisfying the equation above, the Contractor shall test for the modulus of rupture or compressive strength specified for the concrete involved, at least once every 500 cubic yards, at 28, 42, and 56 days. The Contractor shall submit test results to the Engineer.

SUPPLEMENTARY CEMENTITIOUS MATERIALS

The Contractor may use rice hull ash as a supplementary cementitious material (SCM) to make minor concrete. Rice hull ash shall conform to the requirements in AASHTO Designation: M 321 and the following chemical and physical requirements:

Chemical Requirements	Percent
Silicon Dioxide (SiO_2) [a]	90 min.
Loss on ignition	5.0 max.
Total Alkalies (as Na_2O) equivalent	3.0 max.

Physical Requirements	Percent
Particle size distribution	
Less than 45 microns	95
Less than 10 microns	50
Strength Activity Index with portland cement [b]	
7 days	95 (minimum % of control)
28 days	110 (minimum % of control)
Expansion at 16 days when testing job materials in conformance with ASTM C 1567 [c]	0.10 max.
Surface Area when testing by nitrogen adsorption in conformance with ASTM D 5604	40.0 m^2/g min.

Notes:

[a] A maximum of 1.0% of the SiO_2 may exist in crystalline form.

[b] When tested in conformance with the requirements for strength activity testing of silica fume in AASHTO Designation: M 307

[c] In the test mix, Type II or Type V portland cement shall be replaced with at least 12% RHA by weight.

For the purposes of calculating cementitious material requirements in Section 90-2.01C, "Required Use of Supplementary Cementitious Materials," of the State Standard Specifications and these special provisions, rice hull ash is considered to be represented by the variable *UF*.

1.20 WELDING

GENERAL

Unless otherwise specified, Section 8-3, "Welding," shall apply to any welding that is specified to conform to an AWS welding code.

Requirements of the AWS welding codes shall apply unless otherwise specified in the State Standard Specifications, on the plans, or in these special provisions. Wherever the abbreviation AWS is used, it shall be equivalent to the abbreviations ANSI/AWS or AASHTO/AWS.

Wherever reference is made to the following AWS welding codes in the State Standard Specifications, on the plans, or in these special provisions, the year of adoption for these codes shall be as listed:

AWS Code	Year of Adoption
D1.1	2008
D1.3	2008
D1.4	2005
D1.5	2008
D1.6	2007
D1.8	2009

Flux cored welding electrodes conforming to the requirements of AWS A5.20 E6XT-4 or E7XT-4 shall not be used to perform welding for this project.

Unless otherwise specified, Clause 6.1.3 of AWS D1.1, paragraph 1 of Section 7.1.2 of AWS D1.4, and Clause 6.1.1.2 of AWS D1.5, are replaced with the following:

The QC Inspector shall be the duly designated person who acts for and on behalf of the Contractor for inspection, testing, and quality related matters for all welding.

Quality Assurance (QA) is the prerogative of the Engineer. The QA Inspector is the duly designated person who acts for and on behalf of the Engineer.

The QC Inspector shall be responsible for quality control acceptance or rejection of materials and workmanship.

When the term "Inspector" is used without further qualification, it shall refer to the QC Inspector.

Inspection and approval of all joint preparations, assembly practices, joint fit-ups, welding techniques, and the performance of each welder, welding operator, and tack welder shall be documented by the QC Inspector on a daily basis for each day welding is performed. For each inspection, including fit-up, Welding Procedure Specification (WPS) verification, and final weld inspection, the QC Inspector shall confirm and document compliance with the requirements of the AWS or other specified code criteria and the requirements of these special provisions on all welded joints before welding, during welding, and after the completion of each weld.

The Engineer shall have the authority to verify the qualifications or certifications of any welder, QC Inspector, or NDT personnel to specified levels by retests or other means approved by the Engineer.

When joint weld details that are not prequalified to the details of Clause 3 of AWS D1.1 or to the details of Figure 2.4 or 2.5 of AWS D1.5 are proposed for use in the work, the joint details, their intended locations, and the proposed welding parameters and essential variables, shall be

approved by the Engineer. The Contractor shall allow the Engineer 15 days to complete the review of the proposed joint detail locations.

In addition to the requirements of AWS D1.1, welding procedure qualifications for work welded in conformance with this code shall conform to the following:

When a nonstandard weld joint is to be made using a combination of WPSs, a single test may be conducted combining the WPSs to be used in production, provided the essential variables, including weld bead placement, of each process are limited to those established in Table 4.5.

Upon approval of the proposed joint detail locations and qualification of the proposed joint details, welders and welding operators using these details shall perform a qualification test plate using the WPS variables and the joint detail to be used in production. The test plate shall have the maximum thickness to be used in production and a minimum length of 18 inches. The test plate shall be mechanically and radiographically tested. Mechanical and radiographic testing and acceptance criteria shall be as specified in the applicable AWS codes.

The Engineer will witness all qualification tests for WPSs that were not previously approved by the Department.

In addition to the requirements specified in the applicable code, the period of effectiveness for a welder's or welding operator's qualification shall be a maximum of 3 years for the same weld process, welding position, and weld type. If welding will be performed without gas shielding, then qualification shall also be without gas shielding. Excluding welding of fracture critical members, a valid qualification at the beginning of work on a contract will be acceptable for the entire period of the contract, as long as the welder's or welding operator's work remains satisfactory.

The Contractor shall notify the Engineer 7 days prior to performing any procedure qualification tests. Witnessing of qualification tests by the Engineer shall not constitute approval of the intended joint locations, welding parameters, or essential variables. The Contractor shall notify the Engineer using the "Standard TL-38 Inspection Form" located at:

http://www.dot.ca.gov/hq/esc/Translab/OSM/smbforms.htm

Clause 6.14.6, "Personnel Qualification," of AWS D1.1, Section 7.8, "Personnel Qualification," of AWS D1.4, and Clause 6.1.3.4, "Personnel Qualification," of AWS D1.5 are replaced with the following:

Personnel performing nondestructive testing (NDT) shall be qualified and certified in conformance with the requirements of the American Society for Nondestructive Testing (ASNT) Recommended Practice No. SNT-TC-1A and the Written Practice of the NDT firm. The Written Practice of the NDT firm shall meet or exceed the guidelines of the ASNT Recommended Practice No. SNT-TC-1A. Individuals who perform NDT, review the results, and prepare the written reports shall be either:

A. Certified NDT Level II technicians, or;
B. Level III technicians who hold a current ASNT Level III certificate in that discipline and are authorized and certified to perform the work of Level II technicians.

Clause 6.6.5, "Nonspecified NDT Other than Visual," of AWS D1.1, Section 7.6.5 of AWS D1.4 and Clause 6.6.5 of AWS D1.5 shall not apply.

For any welding, the Engineer may direct the Contractor to perform NDT that is in addition to the visual inspection or NDT specified in the AWS or other specified welding codes, in the State Standard Specifications, or in these special provisions. Except as provided for in these special provisions, additional NDT required by the Engineer, and associated repair work, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the State Standard Specifications. Prior to release of welded material by the Engineer, if testing by NDT methods other than those originally specified discloses an attempt to defraud or reveals a gross nonconformance, all costs associated with the repair of the deficient area, including NDT of the weld and of the repair, and any delays caused by the repair, shall be at the Contractor's expense. A gross nonconformance is defined as the sum of planar type rejectable indications in more than 20 percent of the tested length.

When less than 100 percent of NDT is specified for any weld, it is expected that the entire length of weld meet the specified acceptance-rejection criteria. Should any welding deficiencies be discovered by additional NDT directed or performed by the Engineer that utilizes the same NDT method as that originally specified, all costs associated with the repair of the deficient area, including NDT of the weld and of the weld repair, and any delays caused by the repair, shall be at the Contractor's expense.

Repair work to correct welding deficiencies discovered by visual inspection directed or performed by the Engineer, and any associated delays or expenses caused to the Contractor by performing these repairs, shall be at the Contractor's expense.

WELDING QUALITY CONTROL

Welding quality control shall conform to the requirements in the AWS or other specified welding codes, the State Standard Specifications, and these special provisions.

Unless otherwise specified, welding quality control shall apply to work welded in conformance with the provisions in the following:

A. Section 49, "Piling," Section 52, "Reinforcement," Section 55, "Steel Structures," and Section 75-1.035, "Bridge Joint Restrainer Units," of the State Standard Specifications
B. "Structural Steel for Building Work" of these special provisions

Unless otherwise specified, Clauses 6.1.4.1 and 6.1.4.3 of AWS D1.1, paragraph 2 of Section 7.1.2 of AWS D1.4, and Clauses 6.1.3.2 through 6.1.3.3 of AWS D1.5 are replaced with the following:

The QC Inspector shall be currently certified as an AWS Certified Welding Inspector (CWI) in conformance with the requirements in AWS QC1, "Standard for AWS Certification of Welding Inspectors."

The QC Inspector may be assisted by an Assistant QC Inspector provided that this individual is currently certified as an AWS Certified Associate Welding Inspector (CAWI) in

conformance with the requirements in AWS QC1, "Standard for AWS Certification of Welding Inspectors." The Assistant QC Inspector may perform inspection under the direct supervision of the QC Inspector provided the assistant is always within visible and audible range of the QC Inspector. The QC Inspector shall be responsible for signing all reports and for determining if welded materials conform to workmanship and acceptance criteria. The ratio of QC Assistants to QC Inspectors shall not exceed 5 to 1.

The Contractor shall designate in writing a welding Quality Control Manager (QCM). The QCM shall be responsible directly to the Contractor for the quality of welding, including materials and workmanship, performed by the Contractor and subcontractors.

The QCM shall be the sole individual responsible to the Contractor for submitting, receiving, reviewing, and approving all correspondence, required submittals, and reports to and from the Engineer. The QCM shall be a registered professional engineer or shall be currently certified as a CWI.

Unless the QCM is hired by a subcontractor providing only QC services, the QCM shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project. The QCM may be an employee of the Contractor.

The QCM shall sign and furnish to the Engineer, a Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the State Standard Specifications for each item of work for which welding was performed. The certificate shall state that all of the materials and workmanship incorporated in the work, and all required tests and inspections of this work, have been performed in conformance with the details shown on the plans, the State Standard Specifications, and these special provisions.

Welding inspection personnel or NDT firms to be used in the work shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors, who will provide other services or materials for the project, except for the following conditions:

A. The work is welded in conformance with AWS D1.5 and is performed at a permanent fabrication or manufacturing facility that is certified under the AISC Quality Certification Program, Category CBR, Major Steel Bridges and Fracture Critical endorsement F, when applicable.
B. Structural steel for building work is welded in conformance with AWS D1.1 and is performed at a permanent fabrication or manufacturing facility that is certified under the AISC Quality Certification Program, Category STD, Standard for Steel Building Structures.

For welding performed at such facilities, the inspection personnel or NDT firms may be employed or compensated by the facility performing the welding provided the facility maintains a QC program that is independent from production.

Unless otherwise specified, an approved independent third party will witness the qualification tests for welders or welding operators. The independent third party shall be a current CWI and shall not be an employee of the contractor performing the welding. The

Contractor shall allow the Engineer 15 days to review the qualifications and copy of the current certification of the independent third party.

Prior to submitting the Welding Quality Control Plan (WQCP) required herein, a prewelding meeting between the Engineer, the Contractor's QCM, and a representative from each entity performing welding or inspection for this project, shall be held to discuss the requirements for the WQCP.

Information regarding the contents, format, and organization of a WQCP, is available at the Transportation Laboratory and at:

http://www.dot.ca.gov/hq/esc/Translab/OSM/smbresources.htm

The Contractor shall submit to the Engineer, in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the State Standard Specifications, 2 copies of a separate WQCP for each subcontractor or supplier for each item of work for which welding is to be performed.

The Contractor shall allow the Engineer 15 days to review the WQCP submittal after a complete plan has been received. No welding shall be performed until the WQCP is approved in writing by the Engineer.

An amended WQCP or any addendum to the approved WQCP shall be submitted to, and approved in writing by the Engineer, for proposed revisions to the approved WQCP. An amended WQCP or addendum will be required for revisions to the WQCP, including but not limited to a revised WPS; additional welders; changes in NDT firms, QC, or NDT personnel or procedures; or updated systems for tracking and identifying welds. The Engineer shall have 7 days to complete the review of the amended WQCP or addendum. Work affected by the proposed revisions shall not be performed until the amended WQCP or addendum has been approved.

After final approval of the WQCP, amended WQCP, or addendum, the Contractor shall submit 7 copies to the Engineer of the approved documents. A copy of the Engineer approved document shall be available at each location where welding is to be performed.

All welding will require inspection by the Engineer. The Contractor shall request inspection at least 3 business days prior to the beginning of welding for locations within California and 5 business days for locations outside of California. The Contractor shall request inspection at:

http://www.dot.ca.gov/hq/esc/Translab/OSM/smbforms.htm

Continuous inspection shall be provided when any welding is being performed. Continuous inspection, as a minimum, shall include having a QC Inspector within such close proximity of all welders or welding operators so that inspections by the QC Inspector of each welding operation at each welding location does not lapse for a period exceeding 30 minutes.

A daily production log for welding shall be kept for each day that welding is performed. The log shall clearly indicate the locations of all welding. The log shall include the welders' names, amount of welding performed, any problems or deficiencies discovered, and any testing or repair work performed, at each location. The daily report from each QC Inspector shall also be included in the log.

The following items shall be included in a Welding Report that is to be submitted to the Engineer within 15 days following the performance of any welding:

A. A daily production log.
B. Reports of all visual weld inspections and NDT.
C. Radiographs and radiographic reports, and other required NDT reports.
D. A summary of welding and NDT activities that occurred during the reporting period.
E. Reports of each application of heat straightening.
F. A summarized log listing the rejected lengths of weld by welder, position, process, joint configuration, and piece number.
G. Documentation that the Contractor has evaluated all radiographs and other nondestructive tests and corrected all rejectable deficiencies, and that all repaired welds have been reexamined using the required NDT and found acceptable.

The following information shall be clearly written on the outside of radiographic envelopes: name of the QCM, name of the nondestructive testing firm, name of the radiographer, date, contract number, complete part description, and all included weld numbers, report numbers, and station markers or views, as detailed in the WQCP. In addition, all interleaves shall have clearly written on them the part description and all included weld numbers and station markers or views, as detailed in the WQCP. A maximum of 2 pieces of film shall be used for each interleave.

Reports of all visual inspections and NDT shall be signed by the inspector or technician and submitted daily to the QCM for review and signature prior to submittal to the Engineer. Corresponding names shall be clearly printed or typewritten next to all signatures. Reports of all NDT, whether specified, additional, or informational, performed by the Contractor shall be submitted to the Engineer.

The Engineer will review the Welding Report to determine if the Contractor is in conformance with the WQCP. Except for field welded steel pipe piling, the Engineer shall be allowed 15 days to review the report and respond in writing after the complete Welding Report has been received. Prior to receiving notification from the Engineer of the Contractor's conformance with the WQCP, the Contractor may encase in concrete or cover welds for which the Welding Report has been submitted. However, should the Contractor elect to encase or cover those welds prior to receiving notification from the Engineer, it is expressly understood that the Contractor shall not be relieved of the responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Material not conforming to these requirements will be subject to rejection.

For field welded steel pipe piling, including bar reinforcement in the piling, the Contractor shall allow the Engineer 2 business days to review the Welding Report and respond in writing after the required items have been received. No field welded steel pipe piling shall be installed,

and no reinforcement in the piling shall be encased in concrete until the Engineer has approved the above requirements in writing.

In addition to the requirements in AWS D1.1 and AWS D1.5, third-time excavations of welds or base metal to repair unacceptable discontinuities, regardless of NDT method, and all repairs of cracks require prior approval of the Engineer.

The Engineer shall be notified immediately in writing when welding problems, deficiencies, base metal repairs, or any other type of repairs not submitted in the WQCP are discovered, and also of the proposed repair procedures to correct them. For requests to perform third-time excavations or repairs of cracks, the Contractor shall include an engineering evaluation of the proposed repair. The engineering evaluation, at a minimum, shall address the following:

A. What is causing each defect?
B. Why the repair will not degrade the material properties?
C. What steps are being taken to prevent similar defects from happening again?

The Contractor shall allow the Engineer 7 days to review these procedures. No remedial work shall begin until the repair procedures are approved in writing by the Engineer.

Clause 6.5.4 of AWS D1.5 is replaced with the following:

The QC Inspector shall inspect and approve each joint preparation, assembly practice, welding technique, joint fit-up, and the performance of each welder, welding operator, and tack welder to make certain that the applicable requirements of this code and the approved Welding Procedure Specification (WPS) are met. The QC Inspector shall examine the work to make certain that it meets the requirements of Clauses 3 and 6.26. The size and contour of all welds shall be measured using suitable gages. Visual inspection for cracks in welds and base metal, and for other discontinuities shall be aided by strong light, magnifiers, or such other devices as may be helpful. Acceptance criteria different from those specified in this code may be used when approved by the Engineer.

In addition to the requirements of AWS D1.5, Clause 5.12 or 5.13, welding procedures qualification for work welded in conformance with that code shall conform to the following requirements:

A. Unless considered prequalified, fillet welds shall be qualified in each position. The fillet weld soundness test shall be conducted using the essential variables of the WPS as established by the Procedure Qualification Record (PQR).
B. For qualification of joints that do not conform to Figures 2.4 and 2.5 of AWS D1.5, a minimum of 2 WPS qualification tests are required. The tests shall be conducted using both Figure 5.1 and Figure 5.3. The test conforming to Figure 5.1 shall be conducted in conformance with AWS D1.5, Clause 5.12 or 5.13. The test conforming to Figure 5.3 shall be conducted using the welding electrical parameters that were established for the test conducted conforming to Figure 5.1. The ranges of welding electrical parameters established during welding per Figure 5.1 in conformance with AWS D1.5, Clause 5.12, shall be further restricted according to the limits in Table 5.3 during welding per Figure 5.3.

C. Multiple zones within a weld joint may be qualified. The travel speed, amperage, and voltage values that are used for tests conducted per AWS D1.5 Clause 5.13 shall be consistent for each pass in a weld joint, and shall in no case vary by more than ±10 percent for travel speed, ±10 percent for amperage, and ±7 percent for voltage as measured from a predetermined target value or average within each weld pass or zone. The travel speed shall in no case vary by more than ±15 percent when using submerged arc welding.
D. For a WPS qualified in conformance with AWS D1.5 Clause 5.13, the values to be used for calculating ranges for current and voltage shall be based on the average of all weld passes made in the test. Heat input shall be calculated using the average of current and voltage of all weld passes made in the test for a WPS qualified in conformance with Clause 5.12 or 5.13.
E. Macroetch tests are required for WPS qualification tests, and acceptance shall be per AWS D1.5 Clause 5.19.3.
F. When a nonstandard weld joint is to be made using a combination of WPSs, a test conforming to Figure 5.3 may be conducted combining the WPSs to be used in production, provided the essential variables, including weld bead placement, of each process are limited to those established in Table 5.3.
G. Prior to preparing mechanical test specimens, the PQR welds shall be inspected by visual and radiographic tests. Backing bar shall be 3 inches in width and shall remain in place during NDT testing. Results of the visual and radiographic tests shall comply with AWS D1.5 Clause 6.26.2, excluding Clause 6.26.2.2. Test plates that do not comply with both tests shall not be used.

PAYMENT

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

1.21 OPERATIONS AND MAINTENANCE OF EQUIPMENT

Construction equipment shall be maintained and tuned at the interval recommended by the manufacturers. No piece of equipment shall be left to idle for more than 5 minutes. On-site vehicle speeds shall be limited to 15-miles per hour.

The Contractor shall strictly comply with the City Code Chapter 66.02 for noise control.

This specification in no way relieves the Contractor from operations and maintenance requirements, noise standards, and responsibilities of State Specifications or Federal, State or Local regulations.

1.22 WORK HOURS

Construction activities shall comply with the City of Sacramento Noise Ordinance, which limits such activity to the hours of 7:00 AM to 6:00 PM Monday through Saturday, the hours of 9:00 AM to 6:00 PM on Sunday. Work on Saturday, Sunday and Holidays requires advance approval form the Engineer. Submit request 10 working days in advance.

1.23 MANUFACTURER'S DIRECTION

Manufactured articles, material, and equipment shall be applied, installed, connected, erected, adjusted, tested, used, cleaned, and conditioned as recommended by the manufacturer. Copies of the manufacturer's installation instructions and procedures shall be submitted to the Engineer ten (10) working days prior to the installation of manufacturer's articles, material, and equipment.

1.24 CLEANING UP

The Contractor shall collect and remove from the project site all wastes and petroleum products used during construction in accordance with the Resource Conservation and Recovery Act regulations and Federal Occupational Safety and Health Administration.

Section 4-2 of the City Standard Specifications is amended to read as follows:

The Contractor shall not allow the site of the work to become littered with trash, debris, garbage or waste material, but shall maintain the site in a neat, orderly and healthful condition until completion and acceptance of the work.

Before final inspection of the work, the Contractor shall clean the work site and all ground occupied by him in connection with the work of all rubbish, excess materials, temporary structures, construction markings (by the Contractor or for his benefit) and equipment. Full compensation for cleaning up is included in the prices paid for the various contract items of work, and no separate or additional payment shall be made for cleaning up.

1.25 TRAFFIC CONTROL PLAN, PUBLIC SAFETY AND CONVENIENCE

The Contractor's attention is directed to Sections 6and 7 of the City Standard Specifications.

The contractor shall adhere to guidelines as stated in Section 12.20.030 of Title 12 of the Sacramento City Code pertaining to Traffic Control Plan – Requirements and shall conform to current edition of the California MUTCD. Particular attention is directed to Chapter 6D – Pedestrian and Worker Safety and Chapter 6F – Temporary Traffic Control Zone Devices, Section 6F.68 – Detectable Edging for Pedestrian.

The Contractor shall not conduct a full bridge closure on Guy West when the Army Corp of Engineer's project does a full H Street Bridge sidewalk closure. The Contractor shall not conduct a full bridge closure during the Eppie's Great Race event.

The Contractor shall take every necessary precaution including protective cover to insure that no material, equipment, tools, and debris fall into the American River.

Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately by the Contractor at his expense.

Construction operations shall be conducted in such a manner as to cause as little inconvenience as possible to abutting property owners. Do not permit construction vehicles to block any roadways or private driveways.

Provide access for emergency vehicles at all times. Equipment and materials must be staged such that personnel and vehicles from the American River Flood Control District and Central Valley Flood Protection Board have unrestricted access and travel along levee roads.

Water or dust palliative shall be applied as required or as directed by the Engineer for the alleviation and prevention of dust nuisance. This requirement shall apply for the full duration of the contract and is not limited to working days.

The Contractor will ensure that utility services to customers in the project area are maintained.

Sufficient traffic control devices, including signs and flaggers, shall be utilized to route traffic and minimize impacts on the general public.

The Contractor shall submit to the Engineer for review and approval a traffic handling/construction staging plans showing proposed traffic control measures including advance warning signs for vehicles, pedestrians, and bicyclists affected by the construction work.

For emergency purposes, the responsible person in charge of the work must be reachable by phone 24 hours a day during the progress of the work. A 24-hour phone number shall be indicated on the permit application.

The Contractor shall be responsible for the safety of pedestrian and bicycle traffic on the approaches to the project.

The Contractor shall maintain access for the various permit issuing agencies throughout the duration of the contract.

The Contractor shall provide for the safety of the public and passengers at all times. Protective measures shall be taken to safeguard unauthorized persons that may enter the construction site, especially during times of open excavations. Contractor shall conform to the safety requirements required by the City of Sacramento to safeguard the general public.

Traffic control plans shall provide for a safe pedestrian and bicycle path of travel throughout construction.

These plans shall be submitted at the preconstruction meeting. The Contractor shall not be allowed to begin work until the plans have been reviewed and approved by the Engineer.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved in maintenance of traffic, public safety and convenience, and preventing material equipment, tools, and debris from falling onto roadways shall be considered as included in the prices paid for various contract items of work and no additional compensation will be allowed therefore.

1.26 COORDINATION

The Contractor shall coordinate activities in a manner that will provide the least interference with the City's operations, other contractors and utility companies working in the area, and agencies exercising jurisdiction over the project area or portions thereof. Coordination shall be included in those items the Contractor deems appropriate and no additional compensation will be allowed therefore. A minimum of five (5) calendar days prior to commencing work, the Contractor shall coordinate the operations with the following City of Sacramento Divisions and Agencies.

Office of Utility Services	(916) 808-5371
Traffic Signal Maintenance Shop	(916) 808-6314
City Street Division	(916) 808-6336
City Public Information Officer	(916) 808-5708
Fire Department Communications Center	(916) 228-3035
Police Department Communications Center	(916) 264-5721
City Traffic Engineering Services	(916) 808-7509

1.27 UTILITIES INFORMATION AND REQUIREMENTS

The location, alignment, and depth of existing underground utilities as shown on the Drawings (if any) are taken from public records and no responsibility is assumed for the accuracy thereof.

The Contractor's attention is directed to the provisions of Chapter 3.1 "PROTECTION OF PUBLIC UTILITIES IN PUBLIC CONTRACTS" of the California Government Code concerning protecting existing overhead and underground utilities. In particular, Section 4216 "Subsurface Installations; Membership of Owners in Regional Notification Center; Notice of Excavation; Inquiry Identification Number; Marking Locations; Application of Section; Violations; Penalties" and Section 4217 "Permit to Excavate; Necessity of Inquiry Identification Number; Operative Date of Section".

The Contractor is responsible for the protection of and for damage to existing overhead and underground utility lines and services encountered during the course of construction. The Contractor shall notify the respective utility owner prior to any interruption of service.

The cost of relocating existing overhead or underground utilities not specified on the Drawings to be relocated, but which the Contractor elects to relocate or cut and reconnect for his/her own convenience, shall be borne by the Contractor.

No compensation will be paid to the Contractor for maintenance and protection of existing utilities and facilities. The cost of such work shall be included in whatever bid item the Contractor deems appropriate.

1.28 SMUD COORDINATION

The Contractor shall contact Charles Saito at 916-732-6743prior to start of his work. Utility Record Maps are included in the Appendix.

Sacramento Municipal Utility District ("SMUD") will relocate their conduit from the underside of the South side to the temporary location on the bridge deck as shown on the plans before May 1, 2014.

The Contractor shall notify the Engineer at least 5 days' notice so arrangements can be made with SMUD to pull and energize the new cable in south conduits. The Contractor shall allow SMUD 3 working days to complete this portion of work.

SMUD's work will restrict when and where the Contractor will be able to work in the project area. The Contractor shall coordinate his/her efforts with SMUD and SMUD's contractor and no additional compensation will be allowed therefore.

It is expected that SMUD will cooperate with the Contractor to the end that the work may be handled in an efficient manner, but the Contractor shall have no claim for damages or extra compensation in the event his work is held up by the work of SMUD forces.

1.29 COOPERATION

It is anticipated that work by another contractor may be in progress adjacent to or within the limits of this project during progress of the work on this contract. The following contracts anticipated to be in progress during this contract.

U.S. Army Corp of Engineers Contract: Project No. 105608-1830.

Contact information regarding this project is:
Josh Werner, City of Sacramento, telephone 916-808-8158
Marcus Boedtker, Corp of Engineers, telephone 916-557-6637

Comply with Section 7-1.14, "Cooperation," of the State Standard Specifications.

1.30 COST BREAK-DOWN FOR LUMP SUM ITEMS

The contractor shall submit a cost break down for each lump-sum item detailing material and labor costs including profit and overhead to substantiate the total lump-sum costs. No progress payments will be made for lump sum items where the contractor has not submitted a cost break-down. The sum of the amounts for the units of work listed in the cost break-down shall be equal to the contact lump sum price bid for the work.

The Contractor shall determine the quantities to complete the work shown on the plans. The quantities and values shall be included in the cost break-down submitted prior to construction. The Contractor shall be responsible for the accuracy of the quantities and values. No adjustment in compensation will be made in the contract lump sum prices paid for the various work items due to any differences between the quantities shown in the cost break-down furnished by the Contractor and the quantities required to complete the work as shown on the plans and as specified in these special provisions. At the Engineer's discretion, the approved cost break-down may be used to determine partial payments during the progress of the work and as the basis of calculating the adjustment in compensation for the items of work due to changes ordered by the Engineer.

When an ordered change increases or decreases the quantities of an approved cost break-down, the adjustment in compensation may be determined, at the Engineer's discretion, in the same manner specified for increases and decreases in the quantity of a contract item of work in accordance with Section 4-1.03B, "Increased or Decreased Quantities", of State Standard Specification. The cost break-down submitted by the responsive qualified low bid Contractor shall be approved by the Engineer before any partial payment for the items of work shall be made based on the cost break-down. The cost break-down shall include, but is not limited to: type of equipment, estimated quantity, and unit price ($/LF or each). Contractor shall submit break-down in a spreadsheet format. Contractor may include overhead and profit in the items or add them in separately.

1.31 DEDUCT ITEMS/ELIMINATION OF WORK

The Owner reserves the right to deduct bid items included in the Sealed Proposal submitted by the Contractor without any compensation allowed therefore.

Additionally, the Owner reserves the right to eliminate work. The quantities of work eliminated shall be determined and agreed between the Contractor and Engineer. The Contractor's unit price bid shall be used in determining the total amount of work eliminated. The Contractor shall not be entitled to any compensation for elimination of the work. The contract days shall not change as a result of any deductions and elimination of work.

1.32 MEASUREMENT AND PAYMENT

Measurement and payment shall be pursuant to Section 8 of the City Standard Specifications, and the method of measurement and payment shall be as indicated in the last paragraph of each bid item described in the "ITEMS OF THE PROPOSAL" section of these special provisions.

1.33 REVIEW OF CLAIM DECISION BY CLAIM REVIEW COMMITTEE

The following new Section 4-12 is added to Section 4 of the Standard Specifications and is incorporated into the Contract, to read as follows:

4-12 Review by claim review committee and issuance and of decisions by department director

This section sets forth procedures for the Contractor to request review of any claim decision issued by the Engineering Division Manager pursuant to Section 4-10 of the Standard Specifications. If the Contractor does not request such review in compliance with the requirements set forth in this Section 4-12, such failure shall constitute acceptance of the Engineering Division Manager's decision by the Contractor, and the Contractor thereafter shall have no right to additional compensation for any of the claim(s) to which the decision applies, beyond any amount(s) determined to be due the Contractor by the Engineering Division Manager's decision. Any decision by the Engineering Division Manager to pay additional compensation to the Contractor, for which the Contractor fails to request review as provided herein, shall be contingent upon approval of a change order authorizing such compensation by the Sacramento City Council, unless City Council approval of the change order is not required under the Sacramento City Code.

Review of the Engineering Division Manager's decision shall be conducted by the City's Claim Review Committee, consisting of the City's Chief Building Official, the Engineering Services Division Manager of the City's Department of Transportation, the Director of the City's Department of General Services, and the Engineering Services Manager for the City's Department of Utilities. In order for the Committee to conduct a review and issue a recommendation as provided in this section, at least two members of the Committee must be present, provided that the Committee member from the Department administering the Contract shall not participate as a Committee member in the Committee's review of or recommendation on the claim.

To obtain review of the Engineering Division Manager's decision, the Contractor shall file a written request for review with the Engineering Division Manager not later than fourteen calendar (14) days after the Contractor receives the Engineering Division Manager's decision. The request shall briefly describe the Engineering Division Manager's determination or determinations for which review is requested and the Contractor's reason(s) for requesting review of the determination(s), and shall provide the Contractor's mailing address.

Not later than ten (10) calendar days after receiving a timely and complete request for review, the Engineering Division Manager shall forward the request, with copies of the Contractor's original claim, the Engineering Division Manager's decision on the claim and any additional related materials to the Claim Review Committee, which shall set the matter for a review hearing at the earliest practical date. Notice of the date, time and location of the review hearing shall be mailed to the Contractor at the address specified in the request for review not less than ten calendar (10) days prior to the date of the review hearing.

The review hearing shall be conducted in an informal manner, and no record shall be made of the proceedings. The scope of the review shall be limited to issues raised in the Contractor's original claim and/or addressed in the Engineering Division Manager's decision on the claim. At the review hearing, representatives of the Department administering the Contract and the Contractor shall be provided a reasonable opportunity to present their positions and any additional evidence within the scope of the review.

As soon as practical after the review hearing, the Claim Review Committee shall issue a written recommendation to the Director of the Department administering the Contract providing the Committee' s recommendation(s) for action on the claim, and the Director shall issue a final decision on the claim not later than ten (10) calendar days thereafter. The Director shall mail a copy of the decision to the Contractor at the address specified in the request for review. In rendering the decision, the Director, in his or her sole discretion, may accept, modify or reject, in whole or in part, the Engineering Division Manager decision and/or the Committee recommendation. Any decision by the Director to pay additional compensation to the Contractor shall be contingent upon approval of a change order authorizing such compensation by the Sacramento City Council, unless City Council approval of the change order is not required under the Sacramento City Code.

All communications, statements, correspondence, information and other evidence presented, whether documentary or oral, at, or in anticipation of, the Claim Review Committee review hearing, as well as the Committee's recommendation to the Director and the fact that it was

given, shall be deemed an attempt to compromise and settle the Contractor's claim under California Evidence Code section 1152, and as such will be inadmissible for any reason in any litigation that may arise pertaining to the claim or the Contract.

As used in this Section 4-12 and in Section 4-10 of the Standard Specifications, the "Engineering Division Manager" shall mean the City employee who supervises the division of the City Department administering the Contract.

1.34 FINAL PAY QUANTITY

Final pay quantity is designated on the sealed bid proposal sheet with "(F)". Final pay quantity shall conform to Section 9-1.01C "Final Pay Items" of the State Standard Specifications, except that the final pay quantity designation shall be made to the sealed bid proposal rather than the Plans.

1.35 PARTIAL PAYMENTS

In determining the partial payments to be made to the Contractor, only the following listed materials will be considered for inclusion in the payment as materials furnished but not incorporated in the work:

A. Joint Seal (Type A)
B. Chain Link Fence

1.36 PERMITS AND EASEMENTS

All of the work to be performed is within City owned property or within the Street right of way, with the exception of temporary construction easements on private property and other agency properties where shown on the plans. In addition, the City has received permission for the Contractor to use the working area in the creek shown on the plans for this project, with time restrictions discussed in "Order of Work" in these special provisions.

Contractor will be required to obtain a County of Sacramento Permit prior to construction.

The Contractor shall comply with the permit conditions, agreements, and permitee's responsibilities for the permit conditions and agreements obtained by the City in conjunction with the proposed work on the levees and within the creek. These permit conditions have been incorporated into Appendix A of these special provisions and generally consist of environmental commitments, permits, agreements, & letters of concurrence and shall include, but not be limited to:

MITIGATION NEGATIVE DECLARATION – MRP CHECKLIST

SACRAMENTO COUNTY PERMIT TO ENTER

STATE LANDS LEASE

SMUD EASEMENT EMAIL

U.S COAST GUARD APPROVAL LETTER

CENTRAL VALLEY FLOOD PROTECTION BOARD LETTER OF AUTHORIZATION

TEMPORARY CONSTRUCTION EASEMENT – 1025 UNIVERSITY AVENUE

CALIFORNIA SACRAMENTO STATE UNIVERSITY TEMPORARY PERMIT

CALIFORNIA DEPARTMENT OF FISH & WILDLIFE – STREAMBED ALTERATION AGREEMENT

ESA's NOTIFICATION LETTER TO CALIFORNIA DEPARTMENT OF FISH & WILDLIFE

STATE WATER RESOURCES CONTROL BOARD – RECEIPT OF NOTICE OF INTENT TO COMPLY WITH THE GENERAL PERMIT FOR STORM WATER DISCHARGES (2-21-14)

AMERICAN RIVER FLOOD CONTROL DISTRICT

U.S FISH AND WILDLIFE VALLEY ELDERBERRY LONGHORN BEETLE CORRESPONDENCE

1.37 ENVIRONMENTAL MITIGATION

This work will consist of completing all of the measures listed in Section 3 of the special provisions to satisfy the City's responsibilities for the mitigation measures in the Guy West Bridge Restoration Project (K1510500)(SCH#2013102201), The Mitigation Reporting Program (MRP) Checklist attached in Appendix A of these special provisions. This work shall also include completing the City's responsibilities for the environmental commitments, permits, agreements, plans, & letters of concurrence attached in Appendix A of these special provisions.

1.38 CONSTRUCTION NOTES

Tree Protection Notes:

During construction the Contractor shall follow the procedures necessary to protect existing trees that are not to be removed as part of this project. Heritage tree removals require a special permit and hearing process. Mitigation for removals includes replanting and need to comply with the mitigation requirements identified in the Environmental Document as well as the conditions of the Agency permit. All work near existing trees shall be coordinated with the Engineer who will consult the City Arborist, Tim Dailey, tdailey@cityofsacramento.org phone number 808-6336.

The Contractor shall comply with direction as given by the City Arborist and the following City requirements regarding tree protection:

a. The Contractor shall hire an International Society of Arboriculture (ISA) – certified arborist to conduct any pruning or root inspections.

b. No storage of materials or parking of vehicles may occur within the drip-lines of the trees.

c. If, during construction, tree roots two inches (2") in diameter or greater are encountered, work shall stop immediately and the City Arborist shall be contacted for a root inspection, and the root shall not be cut without the City Arborists approval. Roots approved by the City Arborist to be pruned during the course of project construction shall be cleanly cut. If extensive root pruning is proposed an arborist inspection will determine if tree removal is necessary.

d. If construction activities will affect any of the limbs of the trees, a certified Arborist (certified by International Society of Arborists, Western Chapter) shall be consulted prior to the cutting or removal of any limb. Limbs approved by the arborist to be pruned during the course of project construction shall be cleanly cut.

e. The Contractor shall be responsible for damages to trees not scheduled for removal. Trees damaged by the Contractor during construction activities shall be assessed by the City Arborist using the International Society of Arborists (ISA) appraisal guide or UFS standard diameter and area indexing. The Contractor's responsibility for damaged trees will be determined by the City Arborist.

Pruning will be allowed by permit, when approved by the City Arborist for equipment clearance. Any and all pruning shall be done under the direction of the City Arborist.

Contractor shall determine if additional trees may need to be removed for the construction of the temporary pedestrian facility and shall consider the cost and schedule associated with the tree removals.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved in this section shall be considered as included in the prices bid for various contract items of work and no additional compensation will be allowed therefor.

Tree Trimming Notes:

Trees identified by the Engineer to be trimmed shall be trimmed in accordance with the following specifications and as directed by the Engineer:

a. General Conditions – This work is to be performed by a Tree Service contractor, licensed and bonded to do business in the City of Sacramento. The work to be done will consist not only of this trimming and removal of branches and limbs but also disposal of material trimmed from these trees. Disposal of material will not be allowed at the City Dump.

The Contractor shall be aware of and shall comply with all ordinances governing and related to tree trimming work. The Contractor shall furnish labor, materials and equipment as required in performing work described herein in strict accordance with these specifications and subject to the terms and conditions of this contract.

a. Description of Work – The work shall be done primarily from truck mounted aerial platforms except where trees are inaccessible to trucks. All hand and power tools in the performance of this work shall be subject to inspection and approval of the Manager of the Urban Forest Services division or his designated representative who shall serve as the inspector for the City.

In general, the standard tree pruning equipment shall be used and shall be maintained in a satisfactory condition at all times. All tools shall be clean, sharp, in proper working order and shall be checked for safety before each job.

a. Inspection/Permit – The Contractor shall notify the Engineer prior to 8:00 a.m. on each day Contractor will be trimming trees.

The Contractor shall notify, three (3) working days prior to tree trimming, the City Arborist, City Arborist, Tim Dailey, tdailey@cityofsacramento.org phone number 808-6336 and obtain, for this project, a permit for tree trimming within the City.

Attention is directed to "Protection of Trees" of these Special Provisions. Attention is directed to Section No. 9, "General Requirements" and Appendix A of these Special Provisions for additional conditions and constraints.

a. Special Conditions – All licenses, insurance, etc., necessary to assume the legal responsibility for said work shall be acquired by the Contractor to cover the liabilities which might by caused by said work.

All workmen shall comply with the State Compensation Safety Rules and must wear safety equipment at all times while on the job. Adequate warning devices, barricades, guards, cones, etc., shall be placed and necessary precautions shall be taken by the Contractor to provide protection for the workers, pedestrians, and vehicular traffic in the area. Work shall be scheduled and conducted in a cooperative manner in order to give the least possible interference with or annoyance to others. It shall be the responsibility of the Contractor to work out any cooperative work schedules as necessary.

All tree work requiring climbing of trees shall be suspended during inclement weather. No trimming or debris shall be left overnight on any of the work sites. Upon completion of a specific area, the site shall be left in a clean and orderly condition. It shall be the responsibility of the Contractor to repair any damages to adjacent property including shrubs, trees of other growth as well as structures along the route.

All root cutting shall be clean cuts, meaning that no tears appear in the roots.

To prevent the spread of Dutch Elm Disease, tree trimming tool shall be sprayed with Lysol before any tree trimming and after each tree has been trimmed.

a. Personnel – All work shall be done by qualified and trained persons. They shall be familiar with tree climbing and trimming work in general and trained to work in trees of any size. A qualified foreman shall be provided to oversee and direct the work of each crew.

b. Correct Cuts – All work shall be done in a professional and workmanlike manner. All cuts shall be made in accordance with the following sections in these Special Provisions, and as directed by the Engineer. Trees shall be trimmed at locations where there are tree

conflicts and as directed by the Engineer or project Arborist in conjunction with the City Arborist.

Tree trimming shall include the removal of any limbs or brush from limbs in order to achieve a clear space of at least six foot (6') radial distance from each luminaire. The results of the tree trimming shall produce an unobstructed cone of light that will illuminate a semicircle on the street at street level. The semicircle shall have a radius of forty feet (40') minimum on the street from the electrolier base. The unobstructed cone of light shall also illuminate an area at sidewalk level on the house side of the electrolier. This illuminated area shall extend fifteen feet (15') minimum from the base of the electrolier.

Twigs, small limbs and sucker growth shall be removed with hand pruners, pole pruners or a fine toothed saw. All portions of a tree removed in the pruning operations, whether small or large in diameter, shall be made just outside the branch bark ridge, parallel to and immediately adjacent to the tree limb from which the part is removed.

Any dead wood and broken limbs encountered in the pruning operations shall be removed. Dead wood shall be defined as any portion of the tree having no living foliage, no live buds or no apparent life in the cambium layer. Final cuts on dead limbs shall not cut into the branch bark ridge or branch collar of the parent limb. Dead limbs larger than three-fourths of one inch (3/4") in diameter shall be removed by sawing. Broken limbs shall be removed except where branches have split and one portion of the branch can be saved by pruning to reduce lateral end weight.

Shrubs shall be pruned as directed by the Engineer and shall conform to current ISA specifications.

Full compensation for conforming to the requirements of this section shall be considered as included in the price paid for "Clearing and Grubbing" as specified elsewhere in these special provisions.

Cultural Resources

1. In the event that any prehistoric subsurface archeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, animal bone, obsidian and/or mortars are discovered during construction-related earth-moving activities, all work within 50 meters of the resources shall be halted, and the City shall consult with a qualified archeologist to assess the significance of the find. Archeological test excavations shall be conducted by a qualified archeologist to aid in determining the nature and integrity of the find. If the find is determined to be significant by the qualified archeologist, representatives of the City and the qualified archeologist shall coordinate to determine the appropriate course of action. All significant cultural materials recovered shall be subject to scientific analysis and professional museum curation. In addition, a report shall be prepared by the qualified archeologist according to current professional standards.

2. If a Native American site is discovered, the evaluation process shall include consultation with the appropriate Native American representatives.

If Native American archeological, ethnographic, or spiritual resources are involved, all identification and treatment shall be conducted by qualified archeologist, who are certified by the

Society of Professional Archeologists (SOPA) and/or meet the federal standards as stated in the Code of Federal Regulations (36 CFR 61), and Native American representatives, who are approved by the local Native American community as scholars of the cultural traditions.

In the event that no such Native American is available, persons who represent tribal governments and/or organizations in the locale in which resources could be affected shall be consulted. If historical archeological sites are involved, all identified treatment is to be carried out by qualified historical archeologists, who shall meet either Register of Professional Archeologists (RPA), or 36 CFR 61 requirements.

3. If human remains are encountered, all work in the area shall stop immediately, and the Sacramento County Coroner's office shall be notified immediately. If the remains are determined to be Native American in origin, both the Native American Heritage Commission and any identified descendants must be notified and recommendations for treatment solicited (CEQA Section 15064.5); Health and Safety Code 7050.5; Public Resources Code Section 5097.94 and 5097.98.

The most likely descendant shall work with the contractor to develop a program for re-internment of the human remains and any associated artifacts. No additional work is to take place within the immediate vicinity of the find until the identified appropriate actions have taken place.

1.39 PROOF OF COMPLIANCE WITH CONTRACT

In order that the Engineer may determine whether the Contractor has complied with the requirements of the contract documents not readily determinable through inspection and tests of plant, equipment, work, or materials, the Contractor shall at any time when requested, at the Contractor's expense, submit to the Engineer properly authenticated documents or other satisfactory proofs as to his compliance with such requirements.

1.40 PRECONSTRUCTION CONFERENCE SUBMITTALS

The following submittals shall be submitted at the preconstruction meeting.

1. Traffic Control Plan
2. Loading submittal
3. SMUD Conduit submittal
4. Painting Quality Work Plan – Shop Painting
5. Painting Quality Work Plan – Field Painting

The Contractor shall not be allowed to begin work until the plans have been reviewed and approved by the Engineer.

* END OF SECTION *

SECTION 2.0 - TECHNICAL SPECIFICATIONS

2.01 ORDER OF WORK

Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the State Standard Specifications and these special provisions.

The first order of work shall be the positive location of all pavement delineation at the TCE parking lot at 1025 University Avenue. The Contractor shall reference the delineation, with a sufficient number of control points to reestablish the alignment and location of the new pavement delineation. The references shall include the limits or changes in striping pattern. Full compensation for referencing existing pavement delineation shall be considered as included in the contract prices paid for new pavement delineation and no additional compensation will be allowed therefor.

Elderberry bushes shall not be removed. Under the direction of a certified arborist and a Contractor supplied biologist, and with the Engineer's approval they may be tied back to create more room. Branches less than 1"-Diameter may be trimmed. Attention is directed to "Construction Notes" for Tree trimming and Protection of Trees requirements.

All work within the channel of the American River, defined as the waterside of the levees and American River, and not within the active channel, shall be conducted in the work period between June 2nd and October 31st. All work within the active channel (flowing stream) for the placement of dewatering structures, removal of the existing bridge, installation of new piles, and temporary stream crossing structures, shall be conducted in the work period between June 1st and October 1st. The active channel is defined as the portion of the river that carries flowing water. Work periods are defined as the time period for completing area specific work contained in the environmental commitments, permits, agreements, & letters of concurrence attached in Appendix A of these special provisions.

Temporary structures and containment systems, including falsework, shall not reduce the bridge vertical clearance by more than 5 feet. Moored or stationary obstructions, including scaffolding, work platforms, barges falsework, etc., between channel piers shall be light at night with steady burning red lights, visible at 2,000 yards from approaching vessels.

If the City allows the Contractor to perform work outside of the allowable work periods for which said work can be performed as prescribed above, the Contractor shall obtain written approval for a work period extension from ALL permit issuing agencies. No compensations or claims will be considered by the City if the request for the extension is not approved. Additionally, no compensations or claims will be considered for delays associated with the review and processing of any request / application for extension.

The Contractor shall pay for any additional environmental mitigation, administrative penalties, monitoring, testing, fees, and other requirements that are not a condition of existing environmental commitments, permits, agreements, and letters of concurrence attached to these special provisions. The Contractor shall be fully responsible for implementing such

requirements at the Contractor's expense as well as any related administrative expenses resulting from the approved extension.

Should the Contractors operations extend to two seasons, no compensation or claims will be considered for the costs associated with winterizing the work area including, but not limited to, the costs of removing equipment and materials from within the creek and levee area and remobilization.

The work shall be performed in conformance with the stages of construction shown on the plans. Nonconflicting work in subsequent stages may proceed concurrently with work in preceding stages, provided satisfactory progress is maintained in the preceding stages of construction.

At locations of handrailing repair, the Contractor shall schedule operations so that at the end of each working day there shall be no gaps in the handrailing.

Work on the east side of the river shall be completed and the site cleared and restored before July 15th to avoid interference with Eppie's Great Race. If this requirement cannot be met the Contractor shall not start work on this side until after Eppie's Great Race. The Contractor may still use the staging area located within the private parking lot at 1025 University before, during, and after Eppie's Great Race, but may not work on top of the levee or on the waterside of the levee. Any activities within this staging area shall not affect Eppie's Great Race.

Pedestrian and bike access through project site shall be maintained at all times. Attention is directed to "Maintaining Public Access" of these special provisions.

Maintain access for emergency vehicles at all times. Equipment and materials must be staged such that personnel and vehicles from the American River Flood Control District and Central Valley Flood Protection Board have unrestricted access and travel along levee roads.

Bridge may be closed to public traffic from Friday 6 pm until Monday 5 am. The Bridge may not be closed to public traffic when public access to the H St. Bridge is closed due to concurrent US Army Corps Levee project. The Bridge may not be closed to public traffic during the Eppie's Great Race event.

The Contractor shall notify the Engineer 10 working days in advance of any intended Bridge closures. Signed detour routes shall be in place prior to closing the bridge.

Attention is directed to the environmental commitments, permits, agreements, & letters of concurrence attached in Appendix A of these special provisions. Each requirement will be met throughout the duration of the contract.

Attention is directed to "Utility Relocations" of these special provisions. Contractor will be required to schedule and accommodate for the relocation of utilities.

The Contractor shall so conduct their operations as to cause the least possible obstruction and inconvenience to the public. The Contractor will be solely responsible for conditions of the project site, including safety of all persons and property during the performance of this work. This requirement will apply continuously and not be limited to normal working hours.

2.02 FURNISH FIELD OFFICE

This item shall be provide all labor, supervision, materials, tools and equipment and trailer(s) necessary to provide a project construction trailer/field offices and their removal at the end of the project. The office configuration and on-site location is to be pre-approved by the Engineer. This space is to provide adequate facilities for the City and Engineer (CM). The facility shall be furnished with doors on each end and windows, capable of being locked and adequately secured.

The Contractor shall provide the office beginning no less than 14 days prior to beginning work at project locations, and shall be maintained continuously to no less than 30 days after final acceptance of the project, unless otherwise directed by the Engineer.

The facility shall have heating and air conditioning, adequate lighting, be continuously connected to a reliable 1 10V power supply and communications land lines (phone/fax and high speed wireless internet). The field office shall be furnished and provided with other reasonably expected hosting facilities and equipment, including but not limited to restroom, drinking water, copier, fax machine, etc. This item also includes all work required to obtain a building permit. The purpose of the field office is to facilitate coordination and communication between the Contractor, City inspection staff, and materials testers. The size, configuration, and proposed location of the field office shall be submitted to and approved by the engineer prior to the placement of the field office/trailer(s) on site.

The facility shall receive twice weekly janitorial services to maintain the area in a clean and pest-free condition. Bottled drinking water, wash up and toilet facilities shall be provided within the facility complete with connections to temporary sewer, paper supplies, electrical, and water systems including all necessary supplies to maintain the facilities. The temporary sanitary facilities provided shall comply with State and local requirements.

The Facility shall be a sufficient is size to accommodate all the following items:

1. four desks and rolling desk chairs with arms;
2. two drafting tables;
3. four 3-foot by 6-foot tables;
4. 10 standard and stackable chairs;
5. three 3' wide x 6' portable bookcases;
6. two 3' wide x 4' portable bookcases;
7. two drafting stools;
8. one plain paper color copy/fax/scan/printer machine capable of making letter size (8-1/2 x 11), legal (8-1/2 x 14), ledger size (11 x 17) copies with sufficient paper and materials for 1500 copies per month ;
9. one full size refrigerator/freezer ;
10. fire extinguishers as required by local codes and
11. provide and maintain a 10 person first aid kit (bandages, gauze, etc.).

The Contractor shall provide, install, and maintain two telephone landlines (this includes one dedicated fax line) and a high speed broadband internet connection (with wireless router) and pay all associated electric, phone and internet costs.

The high speed internet connection shall include a wireless router have a minimum download speed of 10 Megabits per second (Mps) and minimum upload speed of 5 Mps. The contractor shall provide one dual line speaker phone (located in meeting area) and services desks, common spaces and conference room. Phone service shall include messaging services to at least one phone line. The contractor shall provide the necessary 5' high partitions (or suggested alternative) required to provide privacy for the each desk and a 3' x 6' table.

The Contractor shall provide for the City's exclusive possession and use: one new laptop computers and installed with a licensed copy of the Microsoft Office software suite including Word and Excel 2007 or higher and scheduling software detailed in the "PROGRESS SCHEDULE (CRITICAL PATH METHOD)" section of these special provisions. The dry plain paper copy/fax/scan/printer machine shall be a Ricoh Aficio MP3300 or approved equal, networked to all office computers and include color and black ink capabilities. It is the Contractor's responsibility to set up, maintain and repair the computer/internet/phone/fax/printer connections as well as all other office machines and equipment. The Engineer may use the furnished computer hardware and software for any purposes relating to the subject project. Before delivery and setup of the computer, the Contractor shall submit to the Engineer for approval a detailed list of all computer hardware and software the Contractor proposes to furnish. All computer hardware and software furnished shall remain the property of the Contractor and shall be removed by the Contractor upon acceptance of the contract when no claims involving contract progress are pending. After final project acceptance and prior to the return of the computer to the Contractor, the City shall be provided the opportunity to remove all City owned proprietary software, maps, work product, files and other information from the computer that may have been placed in or added to the computer during the course of the project. Failure of the City to completely or partially remove all City owned proprietary software, maps, work product, files and other information from the computer that may have been placed in or added to the computer during the course of the project does NOT constitute a waiver of exclusive City ownership of the items referenced above.

All furnishings shall be of standard quality and in new condition. The facility shall be adequately secured, such as steel bars and blinds on the windows of the trailer to deter/prevent theft of the equipment housed inside. Two 500 watt security lamps (one each side) will be provided at the facility. The field office shall be installed and ready for occupancy within thirty calendar days after the date on the notice to proceed or prior to the start of work, whichever is earlier. For each day thereafter that the field office is not ready for occupancy, the Contractor will be assessed damages in the amount of $200.00 per calendar day. If unforeseen circumstances cause the field office to be relocated during construction the contractor must make other accommodations acceptable by the engineer so there is always a field office on site during construction.

2.03 WATER POLLUTION CONTROL

GENERAL

Summary

This work includes developing and implementing a storm water pollution prevention plan (SWPPP).

This project is risk level 2.

Discharges of stormwater from the project must comply with National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002) referred to herein as "Permit."

Information on forms, reports, and other documents can be found in the following Caltrans manuals:

1. Field Guide for Construction Site Dewatering
2. Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual
3. Construction Site Best Management Practices (BMP) Manual

For the above-referenced manuals, go to the Caltrans Web site for the Division of Construction, Storm Water and Water Pollution Control Information, or the Caltrans Publication Distribution Unit.

Do not start job site activities until:

1. The SWPPP is approved.
2. The waste discharge identification number is issued.
3. SWPPP review requirements have been fulfilled. If the Regional Water Quality Control Board (RWQCB) requires time for review, allow 30 days for the review. For projects in the Lake Tahoe Hydrologic Unit and the Mammoth Lakes Hydrologic Unit, the Lahontan RWQCB will review the SWPPP.

The following RWQCBs will review the approved SWPPP:

1. Central Valley Regional Water Quality Control Board

If you operate a Contractor-support facility, protect stormwater systems and receiving waters from the discharge of potential pollutants by using water pollution control practices.

Contractor-support facilities include:

1. Staging areas
2. Storage yards for equipment and materials
3. Mobile operations
4. Batch plants for PCC and HMA
5. Crushing plants for rock and aggregate
6. Other facilities installed for your convenience, such as haul roads

Discharges from manufacturing facilities, such as batch plants and crushing plants, must comply with the general waste discharge requirements for Order No. 97-03-DWQ, NPDES General Permit No. CAS000001, issued by the State Water Resources Control Board (SWRCB) for "Discharge of Storm Water Associated with Industrial Activities Excluding Construction Activities" and referred to herein as "General Industrial Permit." For the General Industrial Permit, go to the Web site for the SWRCB.

If you operate a batch plant to manufacture PCC, HMA, or other material or a crushing plant to produce rock or aggregate, obtain coverage under the General Industrial Permit. You must be covered under the General Industrial Permit for batch plants and crushing plants located:

1. Outside of the job site
2. Within the job site that serve 1 or more contracts

If you obtain or dispose of material at a noncommercially operated borrow or disposal site, prevent water pollution due to erosion at the site during and after completion of your activities. Upon completion of your work, leave the site in a condition such that water will not collect or stand therein.

The Department does not pay for water pollution control practices at Contractor-support facilities and noncommercially operated borrow or disposal sites.

Definitions

active area: Area where soil-disturbing work activities have occurred at least once within 15 days.

construction phase: Includes (1) highway construction phase for building roads and structures, (2) plant establishment and maintenance phase for placing vegetation for final stabilization, and (3) suspension phase for suspension of work activities or winter shutdown. The construction phase continues from the start of work activities to contract acceptance.

inactive area: Area where soil-disturbing work activities have not occurred within 15 days.

normal working hours: Hours you normally work on the project.

qualifying rain event: Storm that produces at least 0.5 inch of precipitation with a 48-hour or greater period between rain events.

storm event: Storm that produces or is forecasted to produce at least 0.10 inch of precipitation within a 24-hour period.

Submittals

Storm Water Pollution Prevention Plan

General

Within 20 days of contract approval:

1. Submit 3 copies of your SWPPP for review. Allow 20 days for the Department's review. The Engineer provides comments and specifies the date when the review stopped if revisions are required.
2. Resubmit a revised SWPPP within 15 days of receiving the Engineer's comments. The Department's review resumes when a complete SWPPP has been resubmitted.
3. When the Engineer approves the SWPPP, submit an electronic copy and 4 printed copies of the approved SWPPP.
4. If the RWQCB requires review of the approved SWPPP, the Engineer submits the approved SWPPP to the RWQCB for its review and comment.
5. If the Engineer requests changes to the SWPPP based on the RWQCB's comments, amend the SWPPP within 10 days.

A qualified SWPPP developer (QSD) must develop the SWPPP.

The SWPPP must comply with the Caltrans Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Plan (WPCP) Preparation Manual. Include the following in the SWPPP:

1. Description of the work involved in the installation, maintenance, repair, and removal of temporary and permanent water pollution control practices.
2. Maps showing:
   2.1. Locations of disturbed soil areas
   2.2. Water bodies and conveyances

2.3. Locations and types of water pollution control practices that will be used for each Contractor-support facility
2.4. Locations and types of temporary water pollution control practices that will be used in the work for each construction phase
2.5. Locations and types of water pollution control practices that will be installed permanently under the contract
2.6. Pollutant sampling locations
2.7. Locations planned for storage and use of potential nonvisible pollutants
2.8. Receiving water sampling locations

3. Copy of permits obtained by the Department, including Fish & Game permits, US Army Corps of Engineers permits, RWQCB 401 certifications, aerially deposited lead variance from the Department of Toxic Substance Control, aerially deposited lead variance notification, and RWQCB waste discharge requirements for aerially deposited lead reuse.

Include the following items in the SWPPP:

1. For all projects:
   1.1. Schedule
   1.2. Construction site monitoring program (CSMP)
2. For risk level 2 projects add:
   2.1. Adherence to effluent standards for numeric action levels (NALs)
   2.2. Rain event action plan (REAP)
3. For risk level 3 projects add:
   3.1. Adherence to effluent standards for NALs and numeric effluent levels (NELs)
   3.2. REAP

Schedule

The SWPPP schedule must show when:

1. Work activities will be performed that could cause the discharge of pollutants into stormwater
2. Water pollution control practices associated with each construction phase will be implemented
3. Soil stabilization and sediment control practices for disturbed soil areas will be implemented

Construction Site Monitoring Program

A QSD must prepare the CSMP. Change the program to reflect current job site activities as needed. The CSMP must include the following:

1. For all projects:
   1.1. Visual monitoring procedures
   1.2. Sampling and analysis plan (SAP) for nonvisible pollutants
   1.3. SAP for nonstormwater discharges
   1.4. SAP for monitoring required by RWQCB
2. For risk level 2 projects add SAP for pH and turbidity
3. For risk level 3 projects add:
   3.1. SAP for pH and turbidity

3.2. SAP for temporary active treatment systems

Sampling and Analysis Plan

Include a SAP in the CSMP.

Describe the following water quality sampling procedures in the SAP:

1. Sampling equipment
2. Sample preparation
3. Collection
4. Field measurement methods
5. Analytical methods
6. Quality assurance and quality control
7. Sample preservation and labeling
8. Collection documentation
9. Sample shipping
10. Chain of custody
11. Data management and reporting
12. Precautions from the construction site health and safety plan
13. Laboratory selection and certifications

The SAP must identify the State-certified laboratory, sample containers, preservation requirements, holding times, and analytical method. For a list of State-certified laboratories go to the CDPH Web site.

The SAP must include procedures for sample collection during precipitation.

The SAP must list conditions when you will not be required to physically collect samples such as:

1. Dangerous weather
2. Flooding or electrical storms
3. Times outside of normal working hours

Amend the SAP whenever discharges or sampling locations change because of changed work activities or knowledge of site conditions.

For a risk level 2 or risk level 3 project, include procedures in the SAP for collecting and analyzing at least 3 samples for each day of each qualifying rain event. Describe the collection of effluent samples at all locations where the stormwater is discharged off-site.

The SAP for nonvisible pollutants must describe the sampling and analysis strategy for monitoring nonvisible pollutants.

The SAP for nonvisible pollutants must identify potential nonvisible pollutants present at the job site associated with any of the following:

1. Construction materials and wastes
2. Existing contamination due to historical site usage
3. Application of soil amendments, including soil stabilization materials, with the potential to change pH or contribute toxic pollutants to stormwater

The SAP for nonvisible pollutants must include sampling procedures for the following conditions when observed during a stormwater visual inspection. Include a procedure for collecting at least 1 sample for each storm event for:

1. Materials or wastes containing potential nonvisible pollutants not stored under watertight conditions
2. Materials or wastes containing potential nonvisible pollutants stored under watertight conditions at locations where a breach, leak, malfunction, or spill occurred and was not cleaned up before the precipitation
3. Chemical applications occurring within 24 hours before precipitation or during precipitation that could discharge pollutants to surface waters or drainage systems, including fertilizer, pesticide, herbicide, methyl methacrylate concrete sealant, or nonpigmented curing compound
4. Applied soil amendments, including soil stabilization materials that could change pH levels or contribute toxic pollutants to stormwater runoff and discharge pollutants to surface waters or drainage systems, unless independent test data is available to indicate acceptable concentrations of nonvisible pollutants in the material
5. Stormwater runoff from an area contaminated by historical usage of the site that could discharge pollutants to surface waters or drainage systems

The SAP for nonvisible pollutants must provide sampling procedures and a schedule for:
1. Sample collection during the first 2 hours of rain events that generate runoff
2. Sample collection during normal working hours
3. Each nonvisible pollutant source
4. Uncontaminated control sample

The SAP for nonvisible pollutants must identify locations for sampling downstream and control samples and the reasons for selecting those locations. Select locations for control samples where the sample does not come in contact with materials, wastes, or areas associated with potential nonvisible pollutants or disturbed soil areas.

Amendments

Amend and resubmit the SWPPP:
1. Annually before July 15th
2. Whenever:
   2.1. Changes in work activities could affect the discharge of pollutants
   2.2. Water pollution control practices are added by Contract Change Order
   2.3. Water pollution control practices are added at your discretion
   2.4. Changes in the quantity of disturbed soil are substantial
   2.5. Objectives for reducing or eliminating pollutants in stormwater discharges have not been achieved
   2.6. You receive a written notice of a permit violation for the project from the RWQCB or any other regulatory agency

Allow the same review time for amendments to the SWPPP as for the original SWPPP.

Training Records

Submit water pollution control training records for all employees and subcontractors who will be working at the job site. Include the training subjects, training dates, ongoing training, and tailgate meetings with your submittal. Submit records for:
1. Existing employees within 5 business days of obtaining SWPPP approval
2. New employees within 5 business days of receiving the training

3. A subcontractor's employees at least 5 business days before the subcontractor starts work

Contractor-Support Facility

At least 5 business days before operating any Contractor-support facility, submit:

1. A plan showing the location and quantity of water pollution control practices associated with the Contractor-support facility
2. A copy of the notice of intent approved by the RWQCB and the SWPPP approved by the RWQCB if you will be operating a batch plant or a crushing plant under the General Industrial Permit

Annual Certification

Submit an annual certification of compliance as described in the Department's Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Plan (WPCP) Preparation Manual before July 15th of each year.

Site Inspection Reports

The water pollution control (WPC) manager must submit the following within 24 hours of completing a weekly inspection:

1. Completed Stormwater Site Inspection Report form.
2. Best management practices (BMP) status report. The WPC manager must oversee the preparation of the report. The report must include:
   - 2.1. Location and quantity of installed water pollution control practices
   - 2.2. Location and quantity of disturbed soil for active and inactive areas

Visual Monitoring Reports

Submit a visual monitoring report for:

1. Each storm event. Include:
   - 1.1. Date, time, and rain gauge reading
   - 1.2. Visual observations:
     - 1.2.1. Within 2 business days before the storm for:
       - 1.2.1.1. Spills, leaks, and uncontrolled pollutants in drainage areas
       - 1.2.1.2. Proper implementation of water pollution control practices
       - 1.2.1.3. Leaks and adequate freeboard in storage areas
     - 1.2.2. Every 24 hours during the storm for:
       - 1.2.2.1. Effective operation of water pollution control practices
       - 1.2.2.2. Water pollution control practices needing maintenance and repair
     - 1.2.3. Within 2 business days after a qualifying rain event for:
       - 1.2.3.1. Stormwater discharge locations
       - 1.2.3.2. Evaluation of design, implementation, effectiveness, and locations of water pollution control practices including locations where additional water pollution control practices may be needed
2. Nonstormwater discharges during each of the following periods:
   - 2.1. January through March
   - 2.2. April through June
   - 2.3. July through September

2.4. October through December

Use the Stormwater Site Inspection Report form to document visual monitoring. A visual monitoring report must include:

1. Name of personnel performing the inspection, inspection date, and date the inspection report is completed
2. Storm and weather conditions
3. Location of any:
   3.1. Floating and suspended material, sheen on the surface, discoloration, turbidity, odor, and source of observed pollutants for flowing and contained stormwater systems
   3.2. Nonstormwater discharges and their sources
4. Corrective action taken

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

Sampling and Analysis

Whenever sampling is required, submit a printed copy and electronic copy of water quality analysis results, and quality assurance and quality control reports within 48 hours of field sampling, and within 30 days of laboratory analysis. Electronic copies must be in one of the following formats: (1) xls, (2) .txt, (3) .cvs, (4) .dbs, or (5) .mdb. Include an evaluation of whether the downstream samples show levels of the tested parameter that are higher than the control sample. The evaluation must include:

1. Sample identification number
2. Contract number
3. Constituent
4. Reported value
5. Analytical method
6. Method detection limit
7. Reported limit

Numeric Action Level Exceedance Reports

Whenever a NAL is exceeded for a risk level 2 or risk level 3 project, notify the Engineer and submit a NAL exceedance report within 48 hours after conclusion of a storm event. The report must include:

1. Field sampling results and inspections, including:
   1.1. Analytical methods, reporting units, and detection limits
   1.2. Date, location, time of sampling, visual observations, and measurements
   1.3. Quantity of precipitation from the storm event
2. Description of BMP and corrective actions taken to manage NAL exceedance

Numeric Effluent Limit Violation Reports

Whenever a NEL is exceeded for a risk level 3 project, notify the Engineer and submit a NEL violation report within 6 hours. The report must include:

1. Field sampling results and inspections, including:
   1.1. Analytical methods, reporting units, and detection limits

1.2. Date, location, time of sampling, visual observation and measurements
1.3. Quantity of precipitation from the storm event
2. Description of BMP and corrective actions taken to manage NEL exceedance

Rain Event Action Plan

For a risk level 2 or risk level 3 project, submit a REAP whenever the National Weather Service is predicting a storm event with at least 50 percent probability of precipitation within 72 hours.

The WPC manager must submit the REAP at least 48 hours before a forecasted storm event.

The REAP must include:

1. Site location
2. Project risk level
3. Contact information including 24-hour emergency phone numbers for:
   3.1. WPC manager
   3.2. Erosion and sediment control providers or subcontractors
   3.3. Stormwater sampling providers or subcontractors
4. Storm information
5. Description of:
   5.1. Construction phase, including active and inactive areas
   5.2. Active work areas and activities
   5.3. Subcontractors and trades on the job site
   5.4. Prestorm activities including:
      5.4.1. Responsibilities of the WPC manager
      5.4.2. Responsibilities of the crew and crew size
      5.4.3. Stabilization practices for active and inactive disturbed soil areas
      5.4.4. Stockpile management practices
      5.4.5. Corrective actions taken for deficiencies identified during prestorm visual inspections
   5.5. Activities to be performed during storm events, including:
      5.5.1. Responsibilities of the WPC manager
      5.5.2. Responsibilities of the crew and crew size
      5.5.3. BMP for maintenance and repair
6. Flood contingency measures

Storm Water Annual Report

Submit 2 copies of a storm water annual report that covers the preceeding period from July 1st to June 30th. The report must be submitted before July 15th if construction occurs from July 1st to June 30th or within 15 days after contract acceptance if construction ends before June 30th. Allow 10 days for the Engineer's review. The Engineer provides comments and specifies the date when the review stopped if revisions are required.

Obtain approval for the format of the storm water annual report. The report must include:

1. Project information such as description and work locations
2. Stormwater monitoring information, including:
   2.1. Summary and evaluation of sampling and analysis results and laboratory reports
   2.2. Analytical methods, reporting units, and detections limits for analytical parameters
   2.3. Summary of corrective actions taken

2.4. Identification of corrective actions taken and compliance activities not implemented
2.5. Summary of violations
2.6. Names of individuals performing stormwater inspections and sampling
2.7. Logistical information for inspections and sampling, including location, date, time, and precipitation
2.8. Visual observations and sample collection records

3. Documentation of training for individuals responsible for:
3.1. Permit compliance
3.2. BMP installation, inspection, maintenance, and repair
3.3. Preparing, revising, and amending the SWPPP

Submit a revised storm water annual report within 5 business days of receiving the Engineer's comments. The Engineer's review resumes when a complete report has been resubmitted.

When the storm water annual report is approved, submit 1 electronic copy and 2 printed copies of the report signed by the WPC manager.

Information After Storm Event

Within 48 hours after the conclusion of a storm event resulting in a discharge, after a nonstormwater discharge, or after receiving a written notice or an order from the RWQCB or another regulatory agency, the WPC manager must submit the following information:

1. Date, time, location, and nature of the activity and the cause of the notice or order
2. Type and quantity of discharge
3. Water pollution control practices in use before the discharge or before receiving the notice or order
4. Description of water pollution control practices and corrective actions taken to manage the discharge or cause of the notice

Quality Control and Assurance

Training

Employees must receive initial water pollution control training before starting work at the job site.

For your project managers, supervisory personnel, subcontractors, and employees involved in water pollution control work:

1. Provide stormwater training in the following subjects:
1.1. Water pollution control rules and regulations
1.2. Implementation and maintenance for:
1.2.1. Temporary soil stabilization
1.2.2. Temporary sediment control
1.2.3. Tracking control
1.2.4. Wind erosion control
1.2.5. Material pollution prevention and control
1.2.6. Waste management
1.2.7. Nonstormwater management
2. Conduct weekly training meetings covering:

2.1. Deficiencies and corrective actions for water pollution control practices
2.2. Water pollution control practices required for work activities during the week
2.3. Spill prevention and control
2.4. Material delivery, storage, usage, and disposal
2.5. Waste management
2.6. Nonstormwater management procedures

Training for personnel who collect water quality samples must include:
1. CSMP review
2. Health and safety review
3. Sampling simulations

Water Pollution Control Manager

General

The WPC manager must be a QSD. Assign 1 WPC manager to implement the SWPPP. You may assign a QSD other than the WPC manager to develop the SWPPP.

Qualifications

A QSD must:
1. Have completed stormwater management training described in the Department's Web site for the Division of Construction, Storm Water and Water Pollution Control Information
2. Be one or more of the following:
   2.1. California registered civil engineer
   2.2. California registered professional geologist or engineering geologist
   2.3. California licensed landscape architect
   2.4. Professional hydrologist registered through the American Institute of Hydrology
   2.5. Certified Professional in Erosion and Sediment Control (CPESC)™ registered through Enviro Cert International, Inc.
   2.6. Certified Professional in Storm Water Quality (CPSWQ)™ registered through Enviro Cert International, Inc.
   2.7. Professional in erosion and sediment control registered through the National Institute for Certification in Engineering Technologies (NICET)
3. Have completed SWRCB approved QSD training and passed the QSD exam

Responsibilities

The WPC manager must:
1. Be responsible for water pollution control work
2. Be the primary contact for water pollution control work
3. Oversee:
   3.1. Maintenance of water pollution control practices
   3.2. Inspections of water pollution control practices identified in the SWPPP
   3.3. Inspections and reports for visual monitoring
   3.4. Preparation and implementation of REAPs
   3.5. Sampling and analysis
   3.6. Preparation and submittal of:

3.6.1. NAL exceedance reports
3.6.2. NEL violation reports
3.6.3. SWPPP annual certification
3.6.4. Annual reports
3.6.5. BMP status reports

4. Oversee and enforce hazardous waste management practices including spill prevention and control measures
5. Have authority to mobilize crews to make immediate repairs to water pollution control practices
6. Ensure that all employees have current water pollution control training
7. Implement the approved SWPPP
8. Amend the SWPPP if required
9. Be at the job site within 2 hours of being contacted
10. Have the authority to stop construction activities damaging water pollution control practices or causing water pollution

Sampling and Analysis

Assign trained personnel to collect water quality samples. Document the personnel and training in the SAP.

Samples taken by assigned field personnel must comply with the equipment manufacturer's instructions for collection, analytical methods, and equipment calibration.

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

Whenever downstream samples show increased levels of pollutants, assess water pollution control practices, site conditions, and surrounding influences to determine the probable cause for the increase.

For a risk level 2 or risk level 3 project, obtain samples of pH and turbidity by the test methods shown in the following table:

Parameter	Test method	Detection limit (min)	Unit
pH	Field test with calibrated portable instrument	0.2	pH units
Turbidity	Field test with calibrated portable instrument	1	NTU

Whenever the turbidity NEL is exceeded for a risk level 3 project, obtain samples and analyze the suspended sediment concentration by the test method shown in the following table:

Parameter	Test method	Detection limit (min)	Unit
Suspended sediment concentration	ASTM D 3977	5	Mg/L

For a risk level 3 project, obtain samples of pH and turbidity from representative and accessible locations upstream of the discharge point and downstream of the discharge point.

For multiple discharge points, obtain samples from a single upstream and a single downstream location.

Numeric Action Levels

For a risk level 2 or risk level 3 project, NALs must comply with the values shown in the following table:

Numeric Action Levels

Parameter	Test method	Detection limit (min)	Unit	Value
pH	Field test with calibrated portable instrument	0.2	pH	Lower NAL = 6.5 Upper NAL = 8.5
Turbidity	Field test with calibrated portable instrument	1	NTU	250 NTU max

The storm event daily average must not exceed the NAL for pH.
The storm event daily average must not exceed the NAL for turbidity.

Numeric Effluent Limits

For a risk level 3 project, NELs must comply with the values shown in the following table:

Numeric Effluent Limits

Parameter	Test method	Detection limit (min)	Unit	Value
pH	Field test with calibrated portable instrument	0.2	pH	Lower NEL = 6.0 Upper NEL = 9.0
Turbidity	Field test with calibrated portable instrument	1	NTU	500 NTU max

The storm event daily average for storms up to the 5-year, 24-hour storm must not exceed the NEL for turbidity.
The daily average sampling results must not exceed the NEL for pH.

MATERIALS

Not Used

CONSTRUCTION

General

Manage work activities to reduce the discharge of pollutants to surface waters, groundwater, and municipal separate storm sewer systems.
Retain a printed copy of the approved SWPPP at the job site.

Install facilities and devices used for water pollution control practices before performing work activities. Install soil stabilization materials for water pollution control practices in all inactive areas or before storm events.

Repair or replace water pollution control practices within 24 hours of discovering any damage, unless a longer period is authorized.

The Department does not pay for the cleanup, repair, removal, disposal, or replacement of water pollution control practices due to improper installation or your negligence.

You may request changes to the water pollution control work or the Engineer may order changes to water pollution control work. Changes may include additional or new water pollution control practices. Additional water pollution control work is paid for as extra work under Section 4-1.03D, "Extra Work," of the State Standard Specifications.

You may request or the Engineer may order laboratory analysis of stormwater samples. If ordered, laboratory analysis of stormwater samples is paid for as extra work under Section 4-1.03D, "Extra Work," of the State Standard Specifications.

Continue SWPPP implementation during any suspension of work activities.

Monitoring

Monitor the National Weather Service's forecast on a daily basis. For the National Weather Service's forecast, go to the Web site for the National Weather Service.

Obtain, install, and maintain a rain gauge at the job site. Observe and record daily precipitation.

Inspections

Use the Stormwater Site Inspection Report form for documenting site inspections.

The WPC manager must oversee:

1. Inspections of water pollution control practices identified in SWPPP:
   - 1.1. Before a forecasted storm event
   - 1.2. After a qualifying rain event that produces site runoff
   - 1.3. At 24-hour intervals during extended storm events
   - 1.4. On a predetermined schedule of at least once a week
2. Daily inspections of:
   - 2.1. Storage areas for hazardous materials and waste
   - 2.2. Hazardous waste disposal and transporting activities
   - 2.3. Hazardous material delivery and storage activities
3. Inspections of:
   - 3.1. Vehicle and equipment cleaning facilities:
     - 3.1.1. Daily if vehicle and equipment cleaning occurs daily
     - 3.1.2. Weekly if vehicle and equipment cleaning does not occur daily
   - 3.2. Vehicle and equipment maintenance and fueling areas:
     - 3.2.1. Daily if vehicle and equipment maintenance and fueling occurs daily
     - 3.2.2. Weekly if vehicle and equipment maintenance and fueling does not occur daily
   - 3.3. Vehicles and equipment at the job site for leaks and spills on a daily schedule. Verify that operators are inspecting vehicles and equipment each day of use.
   - 3.4. Demolition sites within 50 feet of storm drain systems and receiving waters daily.
   - 3.5. Pile driving areas for leaks and spills:
     - 3.5.1. Daily if pile driving occurs daily

3.5.2. Weekly if pile driving does not occur daily

3.6. Temporary concrete washouts:
- 3.6.1. Daily if concrete work occurs daily
- 3.6.2. Weekly if concrete work does not occur daily

3.7. Paved roads at job site access points for street sweeping:
- 3.7.1. Daily if earthwork and other sediment or debris-generating activities occur daily
- 3.7.2. Weekly if earthwork and other sediment or debris-generating activities do not occur daily
- 3.7.3. Within 24 hours of precipitation forecasted by the National Weather Service

3.8. Dewatering work:
- 3.8.1. Daily if dewatering work occurs daily
- 3.8.2. Weekly if dewatering work does not occur daily

3.9. Temporary active treatment system:

- 3.9.1. Daily if temporary active treatment system activities occur daily
- 3.9.2. Weekly if temporary active treatment system activities do not occur daily

3.10. Work over water:
- 3.10.1. Daily if work over water occurs daily
- 3.10.2. Weekly if work over water does not occur daily

Deficiencies

Whenever you or the Engineer identify a deficiency in the implementation of the approved SWPPP, correct the deficiency:

1. Immediately, unless a later date is authorized
2. Before precipitation occurs

The Department may correct the deficiency and deduct the cost of correcting the deficiency from payment if you fail to correct the deficiency by the agreed date or before the onset of precipitation.

Rain Event Action Plan

For a risk level 2 or risk level 3 project, have the REAP at the job site at least 24 hours before a forecasted storm event. The WPC manager must submit the REAP on the following forms:

1. Rain Event Action Plan Highway Construction Phase
2. Rain Event Action Plan Plant Establishment Phase
3. Rain Event Action Plan For Inactive Project

Retain a printed copy of each REAP at the job site as part of the SWPPP.

Implement the REAP, including mobilizing crews to complete activities, within 24 hours before precipitation occurs.

Sampling and Analysis

Perform sample collection during:

1. Normal working hours

2. Each qualifying rain event
3. First 2 hours of each storm event

Do not physically collect samples during dangerous weather conditions, such as flooding or electrical storms.

Document sample collection during precipitation.

Whenever downstream samples show increased levels of pH, turbidity, and other constituents, assess water pollution control practices, site conditions, and surrounding influences to determine the probable cause for the increase.

Collect samples:

1. During a storm event for:
   1.1. Each nonvisible pollutant source and a corresponding uncontaminated control sample
   1.2. All locations identified on the Storm Event Sampling and Analyses Plan form
2. During a qualifying rain event for:
   2.1. Each nonvisible pollutant source and a corresponding uncontaminated control sample
   2.2. pH, turbidity, and other constituents as required
   2.3. At least 3 samples for each day of a qualifying rain event
   2.4. All locations identified on the Qualifying Rain Event Sampling and Analyses Plan form

Collect receiving-water samples for a risk level 3 project and whenever a direct discharge to receiving waters occurs and NELs are violated.

Retain documentation of water quality sampling and analysis results with the SWPPP at the job site.

The Department does not pay for the preparation, collection, laboratory analysis, and reporting of stormwater samples for nonvisible pollutants if water pollution control practices are not implemented before precipitation or if you fail to correct a water pollution control practice before precipitation.

2.04 CONSTRUCTION SITE MANAGEMENT

GENERAL

Summary

This work includes preventing and controlling spills, dewatering, and managing materials, waste, and nonstormwater.

Implement effective handling, storage, usage, and disposal practices to control material pollution and manage waste and nonstormwater at the job site before they come in contact with storm drain systems and receiving waters.

The following abbreviations are used in this special provision:

DTSC: Department of Toxic Substance Control.
ELAP: Environmental Laboratory Accreditation Program.
WPC: Water Pollution Control.

Submittals

Before you start dewatering, submit a dewatering and discharge work plan under Section 5-1.02, "Plans and Working Drawings," of the State Standard Specifications and "Water Pollution Control" of these special provisions. The dewatering and discharge work plan must include:

1. Title sheet and table of contents
2. Description of dewatering and discharge activities detailing locations, quantity of water, equipment, and discharge point
3. Estimated schedule for dewatering and discharge start and end dates of intermittent and continuous activities
4. Discharge alternatives, such as dust control or percolation
5. Visual monitoring procedures with inspection log
6. Copy of written approval to discharge into a sanitary sewer system at least 5 business days before starting discharge activities

Submit the following:

1. Material Safety Data Sheet at least 5 business days before material is used or stored
2. Monthly inventory records for material used or stored

Submit written approval from the local health agency, city, county, and sewer district before discharging from a sanitary or septic system directly into a sanitary sewer system.

MATERIALS

Not Used

CONSTRUCTION

Spill Prevention and Control

General

Keep material or waste storage areas clean, well-organized, and equipped with enough cleanup supplies for the material being stored.

Implement spill and leak prevention procedures for chemicals and hazardous substances stored on the job site. Whenever you spill or leak chemicals or hazardous substances at the job site, you are responsible for all associated cleanup costs and related liability.

Report minor, semi-significant, and significant or hazardous spills to the WPC manager. The WPC manager must notify the Engineer immediately.

As soon as it is safe, contain and clean up spills of petroleum materials and sanitary and septic waste substances listed under 40 CFR, Parts 110, 117, and 302.

Minor Spills

Minor spills consist of quantities of oil, gasoline, paint, or other materials that are small enough to be controlled by a 1st responder upon discovery of the spill.

Clean up a minor spill using the following procedures:

1. Contain the spread of the spill
2. Recover the spilled material using absorption
3. Clean the contaminated area
4. Dispose of the contaminated material and absorbents promptly and properly under "Waste Management" of these special provisions

Semi-Significant Spills

Semi-significant spills consist of spills that can be controlled by a 1st responder with help from other personnel.

Clean up a semi-significant spill immediately using the following procedures:

1. Contain the spread of the spill.
2. On paved or impervious surfaces, encircle and recover the spilled material with absorbent materials. Do not allow the spill to spread widely.
3. If the spill occurs on soil, contain the spill by constructing an earthen dike and dig up the contaminated soil for disposal.
4. If the spill occurs during precipitation, cover the spill with 10-mil plastic sheeting or other material to prevent contamination of runoff.
5. Dispose of the contaminated material promptly and properly under "Waste Management" of these special provisions.

Significant or Hazardous Spills

Significant or hazardous spills consist of spills that cannot be controlled by job site personnel.

Immediately notify qualified personnel of a significant or hazardous spill. Take the following steps:

1. Do not attempt to clean up the spill until qualified personnel have arrived
2. Notify the Engineer and follow up with a report
3. Obtain the immediate services of a spill contractor or hazardous material team
4. Notify local emergency response teams by dialing 911 and county officials by using the emergency phone numbers retained at the job site
5. Notify the California Emergency Management Agency State Warning Center at (916) 845-8911
6. Notify the National Response Center at (800) 424-8802 regarding spills of Federal reportable quantities under 40 CFR 110, 119, and 302
7. Notify other agencies as appropriate, including:

    7.1. Fire Department
    7.2. Public Works Department
    7.3. Coast Guard
    7.4. Highway Patrol
    7.5. City Police or County Sheriff's Department
    7.6. Department of Toxic Substances
    7.7. California Division of Oil and Gas
    7.8. Cal/OSHA
    7.9. Regional Water Resources Control Board

Prevent a spill from entering stormwater runoff before and during cleanup activities. Do not bury or wash the spill with water.

Material Management

General

Minimize or eliminate discharge of material into the air, storm drain systems, and receiving waters while taking delivery of, using, or storing the following materials:

1. Hazardous chemicals, including acids, lime, glues, adhesives, paints, solvents, and curing compounds
2. Soil stabilizers and binders
3. Fertilizers
4. Detergents
5. Plaster
6. Petroleum materials, including fuel, oil, and grease
7. Asphalt and concrete components
8. Pesticides and herbicides

Employees trained in emergency spill cleanup procedures must be present during the unloading of hazardous materials or chemicals.

Use less hazardous materials if practicable.

The following activities must be performed at least 100 feet from concentrated flows of stormwater, drainage courses, and inlets if within the floodplain and at least 50 feet if outside the floodplain, unless otherwise approved by the Engineer:

1. Stockpiling materials
2. Storing pile-driving equipment and liquid waste containers
3. Washing vehicles and equipment in outside areas
4. Fueling and maintaining vehicles and equipment

Material Storage

If materials are stored:

1. Store liquids, petroleum materials, and substances listed in 40 CFR 110, 117, and 302 and place them in secondary containment facilities as specified by US DOT for storage of hazardous materials.
2. Secondary containment facilities must be impervious to the materials stored there for a minimum contact time of 72 hours.
3. Cover secondary containment facilities during non-working days and whenever precipitation is forecasted. Secondary containment facilities must be adequately ventilated.
4. Keep secondary containment facilities free of accumulated rainwater or spills. After precipitation, or in the event of spills or leaks, collect accumulated liquid and place it into drums within 24 hours. Handle the liquid as hazardous waste under "Waste Management" of these special provisions unless testing confirms that the liquid is nonhazardous.

5. Do not store incompatible materials, such as chlorine and ammonia, in the same secondary containment facility.
6. Store materials in their original containers with the original material labels maintained in legible condition. Immediately replace damaged or illegible labels.
7. Secondary containment facilities must have the capacity to contain precipitation from a 24-hour-long, 25-year storm, plus 10 percent of the aggregate volume of all containers or the entire volume of the largest container within the facility, whichever is greater.
8. Store bagged or boxed material on pallets. Protect bagged or boxed material from wind and rain during non-working days and whenever precipitation is forecasted.
9. Provide sufficient separation between stored containers to allow for spill cleanup or emergency response access. Storage areas must be kept clean, well-organized, and equipped with cleanup supplies appropriate for the materials being stored.
10. Repair or replace perimeter controls, containment structures, covers, and liners as necessary. Inspect storage areas before and after precipitation and at least weekly during other times.

Stockpile Management

Minimize stockpiling of materials at the job site.

Implement water pollution control practices within 72 hours of stockpiling material or before a forecasted storm event, whichever occurs first. If stockpiles are being used, do not allow soil, sediment, or other debris to enter storm drains, open drainages, and watercourses.

Active and inactive soil stockpiles must be:
1. Covered with soil stabilization material or a temporary cover
2. Surrounded with a linear sediment barrier

Stockpiles of asphalt concrete and PCC rubble, HMA, aggregate base, or aggregate subbase must be:
1. Covered with a temporary cover
2. Surrounded with a linear sediment barrier

Stockpiles of pressure-treated wood must be:
1. Placed on pallets
2. Covered with impermeable material

Stockpiles of cold mix asphalt concrete must be:
1. Placed on an impervious surface
2. Covered with an impermeable material
3. Protected from stormwater run-on and runoff

Control wind erosion year round under Section 14-9.02, "Dust Control," of the State Standard Specifications.

Repair or replace linear sediment barriers and covers as needed to keep them functioning properly. Whenever sediment accumulates to 1/3 of the linear sediment barrier height, remove the accumulated sediment.

Waste Management

Solid Waste

Do not allow litter, trash, or debris to accumulate anywhere on the job site, including storm drain grates, trash racks, and ditch lines. Pick up and remove litter, trash, and debris from the job site at least once a week. The WPC manager must monitor solid waste storage and disposal procedures on the job site.

If practicable, recycle nonhazardous job site waste and excess material. If recycling is not practicable, dispose of it under Section 7-1.13, "Disposal of Materials Outside the Highway Right of Way," of the State Standard Specifications.

Furnish enough closed-lid dumpsters of sufficient size to contain the solid waste generated by work activities. When refuse reaches the fill line, empty the dumpsters. Dumpsters must be watertight. Do not wash out dumpsters at the job site. Furnish additional containers and pick up dumpsters more frequently during the demolition phase of construction.

Solid waste includes:

1. Brick
2. Mortar
3. Timber
4. Metal scraps
5. Sawdust
6. Pipe
7. Electrical cuttings
8. Nonhazardous equipment parts
9. Styrofoam and other packaging materials
10. Vegetative material and plant containers from highway planting
11. Litter and smoking material, including litter generated randomly by the public
12. Other trash and debris

Furnish and use trash receptacles in the job site yard, field trailers, and locations where workers gather for lunch and breaks.

Hazardous Waste and Contamination

If hazardous waste is, or will be, generated on the job site, the WPC manager must be thoroughly familiar with proper hazardous waste handling and emergency procedures under 40 CFR § 262.34(d)(5)(iii) and must have successfully completed training under 22 CA Code of Regs § 66265.16.

The WPC manager must:

1. Oversee and enforce hazardous waste management practices
2. Inspect all hazardous waste storage areas daily, including all temporary containment facilities and satellite collection locations

3. Oversee all hazardous waste transportation activities on the job site

Submit a copy of uniform hazardous waste manifest forms to the Engineer within 24 hours of transporting hazardous waste.

Submit receiving landfill documentation of proper disposal to the Engineer within 5 business days of hazardous waste transport from the project.

Unanticipated Discovery of Asbestos and Hazardous Substances

Upon discovery of asbestos or a hazardous substance, comply with Section 14-11.02 "Asbestos and Hazardous Substances," of the State Standard Specifications.

Hazardous Waste Management Practices

Handle, store, and dispose of hazardous waste under 22 CA Code of Regs Div 4.5.

Use the following storage procedures:

1. Store hazardous waste and potentially hazardous waste separately from nonhazardous waste at the job site.
2. For hazardous waste storage, use metal containers approved by the United States Department of Transportation for the transportation and temporary storage of hazardous waste.
3. Store hazardous waste in sealed, covered containers labeled with the contents and accumulation start date under 22 CA Code of Regs, Div 4.5. Labels must comply with the provisions of 22 CA Code of Regs, Div 4.5.§ 66262.31 and § 66262.32. Immediately replace damaged or illegible labels.
4. Handle hazardous waste containers such that no spillage occurs.
5. Store hazardous waste away from storm drains, watercourses, moving vehicles, and equipment.
6. Furnish containers with adequate storage volume at convenient satellite locations for hazardous waste collection. Immediately move these containers to secure temporary containment facilities when no longer needed at the collection location or when full.
7. Store hazardous waste and potentially hazardous waste in secure temporary containment enclosures having secondary containment facilities impervious to the materials stored there for a minimum contact-time of 72 hours. Temporary containment enclosures must be located away from public access. Acceptable secure enclosures include a locked chain link fenced area or a lockable shipping container located within the project limits.
8. Design and construct secondary containment facilities with a capacity to contain precipitation from a 24-hour-long, 25-year storm; and 10 percent of the aggregate volume of all containers, or the entire volume of the largest container within the facility, whichever is greater.
9. Cover secondary containment facilities during non-working days and if a storm event is predicted. Secondary containment facilities must be adequately ventilated.
10. Keep secondary containment facility free of accumulated rainwater or spills. After a storm event, or in the event of spills or leaks, collect accumulated liquid and place into drums within 24 hours. Handle these liquids as hazardous waste unless testing determines them to be nonhazardous.

11. Do not store incompatible wastes, such as chlorine and ammonia, in the same secondary containment facility.
12. Provide sufficient separation between stored containers to allow for spill cleanup or emergency response access. Storage areas must be kept clean, well-organized, and equipped with cleanup supplies appropriate for the wastes being stored.
13. Repair or replace perimeter controls, containment structures, covers, and liners as necessary. Inspect storage areas before and after a storm event, and at least weekly during other times.

Do not:
1. Overfill hazardous waste containers
2. Spill hazardous waste or potentially hazardous waste
3. Mix hazardous wastes
4. Allow hazardous waste or potentially hazardous waste to accumulate on the ground

Dispose of hazardous waste within 90 days of the start of generation. Use a hazardous waste manifest and a transporter registered with the DTSC and in compliance with the CA Highway Patrol Biennial Inspection of Terminals Program to transport hazardous waste to an appropriately permitted hazardous waste management facility.

Dust Control for Hazardous Waste or Contamination

Excavation, transportation, and handling of material containing hazardous waste or contamination must result in no visible dust migration. Have a water truck or tank on the job site at all times while clearing and grubbing and performing earthwork operations in work areas containing hazardous waste or contamination.

Stockpiling of Hazardous Waste or Contamination

Do not stockpile material containing hazardous waste or contamination unless ordered. Stockpiles of material containing hazardous waste or contamination must not be placed where affected by surface run-on or run-off. Cover stockpiles with 13 mils minimum thickness of plastic sheeting or 1 foot of nonhazardous material. Do not place stockpiles in environmentally sensitive areas. Stockpiled material must not enter storm drains, inlets, or waters of the State.

Contractor-Generated Hazardous Waste

You are the generator of hazardous waste generated as a result of materials you bring to the job site. Use hazardous waste management practices if you generate waste on the job site from the following substances:
1. Petroleum materials
2. Asphalt materials
3. Concrete curing compound
4. Pesticides
5. Acids
6. Paints
7. Stains
8. Solvents
9. Wood preservatives

10. Roofing tar
11. Road flares
12. Lime
13. Glues and adhesives
14. Materials classified as hazardous waste under 22 CA Code of Regs, Div 4.5

If hazardous waste constituent concentrations are unknown, use a laboratory certified by the ELAP under the California Department Of Public Health to analyze a minimum of 4 discrete representative samples of the waste to determine whether it is a hazardous waste and to determine safe and lawful methods for storage and disposal. Perform sampling and analysis in compliance with US EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) and under 22 CA Code of Regs, Div 4.5.

Use your US EPA Generator Identification Number and sign hazardous waste manifests for the hazardous waste you generate.

Identify contaminated soil resulting from spills or leaks by noticing discoloration, or differences in soil properties. Immediately notify the Engineer of spills or leaks. Clean up spills and leaks under the Engineer's direction and to the satisfaction of the Engineer. Soil with evidence of contamination must be sampled and analysis performed by a laboratory certified by ELAP.

If sampling and analysis of contaminated soil demonstrates that it is a hazardous waste, handle and dispose of the soil as hazardous waste. You are the generator of hazardous waste created as the result of spills or leaks for which you are responsible.

Prevent the flow of water, including ground water, from mixing with contaminated soil by using one or a combination of the following measures:
1. Berms
2. Cofferdams
3. Grout curtains
4. Freeze walls
5. Concrete seal course

If water mixes with contaminated soil and becomes contaminated, sample and analyze the water using a laboratory certified by the ELAP. If analysis results demonstrate that the water is a hazardous waste, manage and dispose of the water as hazardous waste.

Department-Generated Hazardous Waste

If the Department is the generator of hazardous waste during the work performed on this project, use hazardous waste management practices.

Labels must comply with the provisions of 22 CA Code of Regs § 66262.31 and § 66262.32. Mark labels with:
1. Date the hazardous waste is generated
2. The words "Hazardous Waste"

3. Composition and physical state of the hazardous waste (for example, asphalt grindings with thermoplastic or paint)
4. The word "Toxic"
5. Name, address, and telephone number of the Engineer
6. Contract number
7. Contractor or subcontractor name

Handle the containers such that no spillage occurs.

Hazardous Waste Transport and Disposal

Dispose of hazardous waste within California at a disposal site operating under a permit issued by the DTSC.

The Engineer will obtain the US EPA Generator Identification Number for hazardous waste disposal.

The Engineer will sign all hazardous waste manifests. Notify the Engineer 5 business days before the manifests are to be signed.

The Department will not consider you a generator of the hazardous waste and you will not be obligated for further cleanup, removal, or remedial action for such material if handled or disposed of under these specifications and the appropriate State and federal laws and regulations and county and municipal ordinances and regulations regarding hazardous waste.

Paint Waste

Clean water-based and oil-based paint from brushes or equipment within a contained area in a way that does not contaminate soil, receiving waters, or storm drain systems. Handle and dispose of the following as hazardous waste: paints, thinners, solvents, residues, and sludges that cannot be recycled or reused. When thoroughly dry, dispose of the following as solid waste: dry latex paint, paint cans, used brushes, rags, absorbent materials, and drop cloths.

Concrete Waste

Use practices to prevent the discharge of asphalt concrete, PCC, and HMA waste into storm drain systems and receiving waters.

Collect and dispose of asphalt concrete, PCC, and HMA waste generated at locations where:

1. Concrete material, including grout, is used
2. Concrete dust and debris result from demolition
3. Sawcutting, coring, grinding, grooving, or hydro-concrete demolition creates a residue or slurry
4. Concrete trucks or other concrete-coated equipment is cleaned at the job site

Sanitary and Septic Waste

Do not bury or discharge wastewater from a sanitary or septic system within the highway. A sanitary facility discharging into a sanitary sewer system must be properly connected and free from leaks. Place a portable sanitary facility at least 50 feet away from storm drains, receiving waters, and flow lines.

Comply with local health agency provisions if using an on-site disposal system.

Liquid Waste

Use practices that will prevent job-site liquid waste from entering storm drain systems and receiving waters. Liquid waste includes the following:

1. Drilling slurries or fluids
2. Grease-free and oil-free wastewater and rinse water
3. Dredgings, including liquid waste from cleaning drainage systems
4. Liquid waste running off a surface, including wash or rinse water
5. Other nonstormwater liquids not covered by separate permits

Hold liquid waste in structurally sound, leak-proof containers, such as roll-off bins or portable tanks.

Liquid waste containers must be of sufficient quantity and volume to prevent overflow, spills, and leaks.

Store containers at least 50 feet from moving vehicles and equipment.

Remove and dispose of deposited solids from sediment traps unless the Engineer approves another method.

Liquid waste may require testing to determine hazardous material content before disposal.

Dispose of drilling fluids and residue.

If a location approved by the Engineer is available within the job site, fluids and residue exempt under 23 CA Code of Regs § 2511(g) may be dried by evaporation in a leak-proof container. Dispose of the remaining as solid waste.

Nonstormwater Management

Water Control and Conservation

Manage water used for work activities in a way that will prevent erosion and the discharge of pollutants into storm drain systems and receiving waters. Obtain authorization before washing anything at the job site with water that could discharge into a storm drain system or receiving waters. Report discharges immediately.

Implement water conservation practices if water is used at the job site. Inspect irrigation areas. Adjust watering schedules to prevent erosion, excess watering, or runoff. Shut off the water source to broken lines, sprinklers, or valves and repair breaks within 24 hours. Reuse water from waterline flushing for landscape irrigation if practicable. Sweep and vacuum paved areas. Do not wash paved areas with water.

Direct runoff water, including water from water line repair, from the job site to areas where it can infiltrate into the ground. Do not allow runoff water to enter storm drain systems and receiving waters. Do not allow spilled water to escape filling areas for water trucks. Direct water from off-site sources around the job site if practicable. Minimize the contact of off-site water with job site water.

Illegal Connection and Discharge Detection and Reporting

Before starting work, inspect the job site and the job site's perimeter for evidence of illicit connections, illegal discharges, and dumping. After starting work, inspect the job site and perimeter on a daily schedule for illicit connections and illegal dumping and discharges.

Whenever illegal connections, discharges, or dumping are discovered, notify the Engineer immediately. Do not take further action unless ordered. Assume that unlabeled or unidentifiable material is hazardous.

Look for the following evidence of illicit connections, illegal discharges, and dumping:

1. Debris or trash piles
2. Staining or discoloration on pavement or soils
3. Pungent odors coming from drainage systems
4. Discoloration or oily sheen on water
5. Stains and residue in ditches, channels, or drain boxes
6. Abnormal water flow during dry weather
7. Excessive sediment deposits
8. Nonstandard drainage junction structures
9. Broken concrete or other disturbances at or near junction structures

Vehicle and Equipment Cleaning

Limit vehicle and equipment cleaning or washing at the job site except what is necessary to control vehicle tracking or hazardous waste. Notify the Engineer before cleaning vehicles and equipment at the job site with soap, solvents, or steam. Contain and recycle or dispose of resulting waste under "Waste Management" of these special provisions, whichever is applicable. Do not use diesel to clean vehicles or equipment. Minimize the use of solvents.

Clean or wash vehicles and equipment in a structure equipped with disposal facilities. You may wash vehicles in an outside area if the area is:

1. Paved with asphalt concrete, HMA, or PCC
2. Surrounded by a containment berm
3. Equipped with a sump to collect and dispose of wash water

Use as little water as practicable whenever washing vehicles and equipment with water. Hoses must be equipped with a positive shutoff valve.

Discharge liquid from wash racks to a recycling system or to another system approved by the Engineer. Remove liquids and sediment as necessary.

Vehicle and Equipment Fueling and Maintenance

If practicable, perform maintenance on vehicles and equipment off-site.

If fueling or maintenance must be done at the job site, assign a site or sites, and obtain authorization before using them. Minimize mobile fueling and maintenance activities. Fueling and maintenance activities must be performed on level ground in areas protected from stormwater run-on and runoff.

Use containment berms or dikes around fueling and maintenance areas. Keep adequate quantities of absorbent spill-cleanup material and spill kits in the fueling or maintenance area and on fueling trucks. Dispose of spill-cleanup material and kits immediately after use under "Waste Management" of these special provisions. Use drip pans or absorbent pads during fueling or maintenance.

Do not leave fueling or maintenance areas unattended during fueling and maintenance activities. Fueling nozzles must be equipped with an automatic shutoff control. Nozzles must be equipped with vapor-recovery fueling nozzles where required by the Air Quality Management District. Secure nozzles in an upright position when not in use. Do not top off fuel tanks.

Recycle or properly dispose of used batteries and tires under "Waste Management" of these special provisions.

If leaks cannot be repaired immediately, remove the vehicle or equipment from the job site.

Material and Equipment Used Over Water

Place drip pans and absorbent pads under vehicles and equipment used over water. Keep an adequate supply of spill-cleanup material with vehicles and equipment. Place drip pans or plastic sheeting under vehicles and equipment on docks, barges, or other surfaces over water whenever vehicles or equipment will be idle for more than 1 hour.

Furnish watertight curbs or toe boards on barges, platforms, docks, or other surfaces over water to contain material, debris, and tools. Secure material to prevent spills or discharge into the water due to wind.

Report discharges to receiving waters immediately upon discovery. Submit a discharge notification to the Engineer.

Structure Removal Over or Adjacent to Water

Do not allow demolished material to enter storm drain systems and receiving waters. Use covers and platforms approved by the Engineer to collect debris. Use attachments on equipment to catch debris during small demolition activities. Empty debris-catching devices daily.

Paving, Sealing, Sawcutting, Grooving, and Grinding Activities

Prevent material from entering storm drain systems and receiving waters including:

1. Cementitious material
2. Asphaltic material
3. Aggregate or screenings
4. Sawcutting, grooving, and grinding residue
5. Pavement chunks
6. Shoulder backing
7. Methacrylate
8. Sandblasting residue

Cover drainage inlets and use linear sediment barriers to protect downhill receiving waters until paving, sealing, sawcutting, grooving, and grinding activities are completed and excess material has been removed. Cover drainage inlets and manholes during the application of seal coat, tack coat, slurry seal, or fog seal.

Whenever precipitation is forecasted, limit paving, sawcutting, and grinding to places where runoff can be captured.

Do not start seal coat, tack coat, slurry seal, or fog seal activities whenever precipitation is forecasted during the application and curing period. Do not excavate material from existing roadways during precipitation.

Use a vacuum to remove slurry immediately after slurry is produced. Do not allow the slurry to run onto lanes open to traffic or off the pavement.

Collect the residue from PCC grooving and grinding activities with a vacuum attachment on the grinding machine. Do not leave the residue on the pavement or allow the residue to flow across pavement.

You may stockpile material excavated from existing roadways under "Material Management" of these special provisions if approved by the Engineer.

Do not coat asphalt trucks and equipment with substances that contain soap, foaming agents, or toxic chemicals.

Park paving equipment over drip pans or plastic sheeting with absorbent material to catch drips if the paving equipment is not in use.

Thermoplastic Striping and Pavement Markers

Do not preheat, transfer, or load thermoplastic within 50 feet of drainage inlets and receiving waters.

Do not unload, transfer, or load bituminous material for pavement markers within 50 feet of drainage inlets and receiving waters.

Collect and dispose of bituminous material from the roadway after removing markers under "Waste Management" of these special provisions.

Pile Driving

Keep spill kits and cleanup materials at pile driving locations. Park pile driving equipment over drip pans, absorbent pads, or plastic sheeting with absorbent material. Protect pile driving equipment by parking on plywood and covering with plastic whenever precipitation is forecasted.

Store pile driving equipment on level ground and protect it from stormwater run-on when not in use. Use vegetable oil instead of hydraulic fluid if practicable.

Concrete Curing

Do not overspray chemical curing compounds. Minimize the drift by spraying as close to the concrete as practicable. Do not allow runoff of curing compounds. Cover drainage inlets before applying the curing compound.

Minimize the use and discharge of water by using wet blankets or similar methods to maintain moisture when concrete is curing.

Concrete Finishing

Collect and dispose of water and solid waste from high-pressure water blasting under "Waste Management" of these special provisions. Collect and dispose of sand and solid waste from sandblasting under "Waste Management" of these special provisions. Before sandblasting, cover drainage inlets within 50 feet of sandblasting. Minimize the drift of dust and blast material by keeping the nozzle close to the surface of the concrete. If the character of the blast residue is unknown, test it for hazardous materials and dispose of it properly.

Inspect containment structures for concrete finishing for damage before each day of use and before forecasted precipitation. Remove liquid and solid waste from containment structures after each work shift.

Sweeping

Sweep by hand or mechanical methods, such as vacuuming. Do not use methods that use only mechanical kick brooms.

Sweep paved roads at construction entrance and exit locations and paved areas within the job site:

1. During clearing and grubbing activities
2. During earthwork activities
3. During trenching activities
4. During roadway structural-section activities
5. When vehicles are entering and leaving the job site
6. After soil-disturbing activities
7. After observing off-site tracking of material

Monitor paved areas and roadways within the project. Sweep within:

1. 1 hour whenever sediment or debris is observed during activities that require sweeping
2. 24 hours whenever sediment or debris is observed during activities that do not require sweeping

Remove collected material, including sediment, from paved shoulders, drain inlets, curbs and dikes, and other drainage areas. You may stockpile collected material at the job site under "Material Management" of these special provisions. If stockpiled, dispose of collected material at least once per week under "Waste Management" of these special provisions.

You may dispose of sediment within the job site collected during sweeping activities. Protect the disposal areas against erosion.

Keep dust to a minimum during street sweeping activities. Use water or a vacuum whenever dust generation is excessive or sediment pickup is ineffective.

Remove and dispose of trash collected during sweeping under "Waste Management" of these special provisions.

Dewatering

Dewatering consists of discharging accumulated stormwater, groundwater, or surface water from excavations or temporary containment facilities.

Perform dewatering work as specified for the work items involved, such as temporary active treatment system or dewatering and discharge.

If dewatering and discharging activities are not specified under a work item and you perform dewatering activities:

1. Conduct dewatering activities under the Department's Field Guide for Construction Site Dewatering.
2. Ensure that any dewatering discharge does not cause erosion, scour, or sedimentary deposits that could impact natural bedding materials.
3. Discharge the water within the project limits. If the water cannot be discharged within project limits due to site constraints or contamination, dispose of the water as directed by the Engineer.
4. Do not discharge stormwater or nonstormwater that has an odor, discoloration other than sediment, an oily sheen, or foam on the surface. Notify the Engineer immediately upon discovering any such condition.

2.05 TEMPORARY FIBER ROLL

GENERAL

Summary

This work includes constructing, maintaining, and removing temporary fiber roll.

The SWPPP must describe and include the use of temporary fiber roll as a water pollution control practice for sediment control.

Submittals

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the State Standard Specifications for fiber roll.

MATERIALS

Fiber Roll

Fiber roll must:

1. Last for at least one year after installation
2. Be Type 1 or Type 2

If specified, Type 1 fiber roll must be:

1. Made from an erosion control blanket:

1.1. Classified by the Erosion Control Technology Council (ECTC) as ECTC 2D
1.2. With a Universal Soil Loss Equation (USLE) C-Factor of not more than 0.20 at a 2:1 (horizontal:vertical) slope
1.3. Capable to withstand a maximum shear stress of 1.75 pounds per square foot under ASTM D 6460
1.4. With a minimum tensile strength of 75 pounds per foot under ASTM D 5035
1.5. With top and bottom surfaces covered with extruded photodegradable plastic netting or lightweight non-synthetic netting
1.6. That complies with one of the following:
1.6.1. Double net straw and coconut blanket with 70 percent straw and 30 percent coconut fiber
1.6.2. Double net excelsior blanket with 80 percent of the wood excelsior fibers being 6 inches or longer
2. Rolled along the width
3. Secured with natural fiber twine every 6 feet and 6 inches from each end
4. Finished to be either:
4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 0.5 pounds per linear foot
4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 2 pounds per linear foot

If specified, Type 2 fiber roll must:
1. Be filled with rice or wheat straw, wood excelsior, or coconut fiber
2. Be covered with a photodegradable plastic netting or a biodegradable jute, sisal, or coir fiber netting
3. Have the netting secured tightly at each end
4. Be finished to be either:
4.1. From 8 to 10 inches in diameter, from 10 to 20 feet long, and at least 1.1 pounds per linear foot
4.2. From 10 to 12 inches in diameter, at least 10 feet long, and at least 3 pounds per linear foot

Wood Stakes
Wood stakes must be:
1. Untreated fir, redwood, cedar, or pine and cut from sound timber
2. Straight and free of loose or unsound knots and other defects which would render the stakes unfit for use
3. Pointed on the end to be driven into the ground

For fiber roll, wood stakes must be at least:
1. 1" x 1" x 24" in size for Type 1 installation
2. 1" x 2" x 24" in size for Type 2 installation

Rope

For Type 2 installation, rope must:

1. Be biodegradable, such as sisal or manila
2. Have a minimum diameter of 1/4 inch

CONSTRUCTION

Before placing fiber roll, remove obstructions including rocks, clods, and debris greater than one inch in diameter from the ground.

If fiber roll is to be placed in the same area as erosion control blanket, install the blanket before placing the fiber roll. For other soil stabilization practices such as hydraulic mulch or compost, place the fiber roll and then apply the soil stabilization practice.

Place fiber roll on slopes at the following spacing unless the plans show a different spacing:

1. 10 feet apart for slopes steeper than 2:1 (horizontal:vertical)
2. 15 feet apart for slopes from 2:1 to 4:1 (horizontal:vertical)
3. 20 feet apart for slopes from 4:1 to 10:1 (horizontal:vertical)
4. 50 feet apart for slopes flatter than 10:1 (horizontal:vertical)

Place fiber roll approximately parallel to the slope contour. For any 20 foot section of fiber roll, do not allow the fiber roll to vary more than 5 percent from level.

Type 1 and Type 2 fiber roll may be installed using installation method Type 1, Type 2, or a combination:

For installation method Type 1, install fiber roll by:

1. Placing in a furrow that is from 2 to 4 inches deep
2. Securing with wood stakes every 4 feet along the length of the fiber roll
3. Securing the ends of the fiber roll by placing a stake 6 inches from the end of the roll
4. Driving the stakes into the soil so that the top of the stake is less than 2 inches above the top of the fiber roll

For installation method Type 2, install fiber roll by:

1. Securing with rope and notched wood stakes.
2. Driving stakes into the soil until the notch is even with the top of the fiber roll.
3. Lacing the rope between stakes and over the fiber roll. Knot the rope at each stake.
4. Tightening the fiber roll to the surface of the slope by driving the stakes further into the soil.

MAINTENANCE

Maintain temporary fiber roll to provide sediment holding capacity and to reduce runoff velocities.

Remove sediment deposits, trash, and debris from temporary fiber roll as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and

disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

Maintain temporary fiber roll by:

1. Removing sediment from behind the fiber roll when sediment is 1/3 the height of the fiber roll above ground
2. Repairing or adjusting the fiber roll when rills and other evidence of concentrated runoff occur beneath the fiber roll.
3. Repairing or replacing the fiber roll when they become split, torn, or unraveled
4. Adding stakes when the fiber roll slump or sag
5. Replacing broken or split wood stakes

Repair temporary fiber roll within 24 hours of discovering damage unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace temporary fiber roll, repair temporary fiber roll at your expense.

The Department does not pay maintenance costs.

REMOVAL

When the Engineer determines that temporary fiber roll is not required, they must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary fiber roll must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the State Standard Specifications.

2.06 TEMPORARY SILT FENCE

GENERAL

Summary

This work includes installing, maintaining, and removing temporary silt fence.

The SWPPP must describe and include the use of temporary silt fence as a water pollution control practice for sediment control.

Submittals

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the State Standard Specifications for silt fence fabric.

MATERIALS

Silt Fence Fabric

Geosynthetic fabric for temporary silt fence must consist of one of the following:

1. Polyester

2. Polypropylene
3. Combined polyester and polypropylene

Sample under ASTM D 4354, Procedure C.

Test under ASTM D 4759. All properties must be based on Minimum Average Roll Value (MARV).

Identify, store, and handle under ASTM D 4873.

Protect geosynthetics from moisture, sunlight, and damage during shipping and storage. Label each unit with the manufacturer's name, identifying information, and product identification.

Silt fence fabric must comply with:

Property	ASTM Designation	Specification	
		Woven	Non-woven
Grab breaking load 1-inch grip, lb, min. in each direction	D 4632	120	120
Apparent elongation percent, min., in each direction	D 4632	15	50
Water Flow Rate max. average roll value, gallons per minute/square foot	D 4491	10-50	100-150
Permittivity 1/sec., min.	D 4491	0.05	0.05
Apparent opening size max. average roll value, U.S. Standard sieve size	D 4751	30	30
Ultraviolet Degradation percent of original unexposed grab breaking load 500 hr, minimum	D 4595	70	

Posts

Posts must be wood or metal.

Wood posts must be:
1. Untreated fir, redwood, cedar, or pine and cut from sound timber
2. Straight and free of loose or unsound knots and other defects that would render the stakes unfit for use
3. Pointed on the end to be driven into the ground
4. At least 2" x 2" in size, and 4 feet long

Metal posts must:
1. Be made of steel.
2. Have a "U," "T," "L," or other cross sectional shape that can resist failure from lateral loads.
3. Be pointed on the end to be driven into the ground.
4. Weigh at least 0.75-pound per foot.

5. Be at least 4 feet long.
6. Have a safety cap attached to the exposed end. The safety cap must be orange or red plastic and fit snugly to the metal post.

CONSTRUCTION

Silt fence must be:

1. Constructed with silt fence fabric, posts, and fasteners
2. Prefabricated or assembled at the job site

Silt fence fabric must be attached to posts using these methods:

1. If prefabricated silt fence is used, posts must be inserted into sewn pockets
2. If assembled on the job site:
   2.1. If wood posts are used, fasteners must be staples or nails
   2.2. If steel posts are used, fasteners must be tie wires or locking plastic fasteners
   2.3. Spacing of the fasteners must be no more than 8 inches apart

Place silt fence approximately parallel to the slope contour. For any 50 foot section of silt fence, do not allow the elevation at the base of the fence to vary more than 1/3 of the fence height.

Install silt fence by:

1. Placing the bottom of the fabric in a trench that is 6 inches deep
2. Securing with posts placed on the downhill side of the fabric
3. Backfilling the trench with soil and hand or mechanically tamping to secure the fabric in the trench

If you reinforce the silt fence fabric with wire or plastic mesh, you may increase the post spacing to a maximum of 10 feet. The field-assembled reinforced silt fence must be able to retain saturated sediment without collapsing.

Connect silt fence sections by:

1. Joining separate sections of silt fence to form reaches that are no more than 500 feet long
2. Securing the end posts of each section by wrapping the tops of the posts with at least two wraps of 16-gage diameter tie wire
3. Ensuring that each reach is a continuous run of silt fence from end to end or from an end to an opening, including joined panels

If you mechanically push the silt fence fabric vertically through the soil, you must demonstrate that the silt fence fabric will not be damaged and will not slip out of the soil, resulting in sediment passing under the silt fence fabric.

MAINTENANCE

Maintain temporary silt fence to provide sediment holding capacity and to reduce runoff velocities.

Remove sediment deposits, trash, and debris from temporary silt fence as needed or when directed by the Engineer. If removed sediment is deposited within project limits, it must be stabilized and not subject to erosion by wind or water. Trash and debris must be removed and disposed of as specified in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

Maintain temporary silt fence by:

1. Removing sediment from behind the silt fence when sediment is 1/3 the height of the silt fence above ground
2. Repairing or adjusting the silt fence when rills and other evidence of concentrated runoff occur beneath the silt fence fabric
3. Repairing or replacing the silt fence fabric when it becomes split, torn, or unraveled

Repair temporary silt fence within 24 hours of discovering damage unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace temporary silt fence, repair temporary silt fence at your expense.

The Department does not pay maintenance costs.

REMOVAL

When the Engineer determines that temporary silt fence is not required, remove and dispose of fence under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary silt fence must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the State Standard Specifications.

2.07 TEMPORARY FENCE

Temporary fence and gates shall be furnished, constructed, maintained, and later removed as shown on the plans, as specified in these special provisions and as directed by the Engineer.

Except as otherwise specified in this section, temporary fence shall conform to the plan details and the specifications for permanent fence of similar character as provided in Section 80, "Fences," of the State Standard Specifications.

Except as otherwise specified in this section, temporary gates shall conform to the plan details and the specifications for permanent gates of similar character as provided in Section 80, "Fences," of the State Standard Specifications.

Used materials may be installed provided the used materials are good, sound and are suitable for the purpose intended, as determined by the Engineer.

Materials may be commercial quality provided the dimensions and sizes of the materials are equal to, or greater than, the dimensions and sizes shown on the plans or specified herein.

Posts shall be either metal or wood at the Contractor's option.

Galvanizing and painting of steel items will not be required.

Treating wood with a wood preservative will not be required.

Concrete footings for metal posts will not be required.

Temporary fence and gates that is damaged during the progress of the work shall be repaired or replaced by the Contractor at the Contractor's expense.

When no longer required for the work, as determined by the Engineer, temporary fence and gates shall be removed. Removed facilities shall become the property of the Contractor and shall be removed from the site of the work, except as otherwise provided in this section.

Removed temporary fence and gate materials that are not damaged may be constructed in the permanent work provided the materials conform to the requirements specified for the permanent work and such materials are new when used for the temporary fence.

Holes caused by the removal of temporary fence and gates shall be backfilled in conformance with the provisions in the second paragraph of Section 15-1.02, "Preservation of Property," of the State Standard Specifications.

The various types and kinds of temporary fence will be measured and paid for in the same manner specified for permanent fence of similar character as provided in Section 80, "Fences," of the State Standard Specifications.

2.08 TEMPORARY FENCE (TYPE ESA)

An ESA exists on this project. Before start of work, protect the ESA by installing temporary fence (Type ESA).

This work includes constructing, maintaining, and removing temporary fence (Type ESA). Temporary fence (Type ESA) provides a visible boundary adjacent to protected areas such as an environmentally sensitive area.

Signs are required for temporary fence (Type ESA).

Signs shall state the following: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." This message must be clearly readable from a distance of 20 feet, and must be maintained for the duration of the project.

Submittals

Submit a Certificate of Compliance as specified in Section 6-1.07, "Certificates of Compliance" of the State Standard Specifications for:

1. High visibility fabric
2. Safety cap for metal posts

MATERIALS

High Visibility Fabric

High visibility fabric for temporary fence (Type ESA) must consist of one of the following:

1. Polyethylene
2. Polypropylene
3. Combined polyethylene and polypropylene

Sample high visibility fabric under ASTM D 4354, Procedure C.

Test high visibility fabric under ASTM D 4759. All properties must be based on Minimum Average Roll Value.

Identify, store, and handle high visibility fabric rolls and samples under ASTM D 4873.

High visibility fabric must:

1. Contain ultraviolet inhibitors
2. Comply with the requirements shown in the following table:

Property	Specifications	Requirements
Width, inches, Min	Measured	48
Opening size inches	Measured	1" x 1" (Min) 2" x 4" (Max)
Color	Observed	Orange
Roll weight, lb Min for 4' x 100' roll	Measured	12
Tensile strength, lb Min, machine direction x cross direction	ASTM D 4595	225 x 95
Ultraviolet Degradation Percent of original unexposed grab breaking load 500 hr, minimum	ASTM D 4355	70

Posts

Posts must be wood or steel.

Wood posts must be:

1. Untreated fir, redwood, cedar, or pine and cut from sound timber
2. Straight and free of loose or unsound knots and other defects that would render the stakes unfit for use
3. Pointed on the end to be driven into the ground

4. At least 2" x 2" in size and 6 feet long

Steel posts must:
1. Have a "U," "T," "L," or other cross sectional shape that can resist failure from lateral loads.
2. Be pointed on the end to be driven into the ground.
3. Weigh at least 0.75-pound per foot.
4. Be at least 6 feet long.
5. Have a safety cap attached to the exposed end. The safety cap must be yellow, orange or red plastic and fit snugly to the metal post.

Signs

Signs for temporary fence (Type ESA) must be:
1. Weatherproof and fade-proof and may include plastic laminated printed paper affixed to an inflexible weatherproof backer board
2. Attached to the high visibility fabric with tie wire or locking plastic fasteners

CONSTRUCTION

General

Install temporary fence (Type ESA):
1. With high visibility fabric, posts, and fasteners as follows:
   1.1. If wood posts are used, fasteners must be staples or nails
   1.2. If steel posts are used, fasteners must be tie wires or locking plastic fasteners
   1.3. Spacing of the fasteners must be no more than 8 inches apart
2. Before clearing and grubbing activities
3. From outside of the protected area
4. With posts spaced 8 feet apart and embedded at least 16 inches in the soil

Install signs for temporary fence (Type ESA) as follows:
1. Attach signs with the top of the sign panel flush with the top of the high visibility fabric
2. Place signs 50feet apart along the length and at each end of the fence

If trees and other plants need protection, install fence to:
1. Enclose the foliage canopy (drip line) of protected plants
2. Protect visible roots from encroachment

Maintenance

Maintain temporary fence (Type ESA) by:
1. Keeping posts in a vertical position
2. Reattaching fabric to posts
3. Replacing damaged sections of fabric
4. Replacing and securing signs

Removal

When the Engineer determines that temporary fence (Type ESA) is no longer required, remove and dispose of it under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

Backfill and repair ground disturbance caused by the installation and removal of temporary fence (Type ESA), including holes and depressions, under Section 15-1.02, "Preservation of Property," of the State Standard Specifications.

2.09 TEMPORARY CONSTRUCTION ENTRANCE

GENERAL

Summary

This work includes constructing, maintaining, and removing temporary construction entrance to provide temporary access.

The SWPPP must describe and include the use of temporary construction entrance as a water pollution control practice for tracking control.

Temporary construction entrance must be Type 1, Type 2, or a combination.

Submittals

Submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the State Standard Specifications for:

1. Temporary entrance fabric
2. Rock

Submit details for alternatives at least 5 business days before installation. You may propose alternatives for the following items:

1. Alternative sump
2. Alternative corrugated steel panels

If the Engineer approves, you may eliminate the sump.

MATERIALS

Temporary Entrance Fabric

Temporary entrance fabric must comply with the specifications for rock slope protection fabric (Class 8) in Section 88-1.06, "Channel and Shore Protection," of the State Standard Specifications.

Rock

Rock must be Type A or Type B.

Rock (Type A) must comply with:

1. Requirements under Section 72-2.02, "Materials," of the State Standard Specifications
2. Following sizes:

Square Screen Size (inch)	Percentage Passing	Percentage Retained
6	100	0
3	0	100

Rock (Type B) must be Railway Ballast Number 25. Do not use blast furnace slag. Railway Ballast Number 25 must comply with:

1. Description in AREMA Manual for Railway Engineering.
2. Following sizes:

Nominal Size Square Opening	Percentage Passing								
	3"	2-1/2"	2"	1-1/2"	1"	3/4"	1/2"	3/8"	No. 4
2-1/2"-3/8"	100	80-100	60-85	50-70	25-50	-	5-20	0-10	0-3

3. Following properties:

Specification	Requirements
Percent material passing No. 200 sieve, max. ASTM: C 117	1.0
Bulk specific gravity, min. ASTM: C 127	2.60
Absorption, percent min. ASTM: C 127	1.0
Clay lumps and friable particles, percent max. ASTM: C 142	0.5
Degradation, percent max. ASTM: C 535	30
Soundness (Sodium Sulfate), percent max. ASTM: C 88	5.0
Flat, elongated particles, or both, percent max. ASTM: D 4791	5.0

Corrugated Steel Panels

Corrugated steel panels must:

1. Be made of steel.
2. Be pressed or shop welded
3. Have a slot or hook for connecting panels together

CONSTRUCTION

Prepare location for temporary construction entrance by:

1. Removing vegetation to ground level and clear away debris
2. Grading ground to uniform plane
3. Grading ground surface to drain
4. Removing sharp objects that may damage fabric

5. Compacting the top 1.5 feet of soil to at least 90 percent relative compaction

If temporary entrance (Type 1) is specified, use rock (Type A).

If temporary construction entrance (Type 2) is specified, use Rock (Type B) under corrugated steel panels. Use at least 6 corrugated steel panels for each entrance. Couple panels together.

Install temporary construction entrance by:
1. Positioning fabric along the length of the entrance
2. Overlapping sides and ends of fabric by at least 12 inches
3. Spreading rock over fabric in the direction of traffic
4. Covering fabric with rock within 24 hours
5. Keeping a 6 inch layer of rock over fabric to prevent damage to fabric by spreading equipment

Do not drive on fabric until rock is spread.

Unless the Engineer eliminates the sump, install a sump within 20 feet of each temporary construction entrance.

Repair fabric damaged during rock spreading by placing a new fabric over the damaged area. New fabric must be large enough to cover damaged area and provide at least 18-inch overlap on all edges.

Maintenance

Maintain temporary construction entrance to minimize generation of dust and tracking of soil and sediment onto public roads. If dust or sediment tracking increases, place additional rock unless the Engineer approves another method.

Repair temporary construction entrance if:
1. Fabric is exposed
2. Depressions in the entrance surface develop
3. Rock is displaced

Repair temporary construction entrance within 24 hours of discovering damage unless the Engineer approves a longer period.

During use of temporary construction entrance, do not allow soil, sediment, or other debris tracked onto pavement to enter storm drains, open drainage facilities, or watercourses. When material is tracked onto pavement, remove it within 24 hours unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace the temporary construction entrance, repair it at your expense.

The Department does not pay maintenance costs.

Removal

When the Engineer determines that temporary construction entrance is not required, remove and dispose of it under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

Backfill and repair ground disturbance, including holes and depressions, caused by installation and removal of temporary construction entrance under Section 15-1.02, "Preservation of Property," of the State Standard Specifications.

2.10 TEMPORARY CONSTRUCTION ROADWAY

GENERAL

Summary

This work includes constructing, maintaining, and removing temporary construction roadway to provide temporary access.

The Contractor shall grade the side slope as shown on the plans.

Roadways shall be constructed of the materials shown on the plans. The Contractor may propose use of different materials for approval from the Engineer. There will be no additional payment for use of other proposed materials.

Load Restrictions

Utilities have underground facilities within the project limits. The private property and levees also may not be subjected to excessive overloads. Therefore, construction load limitations apply within all staging, work areas, and temporary construction roadways. The combined effects of construction dead and live loads shall not exceed an equivalent H-20 loading without load mitigation as approved by the engineer. The Contractor shall submit 3 copies of all construction load information, including necessary calculations, for approval by the Engineer prior to placing any construction loads.

If the Contractor proposes to exceed the equivalent H-20 loading limitation, he must utilize mitigation measures, such as steel plating, to reduce loading impacts on underground utilities, levee slopes and payment, and other existing property. Prior to placing mitigation measures, the Contractor must submit 3 copies of a construction loading memorandum, for review and approval by the Engineer, to demonstrate that impacts to utilities will be mitigated below the equivalent H-20 loading limitation. The construction loading memorandum will be stamped by an engineer registered in the State of California and will include all necessary calculations, diagrams, and mitigation plans and supportive information. The Contractor's constructed mitigation measures must conform to the plans and requirements of the construction loading memorandum.

These plans shall be submitted at the preconstruction meeting. The Contractor shall not be allowed to begin work until the plans have been reviewed and approved by the Engineer.

Submittals

Submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the State Standard Specifications for:

1. Temporary roadway fabric
2. Rock

MATERIALS

Temporary Roadway Fabric

Temporary roadway fabric must comply with the specifications for rock slope protection fabric (Class 10) in Section 88-1.06, "Channel and Shore Protection," of the State Standard Specifications.

Temporary Fill

Temporary fill must comply with the specifications for embankment in Section 19, "Earthwork," of the State Standard Specifications.

Rock

Rock must be Class 2 aggregate base and conform to Section 26, "Aggregate Bases" of the State Standard Specifications.

CONSTRUCTION

Prepare location for temporary construction roadway by:

1. Removing vegetation to ground level and clearing away debris
2. Grading the ground to a uniform plane
3. Grading the ground surface to drain
4. Removing sharp objects that could damage the fabric
5. Compacting the top 1.5 feet of soil to at least 90 percent relative compaction

Install temporary construction roadway with rock and fabric by:

1. Positioning fabric along the length of the roadway
2. Overlapping the sides and ends of fabric by at least 12 inches
3. Spreading rock over the fabric in the direction of traffic
4. Covering fabric with rock within 24 hours
5. Keeping a 6 inch layer of rock over the fabric to prevent damage to the fabric by spreading equipment
6. Prohibiting driving on the fabric until the rock is spread

Repair fabric damaged during rock spreading by placing a new piece of fabric over the damaged area. The piece of fabric must be large enough to cover the damaged area and provide a minimum 18-inch overlap on all edges.

Install temporary construction roadway with temporary fill constructing as embankment and in compliance with Section 19-6, "Embankment Construction" of the State Standard Specifications.

Maintenance

Maintain temporary construction roadway to minimize generation of dust and tracking of soil and sediment onto public roads. If dust or sediment tracking increases, place additional rock unless the Engineer approves another method.

Repair temporary construction roadway if:

1. Fabric is exposed
2. Depressions in the roadway surface develop
2. Rock is displaced

Repair temporary construction roadway within 24 hours of discovering damage unless the Engineer approves a longer period.

During use of temporary construction roadway, do not allow soil, sediment, or other debris tracked onto pavement to enter storm drains, open drainage facilities, or watercourses. If material is tracked onto pavement, remove it within 24 hours unless the Engineer approves a longer period.

If your vehicles, equipment, or activities disturb or displace temporary construction roadway, repair temporary construction roadway at your expense.

The Department does not pay maintenance costs for cleanup, repair, removal, disposal, or replacement due to improper installation or your negligence.

Removal

When the Engineer determines that the temporary construction roadway is not required, it must be removed and disposed of under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

Area affected by the construction of the temporary construction roadway shall be restored to its initial condition.

Ground disturbance, including holes and depressions, caused by the installation and removal of the temporary construction roadway must be backfilled and repaired under Section 15-1.02, "Preservation of Property," of the State Standard Specifications.

Full compensation for temporary construction roadways and side slope grading will be considered as included in the prices paid for the various contract items of work and no separate payment will be made therefor.

2.11 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES

Category 1 temporary traffic control devices are defined as small and lightweight (less than 100 pounds) devices. These devices shall be certified as crashworthy by crash testing, crash testing of similar devices, or years of demonstrable safe performance. Category 1 temporary traffic control devices include traffic cones, plastic drums, portable delineators, and channelizers.

The Contractor shall provide written self-certification for crashworthiness of Category 1 temporary traffic control devices to the Engineer at least 5 business days before beginning any work using the devices or within 2 business days after the request if the devices are already in use. Self-certification shall be provided by the manufacturer or Contractor and shall include the following:

A. Date,
B. Federal Aid number (if applicable),
C. Contract number, district, county, route and post mile of project limits,
D. Company name of certifying vendor, street address, city, state and zip code,
E. Printed name, signature and title of certifying person; and
F. Category 1 temporary traffic control devices that will be used on the project.

The Contractor may obtain a standard form for self-certification from the Engineer.

Category 2 temporary traffic control devices are defined as small and lightweight (less than 100 pounds) devices that are not expected to produce significant vehicular velocity change, but may cause potential harm to impacting vehicles. Category 2 temporary traffic control devices include barricades and portable sign supports.

Category 2 temporary traffic control devices shall be on the Federal Highway Administration's (FHWA) list of Acceptable Crashworthy Category 2 Hardware for Work Zones. This list is maintained by FHWA and can be located at:

http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/listing.cfm?code=workzone

The Department also maintains this list at:

http://www.dot.ca.gov/hq/traffops/signtech/signdel/pdf/Category2.pdf

Category 2 temporary traffic control devices that have not received FHWA acceptance shall not be used. Category 2 temporary traffic control devices in use that have received FHWA acceptance shall be labeled with the FHWA acceptance letter number and the name of the manufacturer. The label shall be readable and permanently affixed by the manufacturer. Category 2 temporary traffic control devices without a label shall not be used.

The Contractor shall provide a written list of Category 2 temporary traffic control devices to be used on the project to the Engineer at least 5 business days before beginning any work using the devices or within 2 business days after the request if the devices are already in use.

Category 3 temporary traffic control devices consist of temporary traffic-handling equipment and devices that weigh 100 pounds or more and are expected to produce significant vehicular velocity change to impacting vehicles. Temporary traffic-handling equipment and devices include crash cushions, truck-mounted attenuators, temporary railing, temporary barrier, and end treatments for temporary railing and barrier.

Type III barricades may be used as sign supports if the barricades have been successfully crash tested, meeting the NCHRP Report 350 criteria, as one unit with a construction area sign attached.

Category 3 temporary traffic control devices shall be shown on the Drawings or on the Department's Highway Safety Features list. This list is maintained by the Division of Engineering Services and can be found at:

http://www.dot.ca.gov/hq/esc/approved_products_list/

Category 3 temporary traffic control devices that are not shown on the Drawings or not listed on the Department's Highway Safety Features list shall not be used.

Full compensation for providing self-certification for crashworthiness of Category 1 temporary traffic control devices and for providing a list of Category 2 temporary traffic control devices used on the project shall be considered as included in the prices paid for the various items of work requiring the use of the Category 1 or Category 2 temporary traffic control devices and no additional compensation will be allowed therefore.

2.12 CONSTRUCTION AREA SIGNS

Construction area signs for temporary traffic control shall be furnished, installed, maintained, and removed when no longer required in conformance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the State Standard Specifications and these special provisions.

Attention is directed to "Furnish Sign" of these special provisions.

Attention is directed to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these special provisions. Type II retroreflective sheeting shall not be used on construction area sign panels. Type III, IV, VII, VIII, or IX retroreflective sheeting shall be used for stationary mounted construction area sign panels.

Unless otherwise shown on the plans or specified in these special provisions, the color of construction area warning and guide signs shall have black legend and border on orange background, except W10-1 or W47(CA) (Highway-Rail Grade Crossing Advance Warning) sign shall have black legend and border on yellow background.

Orange background on construction area signs shall be fluorescent orange.

Repair to construction area sign panels will not be allowed, except when approved by the Engineer. At nighttime under vehicular headlight illumination, sign panels that exhibit irregular

luminance, shadowing or dark blotches shall be immediately replaced at the Contractor's expense.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least 2 business days, but not more than 14 days, prior to commencing excavation for construction area sign posts. The regional notification centers include, but are not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert	811

Excavations required to install construction area signs shall be performed by hand methods without the use of power equipment, except that power equipment may be used if it is determined there are no utility facilities in the area of the proposed post holes. The post hole diameter, if backfilled with portland cement concrete, shall be at least 4 inches greater than the longer dimension of the post cross section.

Construction area signs placed within 15 feet from the edge of the travel way shall be mounted on stationary mounted sign supports as specified in "Construction Area Traffic Control Devices" of these special provisions.

The Contractor shall maintain accurate information on construction area signs. Signs that are no longer required shall be immediately covered or removed. Signs that convey inaccurate information shall be immediately replaced or the information shall be corrected. Covers shall be replaced when they no longer cover the signs properly. The Contractor shall immediately restore to the original position and location any sign that is displaced or overturned, from any cause, during the progress of work.

2.13 BARRICADE

Barricades shall be furnished, placed and maintained at the locations shown on the plans, specified in the State Standard Specifications or in these special provisions or where designated by the Engineer. Barricades shall conform to the provisions in Section 12, "Construction Area Traffic Control Devices," of the State Standard Specifications and these special provisions.

Attention is directed to "Materials" of these special provisions regarding retroreflective sheeting for barricades.

Construction area sign and marker panels conforming to the provisions in Section 12-3.06, "Construction Area Signs," of the State Standard Specifications shall be installed on barricades in a manner determined by the Engineer at the locations shown on the plans.

Sign panels for construction area signs and marker panels installed on barricades shall conform to the provisions in Section 12-3.06A, "Stationary Mounted Signs," of the State Standard Specifications.

Full compensation for furnishing, installing, maintaining, and removing construction area signs and marker panels on barricades shall be considered included in the contract lump sum price paid for construction area signs and no separate payment will be made therefor.

2.14 MAINTAINING PUBLIC ACCESS

Maintaining public access shall conform to the provisions in Sections 7-1.08, "Public Convenience," Section 7-1.09, "Public Safety," and Section 12, "Construction Area Traffic Control Devices," of the State Standard Specifications and these special provisions.

Pedestrian and bicycle access facilities shall be provided through construction areas within the right of way as shown on the plans and as specified herein. Pedestrian walk/bike ways shall be surfaced with hot mix asphalt, portland cement concrete or timber. The surface shall be skid resistant and free of irregularities. Chain link fence shall be provided on each side of pedestrian walk/bike ways as necessary to protect the public from hazards due to construction operations or adjacent vehicular traffic. Protective overhead covering shall be provided as necessary to insure protection from falling objects and drip from overhead structures.

At least one walk/bike way shall be available at all times. A minimum of one pathway not less than 8 feet wide shall be open for use by the public at all times, except during full bridge closure.

If the Contractor's operations require the closure of one walk/bike way, then another walk/bike way shall be provided nearby as shown on the plans.

Use signs and flagmen, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflict with construction vehicles or equipment.

Require cyclists to dismount and walk bikes when bike/pedestrian path is narrowed to eight feet.

Do not permit construction vehicles to block and roadways or driveways. Use signs and flagmen, as needed, to alert the public to avoid conflict with construction vehicles or equipment.

Detour pedestrian and bicycle traffic during closures as shown on the Detour plans.

The Contractor shall not conduct a full bridge closure on Guy West when the Army Corp of Engineer's project does a full H Street Bridge sidewalk closure.

Bridge shall be closed for the erection of temporary structures above the bridge deck and all work on main cables.

2.15 EXISTING FACILITIES

The work performed in connection with various existing facilities shall conform to the provisions in Section 13, "Existing Facilities," of the City Standard Specifications and these special provisions.

2.16 REMOVE CHAIN LINK FENCE

Existing chain link fence, including post footings and anchor blocks, where shown on the plans, shall be removed and disposed of.

Post footings which do not conflict with the installation of new fence may remain in place.

Full compensation for backfilling and compacting post holes shall be considered as included in the contract price paid per linear foot for remove chain link fence and no additional payment will be allowed therefor.

2.17 REPAIR SUSPENDER CONNECTION

This work shall consist of removing the existing suspender pin and installing a new pin utilizing an approved jacking system.

Jacking equipment shall be stable during all phases of repairing suspender connections.

The Contractor shall be responsible for the methods and equipment used to release tension from existing suspender connections and support the existing structure for repairing suspender connections. The Contractor shall be responsible for the design of the temporary hanger systems including any required temporary lateral bracing system.

Jacking assemblies and temporary suspender load transfer systems sincluding temporary lateral bracing shall be designed and constructed in conformance with the requirements of Section 51-1.06, "Falsework," of the State Standard Specifications and these special provisions and shall accommodate the loads shown on the plans and any additional loads due to the Contractor's operations. The grade of the superstructure shall be restored to its original elevation. Tension forces in all suspender cables shall be restored to their original loading upon completion or suspender connection repairs.

At least 30 working days before starting the work the Contractor shall submit to the Engineer complete details and working drawings of the methods and equipment he proposes to use for repairing of the suspender connections including construction, installation, and removal methods and sequences to obtain full suspender loads in accordance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the State Standard Specifications. Approval by the Engineer of the temporary support working drawings prior to start of jacking operations or temporary support inspection performed by the Engineer will in no way relieve the Contractor of full responsibility for the temporary supports.

The maximum loading and deflections used on jacks, brackets, columns and other manufactured devices shall not exceed the manufacturer's recommendations. The Contractor shall furnish engineering data from the manufacturer verifying the manufacturer's recommendations or shall perform tests as necessary to demonstrate the adequacy of any such device proposed for use. Adequate means shall be employed to prevent unplanned lateral and longitudinal movement of the superstructure. The falsework, jacks, temporary suspenders and the superstructure shall be stable, under all loadings including traffic, during all phases of the operation. The temporary suspender and jacking system shall not damage existing components of the bridge including bridge cables and truss members.

Manufactured assemblies shall conform to the provisions in Section 51-1.06A(2) of the State Standard Specifications and these special provisions.

Each jack shall be equipped with either a pressure gage or load cell for determining the jacking force. Pressure gages shall have an accurately reading dial at least 3 inches in diameter. Each jack shall be calibrated by a private laboratory approved by the Transportation Laboratory within 6 months prior to use and after each repair, unless otherwise directed. Each jack and its gage shall be calibrated as a unit with the cylinder extension in the approximate position that it will be at final jacking force and shall be accompanied by a certified calibration chart. Load cells shall be calibrated and provided with an indicator by which the jacking force is determined.

Prior to proceeding with suspender repair, an engineer for the Contractor who is registered as a Civil Engineer in the State of California shall inspect the temporary support system, including jacking and displacement monitoring systems, for conformity to the working drawings. The Contractor's registered engineer shall certify in writing that the temporary supports, including jacking and displacement monitoring systems, substantially conform to the working drawings and that the material and workmanship are satisfactory for the purpose intended. A copy of this certification shall be available at the work site at all times.

Prior to proceeding with suspender repair, a meeting between the Contractor, the Engineer, the City, and other agencies as required, shall be held to discuss the suspender repair work.

The Contractor's registered engineer shall be present at the bridge site at all times when jacking operations or adjustments are in progress and when suspender repair operations are in progress. The Contractor's registered engineer shall inspect the jacking, removal, and installation operations and shall report in writing on a daily basis of the progress of the operations and the status of the remaining structure. A copy of the daily report shall be available at the work site at all times. Should an unplanned event occur, the Contractor's registered engineer shall submit immediately to the Engineer for approval, the procedure or proposed operation to correct or remedy the occurrence.

Displacement monitoring equipment shall be provided and maintained at locations as determined by the Engineer. Vertical and horizontal displacements of the existing structure shall be monitored continuously during jacking operations.

The Bridge socket pin must be removed and replaced within one (1) hour or the existing pin shall be reinstalled until such time a satisfactory shoring system has been installed.

Additions or modifications to the structure, in connection with jacking, and jacking assemblies shall be subject to approval of the Engineer.

Jacking operations shall be carried out in a uniform manner so that no distortion that would cause excessive stress or damage will be jacked into the superstructure. Jacking shall be limited to the minimum necessary to repair the suspenders, in no case more than ¼" higher than the final grade.

Damage to the structure as a result of the Contractor's operations shall be repaired or replaced in accordance with the requirements for new work of similar character by the Contractor at his expense.

When repair operations have been completed, all temporary suspender systems, falsework, supports, cribbing, blocking and jacking assemblies shall be removed. All removed materials shall become property of the Contractor and disposed of in conformance with the requirements in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

2.18 RELOCATE CABLE CLAMP

This work shall consist of loosening the existing backstay cable clamp, relocating to the location shown on the plans, and then tightening the cable clamp in its new position.

2.19 WRAP MAIN CABLE

This work shall consist of removing the existing neoprene and steel banding, re-twisting loose wires back into their original position, cutting excess loose wires, and installing new neoprene and steel banding. Neoprene and steel banding shall be equal in quality to the existing when it was new.

2.20 REMOVE UNSOUND CONCRETE

This work shall consist of the removal and disposal of unsound portland cement concrete, unsound epoxy concrete patches, and all asphalt concrete patches from the decks, of the bridge. Unsound concrete shall be removed as shown on the plans and to the limits designated by the Engineer.

Unsound concrete is generally that concrete that emits a relatively dead or hollow sound when a chain is dragged over its surface or its surface is tapped with a metal tool. Concrete encasing corroded reinforcing steel beyond the limits identified by the sound may be considered unsound concrete. The Engineer will determine the concrete soundness.

Equipment and tools shall not be used to remove unsound concrete that, in the opinion of the Engineer, cause the removal of excess quantities of sound concrete along with the unsound concrete. Equipment shall be fitted with suitable traps, filters, drip pans, or other devices to prevent oil or other deleterious matter from being deposited on the deck.

After the removal of unsound concrete has been completed, any existing reinforcing steel that has been exposed shall be restored to position and blocked and tied in conformance with the provisions in Section 52, "Reinforcement," of the State Standard Specifications.

Reinforcing steel that has been damaged and rendered useless by the Contractor's operations shall be repaired or replaced by the Contractor at the Contractor's expense.

Removing unsound concrete will be paid for at the contract price per cubic foot for remove unsound concrete.

When the voids created by the removal of unsound concrete are filled with rapid setting concrete patches, the pay quantities for remove unsound concrete, in cubic feet, shall be the same as the pay quantities in cubic feet determined for rapid setting concrete (patch) as specified in "Rapid Setting Concrete Patches" of these special provisions. No deduction in pay quantities for remove unsound concrete will be made for concrete used to fill spalls that existed prior to the start of the work.

Pay quantities determined by the methods of measurement specified in this section will not necessarily be equal to the quantities computed from the actual dimensions of the concrete actually removed. No allowance will be made in the event that the pay quantities do not equal the volume of concrete actually removed.

2.21 REPAIR HANDRAILING

This work shall consist of tightening loose handrail hardware, repairing broken grout pads, and removing and replacing corroded anchorage hardware and damaged reinforcement in areas of concrete removal and replacement.

Handrailing and hardware shall match the existing as closely as possible. All hardware shall conform to Section 75 of the State Standard Specifications and will be hot dip galvanized. Alternatively, hardware can be a 300 series stainless steel conforming to ASTM F593 or ASTM F594.

Concrete removal and replacement will be paid for separately.

2.22 BRIDGE REMOVAL (PORTION)

Removing portions of bridges shall conform to the provisions in Section 15-4, "Bridge Removal," of the State Standard Specifications and these special provisions.

Bridge Removal (Portion) will include the concrete removal of the existing approach slab portions as required for the handrail repair and as shown on these contract plans.

Removed materials that are not to be salvaged or used in the reconstruction shall become the property of the Contractor and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

2.23 EXISTING PAINT SYSTEMS

GENERAL

The existing paint systems on the Guy West Pedestrian Bridge contain lead, cadmium, and chromium. The presence of hexavalent chromium in the existing coating system has not been evaluated. Assume the presence of these metals, and take the necessary precautions to comply with "Lead Removal, Handling and Monitoring" and "Surface Preparation and Painting of Steel and Galvanized Steel" of these special provisions and State and Federal regulations dealing with protection of worker health and safety and waste disposal.

Any work that disturbs the existing paint system will expose workers to health hazards associated with these metals and will (1) produce debris containing heavy metal in amounts that exceed the thresholds established in Titles 8 and 22 of the California Code of Regulations or (2) produce toxic fumes when heated. All debris produced when the existing paint system is disturbed shall be contained. The latest edition of the following standards and regulations in effect at the time of bid, form a part of this specification.

Pre-Start Up Documentation – Prior to commencing any activities that disturb the coatings, verify that the following items are on site and available for review by the City:

1. Documentation of initial biological monitoring for all personnel who may be exposed to lead.
2. Documentation of training for lead and other toxic metals in accordance with 29 CFR 1926.62 or applicable regulation.
3. Documentation of respirator fit testing for personnel using respiratory protection.
4. Documentation of medical clearance for respirator use for personnel using respiratory protection.
5. Copy of the accepted Lead (Toxic Metal) Health and Safety Compliance Program, Environmental Compliance Plan, and Waste Management Plan.
6. Copy of the accepted Containment Plan and Drawings.
7. Operational hand wash and decontamination facility.

REFERENCES

A. Code of Federal Regulations (CFR)

1. 29 CFR 1910, Occupational Safety and Health Regulations for General Industry
2. 29 CFR 1926, Occupational Safety and Health Regulations for Construction
3. 29 CFR 1926.20, General Safety and Health Provisions
4. 29 CFR 1926.21, Safety Training and Education
5. 29 CFR 1926.51, Sanitation
6. 29 CFR 1926.55, Gases, Vapors, Fumes, Dusts, and Mists
7. 29 CFR 1926.57, Ventilation
8. 29 CFR 1926.62, Lead
9. 29 CFR 1926.103, Respiratory Protection
10. 29 CFR 1926 – Subpart L, Scaffolding
11. 29 CFR 1926 – Subpart M, Fall Protection
12. 29 CFR 1926.1126, Hexavalent Chromium
13. 29 CFR 1926.1127, Cadmium
14. 40 CFR 60, Appendix A, Method 22, Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Fires
15. 40 CFR 261, Appendix II, Toxicity Characteristic Leaching Procedure
16. 40 CFR 262, Standards Applicable to Generators of Hazardous Waste
17. 40 CFR 263, Standards Applicable to Transporters of Hazardous Waste
18. 40 CFR 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
19. 40 CFR 265, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
20. 40 CFR 265, Sub C, Preparedness and Prevention
21. 40 CFR 265, Sub D, Contingency Plan and Emergency Procedures

22. 40 CFR 265.16, Personnel Training
23. 40 CFR 268, Land Disposal Restrictions
24. 40 CFR 302, Designation, Reportable Quantities and Notification
25. 40 CFR 355, Emergency Planning and Notification
26. 49 CFR 171-179, Hazardous Materials Transportation Act

B. EPA Methods

1. SW 846, Test Methods for Evaluating Solid Waste - Physical/Chemical Methods
2. Method 1311, Toxicity Characteristic Leaching Procedure (TCLP)
3. Method 3050, Acid Digestion of Sediment, Sludge, and Soils

C. NIOSH

1. Method 7082, Lead
2. Method 7300, Cadmium
3. Method 7300, Chromium
4. Method 7600, Hexavalent Chromium

D. Society of Protective Coatings (SSPC)

1. Guide 6, Guide for Containing Debris Generated During Paint Removal Operations
2. Guide 7, Guide for the Disposal of Lead Contaminated Surface Preparation Debris
3. Guide 16, Guide to Specifying and Selecting Dust Collectors
4. SSPC 93-02, Industrial Lead Paint Removal Handbook, 2nd Edition, Volume I
5. SSPC 95-06, Project Design, Industrial Lead Paint Removal Handbook, Volume II
6. SSPC TU-7, Conducting Ambient Air, Soil, and Water Sampling During Surface Preparation and Paint Disturbance Activities

E. American Industrial Hygiene Associations (AIHA)

1. AIHA accreditation for metals analysis
2. Environmental Lead Laboratory Accreditation Program (ELLAP)
3. EPA National Lead Laboratory Accreditation Program (NLLAP)

F. California Code of Regulations

1. 8 CCR Div. 1, Ch. 4, Subchapter 4, Construction Safety Orders
2. 8 CCR 1509, Injury and Illness Prevention Program
3. 8 CCR 1519, Sanitation
4. 8 CCR 1527, Washing Facilities, Food Handling, and Temporary Sleeping Quarters
5. 8 CCR 1528, Dusts, Fumes Mists, Vapors, and Gases
6. 8 CCR 1531, Respiratory Protection
7. 8 CCR 1532, Cadmium
8. 8 CCR 1532.1, Lead
9. 8 CCR 1532.2, Hexavalent Chromium
10. 8 CCR 1516, Eye and Face Protection
11. 8 CCR 1521, Ear Protection
12. 17 CCR, Division 1, Chapter 8, Containment of Lead Paint Debris
13. 22 CCR Div. 4.5, Environmental Health Standards for the Management of Hazardous Waste
14. Health and Safety Code, Div. 20, Ch. 6.5, Hazardous Waste Control Law

QUALIFICATIONS AND EXPERIENCE

Contractor - Meet all requirements as defined in "Surface Preparation and Painting of Steel and Galvanized Steel" of these special provisions.

Laboratory - Verify that the analytical laboratory used for ambient air, worker exposure, regulated area, pedestrian bridge, TCLP, and waste water sample analysis is American Industrial Hygiene Association (AIHA) accredited for metals analysis, and has successfully participated (previous 12 months at a minimum) in the Environmental Lead Laboratory Accreditation Program (ELLAP) and EPA National Lead Laboratory Accreditation Program (NLLAP).

Confirm that the laboratory conducting the worker blood analysis is approved by OSHA and acceptable to the City.

Competent Person - Provide the name, experience, training certificates, and qualifications of the proposed Supervisor/Competent Person. The Supervisor/Competent Person should meet the following criteria, at a minimum:

1. Have a minimum of two years of field experience on industrial painting projects, with a minimum of ninety days field supervisory or management experience in lead paint removal projects;
2. Have completed training and understands the duties of a supervisor/competent person as described in the 29 CFR 1926.62.
3. Have received a certificate of completion as a Supervisor/Competent Person through courses such as the C-3 Competent Person/Supervisor course offered by SSPC, or comparable course acceptable to the Engineer.

If the Supervisor/Competent Person is not a full-time employee of the contractor (i.e., Supervisor/Competent Person is a third party consultant), provide a statement that the Supervisor/Competent Person will have the authority to direct corrective actions of the Contractor's employees.

Certified Industrial Hygienist - Confirm that the Certified Industrial Hygienist (CIH) holds a valid certification by the American Board of Industrial Hygiene (ABIH).

Containment Design Engineer – Must be a Professional Engineer who is licensed in the state of California to provide the structural impact analysis, containment system design, shop drawings, and calculations for the loads and stresses imposed upon the structure due to the containment system and wind loads.

The Professional Engineer(s) must have not less than two years of structural engineering experience in the design of containment systems.

SUBMITTALS REQUIRED WITH THE BIDS

Each Contractor and subcontractor (shop and field) submitting a proposal shall provide current copies of Contractor QP-1, QP-2 and QP-3 (or AISI SPE) certifications with their bids.

PRECONSTRUCTION SUBMITTALS

Within 20 working days after notice to proceed, the Contractor shall submit the following to the Engineer for review and acceptance. Detailed requirements for each of the submittals and additional required submittals are provided throughout this specification.

A. Qualifications, Experience, and Certifications – Provide written qualification, experience, and certification information for the following:

1. Laboratory Qualifications, Experience, and Certifications

a) Provide the name, address, telephone number, and contact person of the laboratory that will be used for the blood analysis. Confirm that the laboratory conducting the worker blood analysis is approved by OSHA.

b) Provide the name, address, telephone number, and contact person of the laboratory(s) that will be used for the analysis of ambient air, worker exposure, regulated area, pedestrian bridge, TCLP, and wastewater samples.

c) Provide evidence that the analytical laboratory proposed for worker exposure, regulated area, pedestrian bridge, TCLP, and waste water sample analysis is American Industrial Hygiene Association (AIHA) accredited for metals analysis, and has successfully participated (previous 12 months at a minimum) in the ELLAP program and under the EPA National Lead Laboratory Accreditation Program (NLLAP).

2. Competent Person – Provide the name, experience, training, and qualifications of the proposed Competent Person(s) for the project. The listing of multiple Competent Persons is strongly encouraged. Include certificates of training for each person named.

3. Transporter/Disposer Qualifications, Experience, and Permits

a) Provide the names, addresses, qualifications, permit numbers, and contact person for the proposed transporter(s) of hazardous waste, non-hazardous waste, and wastewater. Provide evidence that the proposed transporter of hazardous waste is currently registered with the California Department of Toxic Substances Control.

b) Provide the name, address, telephone number and contact person for each waste disposal facility proposed for use in the Contract, including but not limited to: hazardous, non-hazardous, and wastewater. Provide evidence that each disposal facility has current registrations and permits for the operation of such facilities, or written approval from the state (and by the US EPA or other local agency, if applicable) in which it operates.

c) If the Contractor proposes to discharge wastewater directly into the sewer system after filtering, provide a permit or written documentation from the authority that provides approval of such activities prior to any discharges.

4. Advise each legally permitted recycling or waste disposal facility that the paint debris and waste will contain toxic metals, and identify the toxic metals that the waste will likely contain.

b) Based on the above information, provide a letter from the proposed hazardous waste recycling or disposal facility, stating that the facility can accept this type of waste, is authorized to accept the waste under the laws of the State of residence, has the required capability to treat and dispose of the materials, and will provide or assure the ultimate disposal method indicated on the Uniform Hazardous Waste Manifest.

c) If more than one hazardous waste recycling or disposal facility will be utilized, provide a letter from each facility.

d) Provide a letter from the proposed wastewater disposal facility, indicating that the facility has the capability to handle and properly dispose of the water.

e) Provide the City with the original letters signed by a legally authorized representative of each facility.

B. Lead (Toxic Metal) Health and Safety Compliance Program – Submit the following information addressing worker health and safety from exposure to lead and other toxic metals:

1. Provide a written, project-specific Compliance Program prepared and signed by a Certified Industrial Hygienist in accordance with 29 CFR 1926.62 and 8 CCR 1532.1. Identify the methods of compliance that will be used to reduce worker exposures to toxic metals. As part of

the compliance plan, provide a site plot plan identifying all staging areas, location of hand wash and decontamination facilities, eating areas, regulated areas, and material and waste storage areas.

2. Include the name of the Competent Person(s) who will be making inspections of project activities to ensure compliance with the program.
3. Include the name of the CIH and documentation of his/her qualifications and experience, including documentation of his/her current board certification by the American Board of Industrial Hygienists.
4. Outside Laundry – Provide the name, address, and qualifications of the launderer, if one will be used, for the cleaning of reusable clothing. Provide a letter from the laundry indicating that it is permitted to handle clothing contaminated with lead and/or the other toxic metals of concern.
5. Personal Protective Equipment for City Use – Acknowledge that all protective clothing and equipment, laundering or disposal, fit testing as needed, and hygiene facilities will be provided for up to two City Representatives per shift, if requested.
6. Identify the types of respiratory protection and protective clothing that will be used, if the use of respiratory protection and protective clothing is required (based upon the results of the exposure assessment). Identify the respiratory protection and protective clothing to be provided for each job classification, and the schedule of cleaning and replacement.
7. Regulated Area Air Monitoring – Identify the air monitoring procedures which will be used to establish the regulated areas, and include the methods that will be used for monitoring and designating the regulated areas. Confirm that regulated area air monitoring will be performed initially during lead disturbing operations.

C. Environmental Compliance Plan – Submit an Environmental Compliance Plan that establishes programs for the monitoring activities that will be undertaken under the Contract:

1. Assessments of Visible Emissions and Releases – A written program for the observation of visible emissions during the performance of the Work, and inspections for releases or spills of dust and debris that become deposited on surrounding equipment, property, and soil. Include the frequency and methods of observation and inspection that will be made, areas or work activities that will be observed, and the frequency and nature of clean up that will be undertaken. Include the name(s) of the personnel who will be conducting the observations and inspections. Include a copy of the form that will be utilized to document observations.
2. Regulated Area and Pedestrian Bridge Air Monitoring - Provide written procedures in accordance with the requirements of Part 3 of this Specification for regulated area air monitoring of airborne exposures surrounding project activities, and the establishment of visible barriers (regulated areas) to control the access of personnel within the regulated area. The plan shall also include the proposed air sampling strategy, including monitoring locations, for the pedestrian bridge.
3. High Volume Ambient Air Monitoring – the plan shall include the following:
   a) Proposed monitor locations and power sources. A site sketch shall be included, indicating sensitive receptors, monitor locations, and distances and directions from work area.
   b) Equipment specification sheet for monitors to be used, and a written commitment to calibrate and maintain the monitors throughout the duration of the project.
   c) Include a procedure for operation of monitors per 40 CFR 50, Appendix B, including use of field data chain-of-custody form. Include a sample chain of custody form.
   d) The name, contact information (person's name and phone number), and certification of the laboratory performing the filter analysis. Laboratory shall be accredited by one of the following: 1) the American Industrial Hygiene Association (AIHA) for lead

(metals) analysis, 2) Environmental Lead Laboratory Accreditation Program (ELLAP) for metals analysis, 3) State or federal accreditation program for ambient air analysis or, 4) the EPA National Lead Laboratory Accreditation Program (NLLAP) for lead analysis. The laboratory shall provide evidence of certification, a sample laboratory chain-of-custody form, and sample laboratory report that provides the information required by this specification. The laboratory shall also provide a letter committing to do the analysis per 40 CFR 50, Appendix G.

1. Compliance with Monitoring – Include a statement that the Contractor will comply with all monitoring performed by the City.
2. Final Cleaning/Clearance Evaluations – A written description of the procedures and methods that will be used to conduct final clean up and final visual cleanliness inspections and evaluations.

D. Waste Management Plan – Provide a written program that addresses the proper handling and disposal of all waste. Include the procedures and equipment that will be used for:

1. The collection of abrasive, paint, waste water, and other debris, and its transportation to the storage area identified by the City;
2. The collection of representative samples of the waste for testing;
3. The testing and analysis procedures that will be used and means used to classify solvent and paint wastes;
4. The site handling, storage, packaging, and labeling of the waste; and
5. Contingency plans in the event of a release or spill, including required notifications, and methods that will be used for cleanup.

MEASUREMENT AND PAYMENT

Full compensation for furnishing the Engineer with the submittals and for providing the required professionals shall be considered as included in the contract price paid for the item of work causing the existing paint system to be disturbed, and no additional compensation will be allowed therefore.

DEBRIS CONTAINMENT AND COLLECTION PROGRAM

General

Prior to starting work, the Contractor shall submit a debris containment and collection program to the Engineer in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the State Standard Specifications, "Temporary Structures" of these special provisions and these special provisions for debris produced when the existing paint system is disturbed. The program shall identify materials, equipment, and methods to be used when the existing paint system is disturbed and shall include working drawings of containment systems, loads applied to the bridge by containment structures, and provisions for ventilation and air movement for visibility and worker safety. This may include, but is not limited to, the following: ground covers, rigging, scaffolding, planking, containment materials, dust collection and recycling equipment, and High Efficiency Particulate Air (HEPA) vacuums. Supply a skimming brush consisting of a float with a shirt for work over the water.

If the measures being taken by the Contractor are inadequate to provide for the containment and collection of debris produced when the existing paint system is disturbed, the Engineer will direct the Contractor to revise the operations and the debris containment and collection program. The directions will be in writing and will specify the items of work for which the Contractor's debris containment and collection program is inadequate. No further work shall be performed on

the items until the debris containment and collection program is adequate and, if required, a revised program has been approved for the containment and collection of debris produced when the existing paint system is disturbed.

The Engineer will notify the Contractor of the approval or rejection of the submitted or revised debris containment and collection program within 15 working days of submittal of the Contractor's program or revised program. The County's acceptance of this or any other Contractor submittal does not imply acceptance of any particular method or sequence for conducting the Work, or for addressing health and safety issues in the performance of the Work. Acceptance of the programs by the County does not relieve the Contractor from the responsibility to conduct the Work in strict accordance with the requirements of this Section, applicable laws, codes, rules and regulations, or to adequately protect the health and safety of all workers involved in the Project, the public, and the environment. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

The State will not be liable to the Contractor for failure to approve all or any portion of an originally submitted or revised debris containment and collection program, nor for delays to the work due to the Contractor's failure to submit an acceptable program.

MEASUREMENT AND PAYMENT

Full compensation for the debris containment and collection program shall be considered as included in the contract price paid for the item of work causing the existing paint system to be disturbed, and no additional compensation will be allowed therefor.

SAFETY AND HEALTH PROVISIONS

General

Attention is directed to Section 7-1.06, "Safety and Health Provisions," of the State Standard Specifications. Work practices and worker health and safety shall conform to the following requirements based on 8 CCR 1532.1 and 29 CFR 1926.62, but the Contractor must protect the employees from exposure to any of the other toxic metals which may be present in the paint and/or abrasive, as applicable, in addition to lead.

Develop a written site-specific Compliance Program, under the direction of and signed by a CIH, to establish and implement practices and procedures for protecting the health of those employees exposed to lead and other toxic metals contained in the paint. This program is in addition to other CalOSHA hazard communication and safety and health requirements of the project. Maintain the program at the site for review.

Revise and update the program annually during the portion(s) of the project which involve the disturbance of toxic metals.

Verify that the Compliance Program addresses practices and procedures to protect employees during all paint removal, waste handling, and clean-up operations.

Establish methods for complying with this specification and any OSHA standards published for the toxic metals present in the paint. When toxic metals are present in the paint for which OSHA has not developed a comprehensive health and safety standard, include statements that the workers will not be exposed above the PEL established for the metal as identified in 29 CFR 1926.55 and 8 CCR 1528.

Identify the methods of compliance that will be used to reduce worker exposures to toxic metals. Rely on respiratory protection only after feasible engineering and work practice controls have been first implemented to reduce airborne exposures.

Confirm that a competent person will make daily inspections of the work area. Maintain copies of each inspection on-site for review by the City. The compliance programs shall be reviewed and signed by a Certified Industrial Hygienist (CIH) who is certified in comprehensive practice by the American Board of Industrial Hygiene (ABIH). Copies of the qualifications and certifications for the CIH shall be submitted to the Engineer.

Supply the instrumentation and power needed for the monitoring of ambient, worker and area air exposures. Use equipment that is free of loose dust and debris when brought onto the site and upon removal from the site.

The Contractor shall provide all personal protective equipment (PPE) and protective clothing needed for contractor workers and for up to two City representatives at each shift, including proper cleaning and disposal. Also provide respirator cartridges able to provide protection from toxic metals and solvent exposures. Repair or replace PPE as required to assure that it continues to provide its intended purpose. Use PPE and hygiene facilities that are free of loose dust and debris when brought onto the site, and that are clean upon removal.

Exposure Monitoring/Initial Assessment

Collect representative personal air samples at the beginning of each type of paint removal work to determine employee exposures to lead and other toxic metals that might be present in the coating. Tasks resulting in the potential exposure to toxic metals include, but are not limited to, abrasive blast cleaning, containment movement, vacuum-shrouded power tool cleaning, cleanup, and debris handling operations. Collect full shift (at least 7 hours) air samples for workers in each job classification in each exposure area, including City representatives.

Since lead is present, protect workers during the initial monitoring to the anticipated exposure levels as dictated by 29 CFR 1926.62 and as specified below. Use the same level of protection when other toxic metals are found in the coating, unless OSHA or CalOSHA has developed a comprehensive health and safety standard for that metal (e.g., cadmium and inorganic arsenic). In those cases, implement the protection requirements of the standard for that metal.

a. Assume an exposure of at least 50 $\mu g/m^3$: Manual demolition of structures containing lead-containing coatings or paint (e.g., dry wall), manual scraping, manual sanding, heat gun applications, power tool cleaning with dust collection systems, and spray painting with lead paint. Although not included in 29 CFR 1926.62, operation of abrasive grit recovery equipment is included in this category.
b. Assume an exposure of at least 500 $\mu g/m^3$: Using lead-containing mortar, lead burning, or conducting the following activities where lead-containing coatings or paint are present: rivet busting, power tool cleaning without dust collection systems, cleanup activities where dry expendable abrasives are used, and the movement and removal of abrasive blasting enclosures.
c. Assume an exposure of more than 2,500 $\mu g/m^3$: Abrasive blasting, welding, cutting, and torch burning of lead containing coatings or paint on structures.
d. During any of the above activities, provide appropriate respiratory protection, personal protective clothing and equipment, change areas and washing facilities, blood lead and zinc protoporphyrin monitoring, and employee training. Maintain the protection as

specified above until the test results are received, then modify the protection measures as necessary.

Collect and analyze all air samples according to the appropriate NIOSH method, or equivalent, for the metal of concern. Only use laboratories which have been accepted by the City.

Conduct periodic exposure monitoring of Contractor workers and City representatives, and provide written employee notifications within five days of receipt of results in strict accordance with the applicable OSHA standard for the metal of concern (e.g., 29 CFR 1926.62 for lead). At a minimum, this requires monitoring at the start of the work involving renovation, addition, repair, or paint removal. If there is no OSHA standard for the detected metal, conduct the monitoring and employee notification based on the requirements of OSHA 29 CFR 1926.62.

Provide the City with the results of all initial and subsequent monitoring within the same 5-day notification period required for the employee, and no later than 10 days after sampling.

If the results of the monitoring indicate that exposures to toxic metals are below the OSHA Action Levels, specialized protective measures other than providing hand washing facilities are not required. Additional monitoring is not necessary unless the conditions and operations that took place during the initial monitoring are no longer representative of the paint disturbance activities being performed.

If the results of the monitoring indicate that exposures to toxic metals are above the OSHA Action Level, but below the OSHA Permissible Exposure Limit, comply with the following paragraphs of 29 CFR 1926.62: Exposure Assessment, Housekeeping, Employee Medical Surveillance and Medical Removal Protection, Employee Information and Training, and Recordkeeping.

If the results of the monitoring indicate that exposures to toxic metals are above the OSHA Permissible Exposure Limits, comply with the following paragraphs of 29 CFR 1926.62 in addition to those presented in the preceding paragraph when the Action Level is exceeded: Respiratory Protection, Protective Work Clothing and Equipment, and Hygiene Facilities and Practices.

Respiratory Protection

After feasible engineering controls and work practices have been implemented, use respiratory protection if necessary to maintain employee exposures to lead and other toxic metals below the PEL. Require the use of respirators for all employees, inspectors, observers, or other personnel who enter areas where airborne exposures exceed or are expected to exceed the PEL, or when entering regulated areas.

Provide respiratory protection for up to two City representatives per each shift, including fit tests. The Contractor is responsible for verifying that the representatives are medically fit to wear respirators.

Develop a written Respiratory Protection Program in compliance with 29 CFR 1926.103 and 8 CCR 1531, including commitments to provide the necessary medical examinations. Since lead is present, include the provisions of 29 CFR 1926.62. Address the selection, use, maintenance and inspection of respirators, and qualifications for respirator users.

Provide appropriate respirator cartridges for lead removal and paint application where air purifying respiratory protection is determined to be appropriate.

Treat used respirator cartridges as hazardous waste and dispose of in accordance with the waste management requirements of this Section.

Protective Clothing and Equipment

Provide protective clothing and equipment and ensure they are worn by all employees whose exposures exceed the PEL. Provide all required protective clothing and equipment for use by up to two City representatives each shift.

Identify in the Compliance Program the type of protective clothing to be provided for each job classification and the schedule of cleaning and replacement.

Do not allow workers to wear street clothing beneath protective clothing in any areas where exposures to toxic metals exceed the PEL.

Store the used clothing in sealed containers.

If the clothing is to be laundered and it has been exposed to lead, label the containers with the following: "CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS." If the clothing has been exposed to cadmium, chromium, or other metals, modify the above text accordingly.

If the clothing is disposable, label the containers as clothing contaminated with lead and other toxic metals, if applicable. Apply hazardous waste labels as appropriate after testing.

If the clothing is washed on site, provide containers for the collection and retention of the water after filtration. Provide ample filtration (e.g. through a multi-stage filtration system ending in 5 microns or better if needed) until the water can be disposed of as non-hazardous. Conduct all required tests of the water, and comply with the waste management requirements of this Section for disposal.

Housekeeping

Clean accumulations of dust or debris containing lead or other toxic metals daily, at a minimum. Clean more frequently if visible accumulations are observed that could be carried outside of the regulated area by wind, workers shoes, rainwater, or other means.

Conduct all cleaning with HEPA vacuums. Do not use compressed air for housekeeping purposes unless it is used in conjunction with a ventilation system capable of capturing the resulting airborne particulate. Containerize the debris for proper disposal in accordance with the waste management requirements of this Section.

Personal Hygiene Facilities and Equipment

Provide clean lavatory and hand washing facilities in accordance with the 29 CFR 1926.51 and 8 CCR 1519. Locate the hand washing facilities in close proximity to the paint removal operation, in an area that is convenient for washing prior to eating or smoking.

Provide showers when exposures exceed the PEL. Confirm that all employees whose exposures exceed the PEL shower prior to leaving the construction site as required by 29 CFR 1926.62. Provide the City's representatives with access to the lavatory and hand washing/shower facilities.

Prohibit eating, drinking, smoking, chewing of food or tobacco products, or the application of cosmetics in any area where the exposure to toxic metals exceeds the PELs or within regulated areas, and confirm that workers thoroughly wash hands and face prior to undertaking any of these activities.

Provide clean lunch and break areas for use by all employees, and maintain airborne concentrations in these areas below the Action Levels.

Provide clean change area(s) for employees whose exposures exceed the PELs. Equip the change area(s) with separate storage facilities for street clothing that are adequately segregated to

prevent cross-contamination from work clothing. Assure that employees do not leave the construction site wearing any clothing that was worn while performing activities where exposures exceeded the PEL.

Medical Surveillance and Medical Removal Protection

Provide all employees with initial and periodic blood and zinc protoporphyrin (ZPP) sampling and analysis, and medical surveillance as required by the published OSHA health and safety standards for the metal of concern.

In the case of lead, at a minimum conduct blood sampling and analysis initially (within two weeks prior to the start of lead exposure activities), then once every two months for the first six months of exposure, and at six month intervals thereafter. Conduct exit blood tests for each worker upon completion of his/her work activities, which involve exposure to lead, even if completion of the worker's activities which involve exposure to lead occurs prior to the completion of the Work of the Contract.

Do not use workers with initial blood lead tests of 40 µg/dl for any work activities involving exposure to airborne lead above the Action Level.

Provide intervention for any employee when the blood analysis indicates that unacceptable results are occurring (e.g., 40 µg/dl or above the case of lead).

Provide for the temporary removal of employees from exposures above the Action Level for the metal of concern when the blood analysis indicates that unacceptable results are occurring (e.g., 50 µg/dl or above in the case of blood lead). Protect employees' benefits during any period of medical removal and conduct all tests required by the OSHA standard for the metal of concern during the removal period.

Provide all physical examinations as required by the appropriate OSHA standards for the metal(s) of concern, and verify that all examinations are performed by or under the direct supervision of a licensed physician.

Provide all exam information and test results to the employees in writing within 5 days of receipt. Maintain copies of all biological monitoring results on site within 10 days of sampling, and make results available for the City's review.

Provide the City with a summary of employee medical surveillance results that are indicative of worker exposures to (or which demonstrate proper protection from) toxic metals. In the case of lead, summarize the blood lead and ZPP results. Provide copies on site for review by the City within 10 days of testing.

Employee Training and Information

Provide initial and annual refresher training for all employees who will be exposed to toxic metals above the respective Action Levels on any one day in a 12-month period. Include all of the elements of training that are required by the appropriate OSHA or CalOSHA standard. If a standard for the metal does not exist, use the training requirements of 29 CFR 1926.62 as the basis of the training program highlighting the differences as appropriate for the other metals of concern. Maintain documentation of training on site for all workers, and make this training documentation available for the City's review.

When other contractors or employers are present at the site, notify them of the nature of the lead exposure work, the need to remain out of exposure areas, the warning signs and labeling system in effect, and the potential need for them to take measures to protect their employees in accordance with the applicable OSHA or CalOSHA regulations.

Signs and Regulated Area

As described later in this Section, establish regulated areas around equipment or activities that might generate airborne emissions of toxic metals in excess of the Action Levels.

Post caution signs around each regulated area. If there is no regulation for the metal of concern, use the legend for the CAUTION sign as found in 29 CFR 1926.62 as the basis, and insert the name(s) of the other toxic metals. Sign requirements for lead are as follows:

WARNING
LEAD WORK AREA
POISON
NO EATING OR SMOKING

Use signs that are a minimum of 8 1/2 inches by 11 inches in size with black block lettering on a white, yellow, or orange background. Do not use caution ribbons as a substitute for signs

Record Keeping

Retain all records related to training, medical examinations, blood analysis, exposure monitoring, respirator fit testing and medical clearance, and inspections by a competent person, and other related documentation on file at the construction site. Maintain all records on site and make available for the City's review upon request.

Retain all records for the duration of employment plus 30 years.

MEASUREMENT AND PAYMENT

Full compensation for furnishing the Engineer for implementing the programs required by this safety and health section and for providing the required professionals shall be considered as included in the contract price paid for the item of work causing the existing paint system to be disturbed, and no additional compensation will be allowed therefore.

DEBRIS HANDLING

General

The City is the generator of the hazardous waste. The City will provide the federal or California EPA identification number and signatures on the manifest, but the Contractor is responsible for the aspects of waste management as defined in this section.

Recover all waste products generated during cleaning and painting work, including but not limited to rags, tape, disposable coveralls, filters, sediment, paint debris, and paint cans.

Store waste only at the locations designated by the City. Transport the waste to the secured storage area at the end of each working day, at a minimum

Items Provided by the Contractor

1. Water sampling, testing and classification
2. Waste packaging, handling, and storage.
3. Labeling of containers.
4. Procuring all necessary waste permits and licenses.
5. Transportation and disposal of hazardous waste and completion of the manifest for signature.
6. Transportation and disposal of waste which passes TCLP, but which contains lead or other toxic metals.

7. Transportation and disposal of non-hazardous waste.

Waste Sampling, Testing, and Classifications

Sampling

If the nature of the waste stream initially tested remains constant (e.g., the paint system remains the same, the same type and supplier of abrasive is used, etc.), additional sampling and analysis are not required for subsequent shipments unless otherwise directed by the City or required by state regulations or the disposal facility. If the nature of a waste stream changes after the initial testing, collect and have analyzed a new series of samples of the waste stream.

Solid Waste - Representative samples of each waste stream of solid waste generated by the work shall be collected and analyzed. Collect the samples in the presets of a City representative and in accordance with SW-846, "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods." Use a random sampling technique.

Collect the following number of samples for solid waste:

Solid Waste	Sample No. (minimum)
Waste streams generated through the use of steel grit abrasives (hazardous)	1
All other waste streams (I.E. paint chips and dust, and paint chips mixed with disposable abrasives)	4

Complete the initial sampling of each waste stream immediately upon filling the first container, but do not allow waste to accumulate for longer than 30 days before sampling. After the representative samples are collected, send them immediately to the laboratory for analysis.

Unless otherwise directed by the City, or required by state regulations or the waste recycling or disposal facility, once each waste stream is sampled, tested, and classified, additional sampling and analysis are not required for subsequent shipments unless the waste stream changes.

Waste Water - Representative samples of waste water generated by the work shall be collected and analyzed. Collect the samples in the presets of a City representative.

Complete the initial sampling of each waste water stream immediately upon filling the first container, but do not allow waste to accumulate for longer than 30 days before sampling. After the representative samples are collected, send them immediately to the laboratory for analysis.

Testing

Solid Waste - Direct the laboratory to test the solid waste in accordance with the Total Threshold Limit Concentration (TTLC) test. If any one of the 17 regulated California metals exceeds the soluble limit listed in this section by a factor of 10 or more, then analyze the waste in accordance with the Soluble Threshold Limit Concentration (STLC) test. I f any of the 8 RCRA metals fail this test, or the soluble limit for any of these 8 RCRA metals is exceeded by a factor of 100 or more on the TTLC test, then analyze the waste in accordance with the TCLP.

Analyze the first two samples from each waste stream for other hazardous characteristics (e.g., corrosivity, reactivity, and ignitability) as required by the regulations. Conduct any additional tests required by the disposal facility.

Waste Water- Test the waste water for lead and any other analytical parameters required for disposal characterization or by the disposal facility.

Classification of Solid Waste

A. Hazardous Waste

1. Waste streams are classified as non-RCRA or California-only hazardous waste if the TTLC or STLC meets or exceeds any of the metal concentrations established in 22 CCR, Division 4.5, Chapter 11
2. Waste streams are classified as RCRA hazardous if they meet or exceed any of the metal concentrations established in 22 CCR, Division 4.5, Chapter 11 and 40 CFR 261
3. Take into account other substances that may be present which can cause debris to be classified as hazardous waste as defined in 22 CCR, Div. 4.5, Chapt.11 and 40 CFR 261 (e.g., pH $\leq$2.0 or $\geq$12.5 resulting in corrosivity, or the characteristic of ignitability)

B. Non-hazardous Waste

1. Waste streams are classified as non-hazardous if the leachate contains toxic metals or hazardous substances below or outside of the thresholds which would classify it as hazardous.
2. When the TCLP test results of spent abrasive or paint debris indicate that lead or other toxic metal concentrations are less than the above thresholds (e.g., 5 mg/L in the case of lead), notify the disposal facility that the waste contains toxic metals and provide the TCLP test results.

Laboratory Report

Provide the City with an original signed copy of the report no later than 10 days after the samples have been collected. Include copies of the chain-of-custody forms in the documentation.

Include the following minimum information in each report: Identity of the waste stream(s) analyzed, the number of samples collected and tested, dates of sampling and testing, laboratory test procedures utilized, the names and signatures of the individuals collecting the samples and conducting the laboratory tests, and an interpretation of the test results.

Waste Handling, Packaging, and Storage

Comply with 40 CFR 262 and 22 CCR, Division 4.5, Chapter 12 for the on-site handling, packaging, and storage of all waste generated by the project.

Store waste in locations designated by the City. Do not place hazardous waste on the unprotected ground (e.g., cover the ground with impermeable tarpaulins). Locate hazardous waste in a secure area with signs around the perimeter, and shield adequately to prevent dispersion of the waste by wind or water.

At a minimum, collect and store the waste at the end of each working day in storage drums or containers such that no waste is left exposed overnight. Use DOT-approved containers for waste storage. Do not fill any container or roll-off in excess of the capacity marked on the container. Once a container at the work area is full, move it to the secure storage area within 3 days. Maintain all containers in good operating condition with all lids and closing mechanisms intact and operational to prevent the escape of debris by wind, spilling of the contents, or access by unauthorized personnel. Cover all containers immediately upon filling and confirm that all lids are attached except when filling. Verify that all labels remain intact. Inspect the drums or

containers for corrosion and leaks at least one time each week, or as directed by state regulations. Record the results of the inspections in a log book.

Store non-hazardous waste separately from hazardous waste. Do not co-mix hazardous waste with non-hazardous waste. Do not mix different types of hazardous waste together unless specifically approved by the City and the disposal facility.

Verify that all waste is transported to the appropriate recycling or disposal facility within 90 days after waste is first placed into the container.

Improper waste storage is cause for immediate suspension of the Work by the City until appropriate corrective action is completed.

Train all personnel in the proper handling of the hazardous waste at the construction site in accordance with 40 CFR 265.16 and 22 CCR, Division 4.5 regulations.

If remediation is required as a result of Contractor activities, place the soil into separate containers, and assume all disposal costs.

Container Labeling

Immediately label all containers of waste and debris to identify the contents. For example, in the case of blast cleaning, label containers of spent abrasive as "Paint Waste, Contains Lead."

After the test results are received, or if recycled steel grit is used, immediately apply hazardous waste labels, if the waste tests hazardous. Label each container or rolloff of hazardous waste in accordance with 40 CFR 262, 49 CFR 171-179, and 22 CCR, Division 4.5.

Include the following minimum information:

a) Hazardous Waste. Federal law prohibits improper disposal. If found, contact the nearest police, or public safety authority, or the U.S. Environmental Protection Agency.
b) Proper DOT Shipping Name
c) Manifest Document Number
d) Generator Name, Address, and EPA or California EPA ID Number
e) Date of Accumulation
f) EPA Waste Number

Enter the above information using permanent marking material, printed in English, and displayed on a background of contrasting color unobscured by other labels or attachments. Locate labeling away from other markings that could substantially reduce its effectiveness. Complete the labeling, marking, and placarding activities under the observation of the City prior to storing or transporting any container or rolloff.

Waste Transportation and Disposal

Procure all necessary waste permits or licenses that are required by state or local regulations.

Hazardous Waste - Prepare the hazardous waste manifest for each shipment and provide to the City for review and signature.

Arrange for the transportation of all hazardous waste by a licensed transporter in accordance with 40 CFR 263, 49 CFR 171-179, and 22 CCR, Division 4.5, Chapter 13 regulations. Verify that all waste is completely covered during transport.

Unless specifically approved by the City in writing, the hazardous waste transporter is not permitted to stop enroute either before or after the pickup of hazardous materials from the construction site.

Arrange for the recycling or disposal of all hazardous waste in accordance with 40 CFR 264, 40 CFR 268, and state regulations. Verify that only licensed recycling or TSD facilities are used.

Provide a certification for each manifested shipment that the waste was accepted by the recycling or disposal facility, and properly treated and disposed. Comply with all of the manifesting, certification, and reporting requirements for hazardous waste in accordance with 40 CFR 262, 40 CFR 268 and 22 CCR, Division 4.5 regulations, including certificates of final disposal for each shipment.

Non-hazardous Waste - Properly transport, and dispose of all non-hazardous municipal construction waste. Verify that waste is completely covered during transport. Comply with additional state regulations as applicable.

Recycled Steel Grit – Transport in the same manner as hazardous waste. If the waste is shipped to a TSD facility, notify the facility that further stabilization is required prior to disposal. Use stabilization methods that would have been used in the event the waste tested hazardous. Stabilize to less than 0.75 mg/L lead.

Waste Water – Provide containers for the collection and retention of all waste water, including but not limited to the water used for hygiene purposes, laundering of clothing if done on site, and cleanup activities. Filter visible paint chips and particulate from the water prior to placing it into the containers. Prior to disposal, test the water for total lead and any other toxic metals required by the disposal facility, and provide ample filtration (e.g., through a multi-stage filtration system ending in 5 microns or better if needed) until the water is not classified as hazardous. Make disposal arrangements with the local POTW, sanitation company, or other appropriate permitted facility. Provide the City with documentation signed by an official of the facility stating that the facility will accept the waste, or allow it to be discharged into the sanitary sewer system, and that the levels of any lead remaining in the water are acceptable.

Waste Management Submittals

1. Maintain and make available for City review, a log of hazardous waste storage.
2. Provide a complete analytical package of test results of waste samples no later than 14 calendar days after sample collection and no later than 30 days after project start up. Include the following documentation, at a minimum:
   a) Identity of the waste stream(s) analyzed.
   b) The number of samples collected and tested.
   c) Dates of sampling and testing.
   d) Laboratory test procedures utilized.
   e) The names and signatures of the individuals collecting the waste samples and conducting the laboratory tests.
   f) An interpretation of the test results.
   g) Applicable signed chain of custody forms.
3. Waste Manifests – Submit to the City one copy of:
   a) Executed and signed waste manifests for each load of waste material transported from each construction site. Provide the manifest within 1 day of the shipment.
   b) Executed hazardous waste manifest form signed by a responsible party of the disposal facility. Provide the form within one day of receipt. If the copy is not received within 35 days of the date of shipment, contact the transporter and disposal facility. If the waste cannot be located, immediately contact the City, and assist as directed in

efforts to locate the shipment, and in the completion of EPA Exception Reports (if the signed manifest is not received within 45 days of the date of shipment). Certificate of final disposal for each manifest or certificate of recycling for recycled material. Provide the certification within one day of receipt.

4. Bills of Lading – Provide bills of lading for all non-hazardous waste within 1 week of the date of shipment.
5. Wastewater – Provide written documentation of the receipt and disposal of all wastewater within 1 week of the date of disposal.

MEASUREMENT AND PAYMENT

Full compensation for hazardous and nonhazardous debris, solid and liquid waste handling, transportation and disposal, including sampling and testing and submittals, shall be considered as included in the contract price paid for the item of work causing the existing paint system to be disturbed, and no additional compensation will be allowed therefore.

CONTAINMENT SYSTEM

The containment system shall contain all water, resulting debris, and visible dust produced when the existing paint system is disturbed.

Falsework or supports for the ventilated containment structure shall not extend below the vertical clearance level nor to the ground line at locations within the roadbed.

The ventilated containment structure shall conform to the provisions for falsework in Section 51-1.06, "Falsework," of the State Standard Specifications.

The minimum total design load of the ventilated containment structure shall consist of the sum of the dead and live vertical loads. Dead load shall consist of the actual load of the ventilated containment structure. Live loads shall consist of a uniform load of not less than 45 psf, which includes 20 psf of sand load, applied over the area supported, and in addition, a moving 1,000-pound concentrated load shall be applied to produce maximum stress in the main supporting elements.

The containment system shall also conform to the provisions for "Temporary Structures", elsewhere in these Special Provisions.

The Contractor shall erect a SSPC Class 1A containment system for all work involving surface preparation by abrasive blasting. Use an SSPC Class 3P containment system for all spot removal using vacuum-shrouded power tools. Construct and utilize the containment systems in accordance with SSPC Guide 6 and the attached Table 1, "Containment Criteria for Removal of Paint Containing Lead and Other Toxic Metals" in Appendix C.

After each unique containment/ventilation system design is installed, have the containment design engineer, or a designee working on behalf of the design engineer, conduct a site inspection to verify that the systems have been assembled as shown on the approved, signed and sealed drawings. Have the design engineer submit a letter to the City attesting to the above. If deviations from the accepted containment drawings are present, have the containment design engineer note any deviations from the approved design in the letter, and indicate that the deviations will not affect the intended performance of the containment system; or submit revised drawings for acceptance showing the deviations. The letter and/or revised drawings must be received and approved by the City before any work within the containment can begin.

Prior to dismantling or moving each Class 1A containment system, remove spent abrasive and dust to the extent that it will not be dislodged during handling. Cleaning may be accomplished by blowing down all surfaces with the ventilation system in operation, and/or by HEPA vacuuming.

Containment Scaffolding

Strictly follow all applicable CalOSHA regulations regarding the installation and daily inspection of scaffolding, platforms, and wire cables. Verify that the platform and its components are designed and constructed to support at least 4 times its maximum intended load without failure, with wire cables capable of supporting at least 6 times their maximum intended load without failure. Strictly follow all applicable CalOSHA regulations regarding scaffolding.

Containment Components

The basic components that make up containment systems are defined below. The components are combined in Table 1 to establish the minimum containment system requirements for the method(s) of paint removal specified for the Contract.

1. Rigidity of Containment Materials – Rigid containment materials consist of solid panels of plywood, aluminum, rigid metal, plastic, fiberglass, composites, or similar materials. Flexible materials consist of screens, tarps, drapes, plastic sheeting, or similar materials.
2. Permeability of Containment Materials – The containment materials are identified as air impenetrable if they are impervious to dust or wind such as provided by rigid panels, coated solid tarps, or plastic sheeting. Water impermeable materials are those that are capable of containing and controlling water when wet methods of preparation are used. Use fire retardant materials in all cases.
3. Support Structure – Rigid support structures consist of scaffolding and framing to which the containment materials are affixed to minimize movement of the containment cocoon. Flexible support structures are comprised of cables, chains, or similar systems to which the containment materials are affixed.
4. Containment Joints – Fully sealed joints require that mating surfaces between the containment materials and the structure being prepared be completely sealed. Sealing measures include tape, caulk, Velcro, clamps, or other similar material capable of forming a continuous, impenetrable or impermeable seal.
5. Entryway – Resealable door entryways involve the use of flexible or rigid doors capable of being repeatedly opened and resealed. Sealing methods include the use of zippers, Velcro, clamps, or similar fasteners. Overlapping door tarpaulin entryways consist of two or three overlapping door tarpaulins. Open seam entryways involve entrance into the containment through any open seam.

   Mechanical Ventilation – The requirement for mechanical ventilation is to ensure that adequate air movement is achieved to reduce worker exposure to toxic metals to as low as feasible in accordance with OSHA regulations (e.g., 29 CFR 1926.62), and to enhance visibility. Design the system with proper exhaust ports or plenums, adequately sized ductwork, adequately sized discharge fans and air cleaning devices (dust collectors) and properly sized and distributed make-up air points. Design the abrasive blast cleaning containment system to meet the minimum airflow velocities of 100 feet per minute cross-draft or 60 feet per minute down-draft.

   7. Negative Pressure – When specified, achieve a minimum of 0.03 inches (7.5 mm) water column (W.C.) relative to ambient conditions, or confirm through visual assessments for the concave appearance of the containment enclosure.
   8. Exhaust Ventilation – When mechanical ventilation systems are used, provide filtration of the exhaust air, otherwise airborne particulate from the containment will be exhausted directly into the surrounding air. Utilize a filter that is at least 99.9% efficient in removing mono-dispersed particles of 0.5 micrometers in diameter.

Containment Plans and Drawings

Provide a written description, shop drawings, and calculations for the design and construction of work platforms, and containment and ventilation systems, including, but not limited to the following:

1. Detailed drawings signed and stamped by Professional Engineer(s) licensed in the State of California.
2. Data, calculations, and assumptions used for the design of the containment and ventilation system, structural impact analysis, and the imposed loads (including wind loads) on the existing structure, signed by a Professional Engineer(s) licensed in the State of California. Include the design airflow within containment, and the locations and sizes of air inlets and exhaust.
3. The plan for staging, installing, moving, and removing the containment, and the methods of attachment that will be used. Make attachment points to specific, substantial framing members only.
4. Include calculations of the design air flows within containment, descriptive information and fan curve for the dust collectors, and the locations and sizes of duct work and air inlets. Include calculations for system static pressure losses through the dust collector, ductwork, and containment.
5. A written plan describing the rigging and staging for this project. Have the plan signed by a Professional Engineer(s) licensed in the State of California verifying the bridge's ability to support all loads imposed by the Contractors operations, including but not limited to, the containment, rigging, temporary access and materials storage. Analyze local loading effects at attachment points. Analyze construction load effects on the bridge structure.
6. Include the methods of access that will be provided to work areas inside containment, locations of safety lines, and locations of containment entryways.
7. The methods and procedures that will be used for cleaning and securing the containment at the end of each work day, and the cleaning undertaken prior to dropping or relocating the containment.
8. Technical data sheets, specification sheets, any other information needed to thoroughly describe the containment plan and materials proposed for use. Provide the manufacturer's specifications for the proposed enclosure material(s), including information on light transmittance, flame spread, and fuel contributed, burst strength, abrasion durability, and unit weight of material.
9. A description of debris collection and air filtration equipment, including the equipment data sheets, airflow capacity, equipment weights and temporary utility service requirements.
10. The methods of access that will be provided to work areas inside containment, and locations of safety lines.
11. A California Registered Professional Engineer experienced in containment system needs to supervise and certify the erection and subsequent moves of the containment system.

MEASUREMENT AND PAYMENT

Full compensation for the containment system, including plans and drawings, initial certification and inspection of system as well as subsequent moves by Contractor's engineer and shall be considered as included in the contract price paid for Temporary Structures and no additional compensation will be allowed therefor.

2.24 CLEARING AND GRUBBING

Clearing and grubbing shall conform to the provisions in Section 16, "Clearing and Grubbing," of the State Standard Specifications and these special provisions. Tree trimming may be required in order to perform the work required. Limits of clearing and grubbing shall be

limited to areas of necessity, 5-feet from bridge of deck, soffit and tower vertical faces. Designate area to be cleared and trimmed, and obtain Engineer approval before starting clear and grub and tree trimming operation.

Attention is directed to "Construction Notes" of these special provisions regarding tree protection and tree trimming.

Stems of Elderberry bushes smaller than 1" diameter may be trimmed. Larger diameter stems may be tied back away from the work area.

All vegetation to be removed and trees to be trimmed shall be as shown on the plans and as determined by the Engineer.

2.25 EROSION CONTROL (HYDROSEED)

GENERAL

Summary

This work includes removing and disposing of weeds and applying erosion control materials including seed, fiber, commercial fertilizer, organic fertilizer, straw, and tackifier to erosion control (hydroseed) areas shown on the plans.

Comply with Section 20-3, "Erosion Control," of the State Standard Specifications.

If notified by the Engineer that an area is ready to receive erosion control materials, start erosion control (hydroseed) work within 5 business days of the Engineer's notification to perform the work.

The Engineer will designate the ground location of all erosion control (hydroseed) areas in increments of one acre or smaller by directing the placing of stakes or other suitable markers. Furnish all tools, labor, materials, and transportation required to adequately mark the various erosion control (hydroseed) locations.

MATERIALS

Seed

Seed not required to be labeled under the California Food and Agricultural Code must be tested for purity and germination by a seed laboratory certified by the Association of Official Seed Analysts or by a seed technologist certified by the Society of Commercial Seed Technologists. Measure and mix individual seed species in the presence of the Engineer.

Seed must contain at most 0.5 percent total weed seed by weight.

Deliver seed to the job site in unopened separate containers with the seed tag attached. Containers without a seed tag attached are not accepted. The Engineer takes a sample of approximately one ounce or 0.25 cup of seed for each seed lot greater than 2 pounds.

Seed must comply with the following:

Seed

Botanical Name (Common Name)	Percent Germination (Minimum)	Pounds Pure Live Seed Per Acre (Slope Measurement)
Bromus carinatus	California Brome	5
Leymus triticoides	Creeping Wild Rye	12
Hordeum brachyantherum	Meadow Barley	5
Vulpia microstachys	Three Week Fescue	10
Poa secunda ssp. Secunda	Oind Bluegrass	8
Nasella pulchra	Purple Needle Grass	10
	Total	50

Seed Sampling Supplies

At the time of seed sampling, provide the Engineer a glassine lined bag and custody seal tag for each seed lot sample.

Commercial Fertilizer

Commercial fertilizer must have a guaranteed chemical analysis containing a minimum of 16 percent nitrogen, 20 percent phosphoric acid and 0 percent water soluble potash. Fertilizer shall be delivered in containers labeled in accordance with applicable State regulations and bearing the warranty of the producer for the grade furnished.

Straw

Straw must be derived from Rice. The Contractor shall furnish evidence to clearance has been obtained from the County Agricultural Commissioner, as required by law, before straw obtained from outside the county in which it is to be used is delivered to the site of the work. Straw that has been used for stable bedding shall not be used. Straw shall be cured and dry with no water added after bailing.

Straw must be free of plastic, glass, metal, rocks, and refuse or other deleterious material.

Stabilizing Emulsion (Tackifier)

Stabilizing emulsion shall be in a dry powder form, may be re-emulsifiable and shall be a processed organic derivative of Plantago insularies used as a soil binder.

Fiber

Fiber must be a dyed wood cellulose fiber specially prepared for hydroseeding.

Coloring Agent

Use a biodegradable, nontoxic coloring agent free from copper, mercury, and arsenic.

CONSTRUCTION

Site Preparation

Immediately before applying seed to erosion control (Hydroseed) areas, remove trash and debris and weeds.

Removed weeds must be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

Application

Apply erosion control (hydroseed) materials in separate applications in the following sequence:

1. Apply the following mixture with hydroseeding equipment at the rates indicated within 60 minutes after the seed has been added to the mixture:

Material	Pounds Per Acre (Slope Measurement)
Seed	50
Fiber	500
Commercial Fertilizer	500

2. Apply straw at the rate of 2 tons per acre based on slope measurements. Incorporation of straw will not be required. Distribute straw evenly without clumping or piling.
3. Apply the following mixture with hydroseeding equipment at the corresponding rates:

Material	Pounds Per Acre (Slope Measurement)
Stabilizing Emulsion (Tackifier)	100
Mulch	500

The ratio of total water to total tackifier in the mixture must be as recommended by the manufacturer.

Seed may be dry applied at the total rate specified in the preceding table for small areas not accessible by the hydroseeding equipment if approved by the Engineer. Dry-applied seed must be incorporated into the soil a maximum depth of 1/4 inch by raking or dragging.

Hydraulic application of erosion control (hydroseed) materials for rolled erosion control product (netting) areas must be applied by hose, from the ground. Erosion control (hydroseed) materials must be applied onto the slope face such that the materials are well integrated into the rolled erosion control product (netting) and in contact with ground surface. Application must be perpendicular to the slope face such that rolled erosion control product (netting) materials are not damaged or displaced. Once straw work is started in an area, complete tackifier applications in that area within the same work shift.

The Engineer may change the rates of erosion control (hydroseed) materials to meet field conditions.

For any area where erosion control (hydroseed) materials are to be applied, the application of all erosion control (hydroseed) materials to be applied to that area must be completed within 72 hours from when the first materials were applied.

2.26 SLURRY SEAL (TYPE II)

This item shall consist of furnishing and placing a slurry seal coat to the existing asphalt surfaces on the portion of the parking lot located at 1025 University Avenue at where the temporary construction easement is granted, as shown on the plans, as directed by the Engineer,

as specified in these Special Provisions, and in accordance with Section 23 of the City Standard Specifications.

The slurry seal shall consist of a mixture of a polymer modified asphalt emulsion, mineral aggregate, mineral filler, water and specified additives. The materials shall be proportioned, mixed and uniformly spread over a properly prepared surface as directed by the Engineer. The slurry seal shall conform to the requirements of Section 23 of the City Standard Specifications except where specified otherwise in these provisions. The completed slurry seal shall evenly cover the existing paint striping thoroughly, leave a homogeneous mat, adhere firmly to the prepared surface, and have a friction resistant surface texture throughout its service life.

Slurry Seal Materials:

Asphalt Emulsion:

The emulsified asphalt shall be designated as grade PMCQS-1h. The polymer within the asphalt emulsion shall be, at the option of the Contractor, either Neoprene, SBR, EVA or SBS. Solid polymers such as EVA or SBS shall be adequately blended into the asphalt prior to emulsification. If a liquid latex such as Neoprene, SBR or similar is used, the latex shall be "co-milled" into the emulsion through the water phase during manufacturing. Each load of polymer asphaltic emulsion shall have a certificate from the asphalt emulsion manufacturer guaranteeing that either asphalt blending or "co-milling" processes were used. The certificate shall also state the percentage of the solid rubber polymer added by weight of the asphalt as well as the composition of the polymer. The addition of latex to the emulsion after emulsion manufacturing is prohibited.

The polymer modified asphalt emulsion shall conform to the following specifications:

Test	Test Method	Requirement	
		Min	Max
Tests on Emulsion:			
• Viscosity, SSF, @ 77°F, seconds	AASHTO T 59	15	90
• Settlement, 5 days, %	AASHTO T 59	---	5
• Storage Stability Test, 1 day, %	AASHTO T 59	---	1.0
• Distillation: Oil Distillate by Volume of Emulsion, %	AASHTO T 59	---	3
• Residue by Low-Temperature Vacuum Distillation, %	ASTM D244. 133-137	57	---
Tests on Residue Using CTM 331			
• Penetration, 77°F, 100 grams for 5 seconds, dmm	AASHTO T 49	40	65
• Solubility in Trichloroethylene, %	ASTM D 2042	97.5	---
• Ductility, 77°F, 5cm/min, cm (RTFO aged residue)	AASHTO T 51	60	---
• Ring and Ball Softening Point, °F	AASHTO T 53	123	---
• Polymer Content, %, Solid polymer content based on weight of asphalt.	CTM 401	3.0%	---
• Torsional Recovery, %	CTM 332	18	---

Aggregate:

Slurry seal aggregate for all roads shall conform to ISSA Type II aggregate and shall be manufactured crushed stone such as granite, slag, limestone, chat, or other high quality aggregate, or combination thereof. To assure the material is totally crushed, 100% of the parent aggregate shall be larger than the largest stone in the gradation to be used.

When tested in accordance to AASHTO T27 (ASTM C136) and AASHTO T11 (ASTM C117), the aggregate gradation (including the mineral filler) shall be within following bands.

Type II Slurry Seal		
Sieve Sizes	Passing Percentage	Stockpile Tolerance
9.5 mm (3/8")	100	+/- 5%
4.75 mm (#4)	90-100	+/- 5%
2.36 mm (#8)	65-90	+/- 5%
1.18 mm (#16)	45-70	+/- 5%
600 um (#30)	30-50	+/- 5%
330 um (#50)	18-30	+/- 4%
150 um (#100)	10-21	+/- 3%
75 um (#200)	5-15	+/- 2%

After the target gradation has been submitted and identified in the mix design, the percent passing each sieve shall not vary by more than the stockpile tolerance and still remain within the gradation band during the application of slurry seal.

The mineral aggregate shall also conform to the following:

Test	Test Method	Requirements
Sand Equivalent	CTM 217	60 min.
Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate	CTM 214	15% Maximum w/NA_2SO_4 25% Maximum w/$MgSO_4$
Loss in L.A. Rattler (100 Revolutions)	CTM 211	10% max.
Loss in L.A. Rattler (500 Revolutions)	CTM 211	35% max.
Durability Index	CTM 229	60 min.

Mineral Filler:

Portland Cement, hydrated lime, limestone dust, fly ash, or other approved filler meeting the requirements of ASTM D242 shall be used if required by the mix design. The mineral filler shall be considered as part of the aggregate in calculations regarding slurry seal asphalt content.

Water:

The water added to the slurry seal shall be potable and free of harmful salts and contaminates.

Additives:

Additives may be used to accelerate or retard the mixing and setting characteristics of the slurry seal, or to improve the resulting finished surface. The use of additives in the slurry mix (or individual materials) shall be made initially in quantities predetermined by the mix design with field adjustments if required. If the use of additive during application requires a greater than + or - 1.0% deviation from the recommendations of the mix design, a new mix design will be performed to verify system performance at higher or lower additive levels.

Water, and additives, if used, shall be added to ensure proper workability and:

1. Permit the unrestricted flow of traffic on the slurry seal no more than one (1) hour after placement without the occurrence of bleeding, raveling, separation, or other distress.
2. Prevent the development of bleeding, raveling, separation, or other distress within fifteen (15) days after placing the slurry seal.

Mix Design and Pre-qualification of Materials:

During the preconstruction meeting the Contractor shall submit a certified mix design identifying the specific type and source of materials to be used on the project. The mix design shall verify compatibility of the aggregate, emulsion, mineral filler, and other additives. Additionally, the mix design shall report test results showing compliance with related material specifications contained in these Special Provisions.

The mix design shall use the same aggregate gradation as supplied by the Contractor on the project.

A laboratory capable of performing all the tests listed below shall perform the mix design, testing, and certification. The laboratory shall certify, on the mix design, that it has had at least two years of experience in the design of slurry seal.

The mix design shall be performed and dated within 30 days prior to the application of slurry seal.

After the mix design has been approved, no substitution or changes of materials shall be permitted, unless approved by the Engineer. If changes in materials are approved by the Engineer, a new mix design shall be performed by the Testing Laboratory before the application of new materials.

Required tests and values are as follows:

Test	ISSA Test	Requirement
Mix Time	TB-113	Controllable to 180 sec. min.
Wet Cohesion • 30 minutes min. • 60 minutes min	TB-139	 12kg-cm min. 20kg-cm min.
Excess Asphalt by LWT Sand Adhesion	TB-109	50g/ft² max. (538g/m² max.)
Wet Stripping	TB-114	Pass (90% min.)
Wet Track Abrasion Loss One hour soak	TB-100	75g/ft² maximum (807g/m² max.)

The Wet Track Abrasion test is used to determine the minimum asphalt content.

The laboratory shall also report the quantitative effects of moisture content on the unit weight of the aggregate (bulking effect). The report must clearly show the proportions of aggregate, mineral filler (min. and max.), water (min. and max.), additive(s) (usage), and asphalt emulsion based on the dry weight of the aggregate.

The percentages of each individual material required shall be shown in the laboratory report. Adjustments may be required during the construction, based on the field conditions. The Engineer shall give final approval for all such adjustments.

The Engineer shall approve the mix design and all slurry seal materials and methods prior to use. The component materials shall be within the following limits:

RESIDUAL ASPHALT	7.5% - 13.5% (approx. 12.0 - 22.0% emulsion) based on dry weight of aggregate
MINERAL FILLER	0.0% - 2.0% Based on dry weight of aggregate.
ADDITIVES	As needed to control mixing and setting times
WATER	As needed to achieve proper mix consistency.

If directed by the Engineer, the Contractor shall submit samples from all suppliers furnishing a minimum of the following materials. Each sample shall be clearly labeled as to its contents and the words "Slurry Seal."

1. One gallon of the base asphalt
2. One pint of the polymer additive (with clear labeling of polymer type)
3. One quart of asphalt emulsion
4. 50 pounds of slurry seal aggregate

Changes in source or type of materials submitted to the Engineer as Pre-qualification samples shall not be permitted during the entire project without the approval of the Engineer.

Mechanical Proportioning:

Mixer-spreader trucks shall be equipped to proportion emulsion, water, aggregate, and set-control additives by volume. The aggregate shall be proportioned using a belt feeder operated with an adjustable cutoff gate. The height of the gate opening shall be readily determinable. A positive displacement pump shall proportion the emulsion. Water shall be introduced into the mixer by a meter registering gallons delivered.

The aggregate belt feeder shall deliver aggregate to the pugmill with such volumetric consistency that the deviation for any individual aggregate delivery rate check-run shall not exceed 2.0 percent of the mathematical average of 3 runs of at least 3 tons in duration each.

The emulsion pump shall deliver emulsion to the pugmill with such volumetric consistency that the deviation for any individual delivery rate check-run shall not exceed 2.0 percent of the mathematical average of 3 runs of at least 500 gallons in duration each.

The aggregate belt feeder shall be connected directly to the drive on the emulsion pump. The drive shaft of the aggregate feeder shall be equipped with a revolution counter reading to the nearest full revolution of the aggregate delivery belt.

A temperature-indicating device shall be installed in the emulsion storage tank at the pump suction level, if requested by the Engineer. The device shall indicate temperature of the emulsion and shall be accurate to ten degrees Fahrenheit (10° F).

Machine Calibration and Verification:

Mixer-spreader trucks to be used in performance of the work shall be calibrated in the presence of the Engineer prior to construction. The Contractor shall document the way in which the mechanical proportioning devices are calibrated and correlated to the metered delivery of each material at various settings. No mixer-spreader truck will be allowed to work on the project until the calibration has been completed and accepted by the Engineer within at least one (1) working day prior to start of work.

Spreading Equipment:

The slurry mixture shall be uniformly spread by means of a controlled spreader box conforming to the following requirements:

1. All spreader boxes over 7-1/2 feet in length shall have baffles.
2. Spreader box, rubber strike off, and drag mops shall be maintained in such manner as to prevent chatter (washboarding) in the finished mat. If washboarding occurs, that area shall be corrected to eliminate the washboard.
3. The rear flexible strike-off blade shall make close contact with the pavement and shall be capable of being adjusted to the various crown slopes so as to apply a uniform seal coat. Blades shall be changed as frequently as necessary to prevent longitudinal scouring.
4. The maximum speed of the application equipment shall not be greater than 180 feet per minute.
5. At least two (2) operational spreader trucks shall be available at the job site during the spreading operation except when continuous placement type mixer-spreader trucks are used.

Preparation of Surface:

Immediately prior to applying the slurry, the Contractor shall clean the street surface and lip of gutter joints of all loose material, silt spots, vegetation, and any other matter, which may adversely affect the adherence of the slurry to the existing pavement.

The Contractor shall remove thermoplastic stripes/markings, preformed traffic stripes/markings and raised pavement markers prior to slurry seal operation. The cost of removing the thermoplastic and preformed pavement stripes/markings shall be paid for by their associated bid item. The cost of removing all raised pavement markers, including raised blue fire hydrant markers, shall be included in the "Raised Reflective Pavement Markers to Place" bid item.

The Contractor shall be responsible for sweeping all streets with a mechanical power broom prior to sealing. The Engineer may require particularly dirty streets to be flushed with water. The Engineer must approve all flushing operations. The Contractor shall be responsible for cleaning sidewalks and driveways soiled by flushing operations.

The City shall remove and dispose of any garden refuse piles placed in the street.

The Contractor shall be responsible for locating, covering, removing, cleaning and protecting all utility covers, maintenance hole covers, water valve boxes, and any other utility covers. The

methods of protection, referencing, locating, and cleaning shall be subject to approval by the Engineer prior to any resurfacing.

All protective coverings shall be removed from maintenance hole covers, water valve boxes, and other utility covers each day before opening the street to traffic. If the Contractor fails to protect utility covers or fails to remove all protective coverings within 3 working days of notification, the Contractor shall pay an administrative penalty of **TWO HUNDRED AND FIFTY ($250)** per calendar day for each utility cover.

Existing blue fire hydrant locators shall be removed prior to placing of the slurry seal. New "raised, blue dot, hydrant marking devices" shall be installed by the Contractor after the slurry seal has been set for three (3) calendar days, but no later than seven (7) calendar days after placement of the slurry seal. The Contractor shall place the new approved "blue dot, hydrant marking devices" with approved two-part epoxy adhesive per the instruction and at the locations determined by the Engineer. If the Contractor fails to place the new "blue dot, hydrant marking devices" in the time period allowed, the Contractor shall pay an administrative penalty of **TWO HUNDRED AND FIFTY ($250)** per calendar day for each blue dot not in place. The placing of the raised blue dots shall be paid for under Item No.9 "Pavement Markers to Remove and Place" of these Special Provisions.

Placing:

The slurry seal shall be placed at a rate of approximately twelve (12) to fifteen (15) pounds per square yard. The exact rate will be as determined by specific weight of aggregate, the surface demand of the pavement, and the size of the largest particle size of the aggregate.

The slurry seal shall not be placed when the existing pavement or air temperature is below 55 degrees Fahrenheit (15 degrees C) and falling, or during unsuitable weather, but may be applied when both pavement and air temperature are above 45 degrees Fahrenheit (7 degrees C) and rising.

Concrete bridge decks shall not be slurry sealed unless otherwise directed by the Engineer.

All undulations and speed humps shall be slurry sealed unless otherwise directed by the Engineer.

All through driving lanes shall be spread in full lane width pulls only. Slurry sealing of driveway aprons, returns, and other incidental work shall be accomplished concurrently with application of the street. The joint between the pavement and the PCC gutter shall be sealed with slurry seal and overlap the lip of the gutter a minimum of 3/4 inches and a maximum of 2 inches. When slurry starts or finishes, a straight-line cut-off shall be obtained by laying down a strip of building paper or other approved material. The Contractor shall remove such paper and any excess slurry after application of the slurry. Edge limits of the slurry on both sides of the street shall be maintained in a neat and uniform line.

When feasible, all joints and curb lines shall be pulled by machine to keep handwork to a minimum. Ridges or bumps in the finish surface will not be permitted.

Building paper shall be placed at transverse joints and over previously placed slurry seals to avoid the double placement of slurry seal. Other methods to avoid double placement may be used if first approved by the Engineer.

Unless the Engineer makes other arrangements, all intersections are to be slurry sealed where there are two or more blocks in line. The Contractor shall seal all alley returns adjacent to streets that are to be sealed back to the property line. Where two streets that are to be sealed intersect, the Contractor shall seal the entire pavement in the intersection, including the round corner area. Where light rail is encountered, the Contractor shall seal up to the concrete pad. Areas to be slurry sealed that are inaccessible to the spreader box may be spread by other approved means.

The Contractor shall remove all excess material, which is placed outside asphalt pavement areas. Hand tools shall be available in order to remove spillage.

Where the completed slurry is not uniform in color, the street shall be treated to eliminate the color variation at the Contractor's expense. The method of treatment will be subject to approval by the Engineer.

The Contractor shall repair and reseal all areas of the streets, which have not been sealed properly or completely at no additional cost to the City.

The Contractor shall be responsible for sweeping the streets and sidewalks where excessive raveling may occur after placing of the slurry seal, at no additional cost to the City.

The Contractor is responsible for one sweep approximately one week after placement of slurry seal and a final sweep approximately three to four weeks after placement of slurry seal.

The Contractor is responsible for additional sweeping if requested by the Engineer. **If additional sweeping is not performed within 24 hours of the engineer's request, the Contractor shall pay an administrative penalty of $300.00 per calendar day for each street requested.**

At the end of each day's production, the Contractor will send to the Engineer a report containing the following information:

1. Tons of dry aggregate consumed that day.
2. Tons of asphalt emulsion consumed that day; and
3. Surface area covered that day.

This report shall be received no later than 10:00 a.m. of the following day.

2.27 CONCRETE STRUCTURES

Portland cement concrete structures shall conform to the provisions in Section 20, "Concrete in Structures", of the City of Sacramento Standard Specifications and Section 51, "Concrete Structures," of the State Standard Specifications and these special provisions.

Concrete used for replacing portions of approach slabs shown on the plans shall conform to minor concrete.

2.28 RAPID SETTING CONCRETE (PATCH)

This work shall consist of cleaning the surfaces and furnishing, placing, and finishing concrete patches. Concrete patches shall be placed in conformance with the details shown on the plans, the provisions of the State Standard Specifications, and these special provisions.

The concrete material shall be a high-strength material consisting of either magnesium phosphate concrete, modified high alumina based concrete or portland cement based concrete. Magnesium phosphate concrete shall conform to the requirements for magnesium phosphate concrete in Section 83-2.02D(1), "General," of the State Standard Specifications and these special provisions. Modified high alumina based concrete and portland cement based concrete shall be water activated and shall conform to the requirements for single component (water activated) magnesium phosphate concrete in Section 83-2.02D(1), "General," of the State Standard Specifications and these special provisions.

A clean uniform rounded aggregate filler may be used to extend the concrete. The moisture content of the aggregate shall not exceed 0.5 percent. Grading of the aggregate shall conform to the following:

Sieve Size	Percentage Passing
1/2"	100
No. 16	0-5

The amount of aggregate filler shall conform to the manufacturer's recommendations, but in no case shall the concrete strengths be less than that specified for magnesium phosphate concrete in Section 83-2.02D(1), "General," of the State Standard Specifications.

Mixing of components of dual component (with a prepackaged liquid activator) magnesium phosphate shall be by complete units, supplied by the manufacturer. Portions of units shall not be used. Water shall not be added to dual component magnesium phosphate.

Cleaning the contact surfaces of existing concrete shall be accomplished by abrasive blast cleaning the concrete and exposed reinforcing steel, as necessary, to remove all rust, paint, grease, asphalt or other foreign materials. A minimum of 1/8 inch of concrete shall be removed. Immediately prior to applying the new concrete, the surfaces shall be recleaned by sweeping and pressure jetting, or by other approved means, as necessary to remove debris which has accumulated during construction or after abrasive blast cleaning. The surface temperature of the areas to be covered shall be 39° F or above when the concrete is applied. Methods proposed to heat said surfaces are subject to approval by the Engineer. The contact surface for the magnesium phosphate concrete shall be dry. The contact surfaces for modified high alumina based concrete or portland cement based concrete may be damp but not saturated.

Magnesium phosphate concrete shall not be mixed in containers or worked with tools containing zinc, cadmium, aluminum or copper. Modified high alumina based concrete shall not be mixed in containers or worked with tools containing aluminum.

Concrete shall not be retempered. Finishing tools that are cleaned with water shall be thoroughly dried before working the concrete.

When placing concrete on slopes exceeding 5 percent, the Engineer may require the Contractor to provide a flow controlled modified material.

Modified high alumina based concrete and portland cement based concrete shall be cured in conformance with the provisions in Section 90-7.01B, "Curing Compound Method," of the State Standard Specifications. Magnesium phosphate concrete shall not be cured.

Unless otherwise permitted in writing by the Engineer, public traffic shall not be permitted on the new concrete until at least one hour after final set.

Rapid setting concrete (patch) will be measured and paid for by the cubic foot.

The quantities of rapid setting concrete (patch), in cubic feet, to be paid for will be determined from the total number of pounds of concrete actually used in the patch divided by a plastic density of 135 pounds per cubic foot. Wasted or unused concrete will not be included. The number of pounds of concrete, with or without aggregate filler, will be determined from scale weights.

The contract price paid per cubic foot for rapid setting concrete (patch) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing concrete patches, including cleaning contact surfaces, complete in place, as shown on the plans, as specified in the State Standard Specifications and these special provisions, and as directed by the Engineer.

2.29 CLEAN EXPANSION JOINTS

All deck joints shown on the plans to be cleaned shall be cleaned as specified herein.

Cleaning shall include removal of all existing seal material, dirt, debris, damaged waterstop, and joint filler, and shall be accomplished by methods that do not damage existing sound concrete surfaces.

Joint size shall be verified after the joint has been cleaned.

The Contractor shall take necessary precautions to ensure that material removed from expansion joints does not fall into the waterway beneath the bridges. The Contractor shall submit for the Engineer's approval, details for preventing material, equipment, or debris from falling.

Joints with undamaged waterstops shall be cleaned only to the top of the waterstop, provided the waterstop does not have to be removed for placement of the seal.

Joints without waterstops and joints with waterstops with existing damage or damage caused by the Contractor, shall be cleaned down to the hinge seat or bearing seat, unless otherwise directed by the Engineer.

All joint damage shall be repaired as directed by the Engineer.

Cleaning joints below existing damaged waterstops and repairing existing joint damage will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the State Standard Specifications. The cost of repairing damage caused by the Contractor's operations shall be borne by the Contractor.

Materials removed from the expansion joint, except for surface dust, shall be recovered and disposed of away from the site in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

Cleaning expansion joints will be measured by the linear foot for the length of the deck joint as shown on the plans.

Full compensation for cleaning expansion joints shall be considered as included in the contract price paid per linear foot for joint seal (Type A), including placement of silicone seal, and no separate payment will be made therefor.

2.30 REPLACE BEARING PADS

This work involves removing damaged bearing pads and installing new bearing pads. Elastomeric bearing pads shall conform to the provisions in Section 51-1.12H, "Elastomeric Bearing Pads," of the State Standard Specifications.

Materials shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

Jacking equipment shall be stable during all phases of the bearing pad replacement.

The Contractor shall be responsible for the methods and equipment used to raise and support the existing structure for replacement of bearings. The Contractor shall be responsible for the design of the temporary supports and temporary lateral bracing system.

Temporary supports and jacking assemblies shall not be founded in the stream bed of the American River. Temporary supports shall be anchored to the concrete piers at each tower or appropriately braced to the ground, as approved by the Engineer.

Jacking assemblies and temporary supports including temporary lateral bracing shall be designed and constructed in conformance with the requirements of Section 51-1.06, "Falsework," of the State Standard Specifications and these special provisions and shall accommodate the loads shown on the plans and any additional loads due to the Contractor's operations. The grade of the superstructure shall be restored to its original elevation.

At least 30 working days before starting the work the Contractor shall submit to the Engineer complete details and working drawings of the methods and equipment he proposes to use for replacement of bearing pads including construction, installation, and removal methods and sequences to obtain full bearing loads in accordance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the State Standard Specifications. Approval by the Engineer of the

temporary support working drawings prior to start of jacking operations or temporary support inspection performed by the Engineer will in no way relieve the Contractor of full responsibility for the temporary supports.

The maximum loading and deflections used on jacks, brackets, columns and other manufactured devices shall not exceed the manufacturer's recommendations. The Contractor shall furnish engineering data from the manufacturer verifying the manufacturer's recommendations or shall perform tests as necessary to demonstrate the adequacy of any such device proposed for use. Adequate means shall be employed to prevent unplanned lateral and longitudinal movement of the superstructure. The falsework, jacks, and the superstructure shall be stable, under all loadings including traffic, during all phases of the operation.

Manufactured assemblies shall conform to the provisions in Section 51-1.06A(2) of the State Standard Specifications and these special provisions.

Each jack shall be equipped with either a pressure gage or load cell for determining the jacking force. Pressure gages shall have an accurately reading dial at least 3 inches in diameter. Each jack shall be calibrated by a private laboratory approved by the Transportation Laboratory within 6 months prior to use and after each repair, unless otherwise directed. Each jack and it's gage shall be calibrated as a unit with the cylinder extension in the approximate position that it will be at final jacking force and shall be accompanied by a certified calibration chart. Load cells shall be calibrated and provided with an indicator by which the jacking force is determined.

A redundant system of supports shall be provided during the entire jacking operation for backup should any of the jacks fail. The redundant system shall include stacks of steel plates added as necessary to maintain redundant supports at each location within ¼" of the jacking sill or corbels. If required for truss stability, additional lateral bracing shall be installed near the approach truss slider bearings at the abutments.

Prior to proceeding with the bearing pad replacement, an engineer for the Contractor who is registered as a Civil Engineer in the State of California shall inspect the temporary supports, including jacking and displacement monitoring systems, for conformity to the working drawings. The Contractor's registered engineer shall certify in writing that the temporary supports, including jacking and displacement monitoring systems, substantially conform to the working drawings and that the material and workmanship are satisfactory for the purpose intended. A copy of this certification shall be available at the work site at all times.

Prior to proceeding with the bearing pad replacement, a meeting between the Contractor, the Engineer, the City, and other agencies as required, shall be held to discuss the bearing removal work.

The Contractor's registered engineer shall be present at the bridge site at all times when jacking operations or adjustments are in progress and when suspender repair operations are in progress. The Contractor's registered engineer shall inspect the jacking, removal, and installation operations and shall report in writing on a daily basis of the progress of the operations and the status of the remaining structure. A copy of the daily report shall be available at the work site at all times. Should an unplanned event occur, the Contractor's registered

engineer shall submit immediately to the Engineer for approval, the procedure or proposed operation to correct or remedy the occurrence.

Displacement monitoring equipment shall be provided and maintained at locations as determine by the Engineer. Vertical and horizontal displacements of the existing structure shall be monitored continuously during jacking operations and shall be accurately measured and recorded at least twice daily during repair work.

Should unanticipated displacements, cracking, or other damage occur, the construction shall be discontinued until corrective measures satisfactory to the Engineer are performed.

Additions or modifications to the structure, in connection with jacking, and jacking assemblies shall be subject to approval of the Engineer.

The superstructure shall be jacked and adjusted to grade uniformly and in such a manner that that a roadway satisfactory for the use of public is provided in conformance with the provisions of Section 7-1.08 "Public Convenience," of the State Standard Specifications and these special provisions.

Jacking shall be performed from underneath the approach trusses. The approach trusses, at each tower shall be supported and raised simultaneously.

Jacking operations shall be carried out in a uniform manner so that no distortion that would cause excessive stress or damage will be jacked into the superstructure. Jacking shall be limited to the minimum necessary to replace bearing pads, in no case more than ¼" higher than the final grade. Tell-tales shall be provided to monitor actual movement.

Removing the existing bearing shall conform to the requirements in Section 15-4, "Bridge Removal," of the State Standard Specifications and these special provisions.

Reinstall anchor bolt nuts after the new bearing pad has been replaced.

Damage to the structure as a result of the Contractor's operations shall be repaired or replaced in accordance with the requirements for new work of similar character by the Contractor at his expense.

When replacement operations have been completed, all temporary falsework, supports, cribbing, blocking and jacking assemblies shall be removed. All removed materials shall become property of the Contractor and disposed of in conformance with the requirements in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the State Standard Specifications.

2.31 REINFORCEMENT

Reinforcement shall conform to the provisions in Section 52, "Reinforcement," of the Standard Specifications and these special provisions.

The provisions in "Welding Quality Control" of these special provisions do not apply to resistance butt welding.

When joining new reinforcing bars to existing reinforcement, sample splices shall be made using only the deformation pattern of the new reinforcement to be spliced.

2.32 TEMPORARY STRUCTURES

Temporary supports, temporary bracing, temporary scaffolds, temporary platforms and walkways and ladders, temporary protective covers and temporary containment systems used for all work under this Contract shall be considered as temporary structures and shall be designed, furnished, installed, monitored, maintained, removed and disposed of in accordance with the requirements elsewhere in these Special Provisions.

Temporary structures required during various construction operations shall include:

- supporting the structure or portions of the structure
- maintaining structural stability during excavation, bridge removal and all other stages of construction
- scaffolds and platforms required for accessing work areas
- hoisting systems
- protecting the work areas from falling objects and environment;
- protecting the existing structure from damage due to construction operations, falling objects and environment
- protective barriers, netting or containment systems to prevent any tools, materials, equipment, excess welding materials and bi-products, fluids from construction operations, and debris from falling on to the ground, travelled ways, or waterways

Temporary structures used as protective barriers shall be required whenever construction operations are actively being performed and shall extend at least 4 feet beyond the limit of the work underway and be maintained a maximum distance of 10 feet vertically from the work.

Protective barrier shall be required whenever work is to be performed over or within a horizontal distance of 20 feet from traffic, waterways, adjacent property, public trails or ground and shall conform to the provisions of the State Standard Specifications and these special provisions.

Protective barrier shall consist of a protective cover, netting or other means as approved by the Engineer to prevent any tools, materials, equipment, and fluids from construction operations and debris from falling onto pedestrian walkways, waterways, adjacent property, public trails or ground.

Temporary structures do not include falsework systems for supporting new concrete placement.

The Contractor shall be responsible for determining the locations where temporary supports and bracing will be required to maintain structure stability and integrity of the existing structures during bridge removal and all other stages of construction and shall design, furnish, install,

maintain, remove and dispose of such temporary support and bracing in conformance with these Special Provisions.

It shall be the Contractor's responsibility to verify by calculations the structural integrity and capacity of the roadway deck and supporting structure under all loads imposed by the Contractor's operations in addition to the bridge service dead and live loads. Should the Contractor's calculations indicate that temporary support and bracing are required to provide sufficient structural capacity of the roadway deck and supporting structure for the loads imposed by the Contractor's operations, the Contractor shall design, furnish, install, maintain, remove and dispose of such temporary supports in conformance with these Special Provisions.

Attention is directed to "Bridge Removal (Portion)" elsewhere in these Special Provisions for bridge removal provisions.

TEMPORARY STRUCTURE DESIGN AND DRAWINGS.

The Contractor shall submit to the Engineer working drawings, design calculations and independent check calculations for each temporary structure proposed. Such drawings, design calculations and independent check calculations shall be prepared under the direction and signed by engineers who are registered as Civil Engineers in the State of California.

The temporary structure working drawings and design calculations shall conform to Section 5-1.02, "Plans and Working Drawings" of the State Standard Specifications and these special provisions.

Working drawings for temporary structures shall be 11 inches x 17 inches in size. For initial review, 10 sets of drawings shall be submitted. After the Engineer has determined that the submittal is complete, between 6 and 12 sets, as requested by the Engineer of corrected drawings and calculations shall be submitted to the Engineer. Within 3 weeks after final approval of the working drawings, six sets of corrected prints on 20 pound (minimum) good quality bond paper, 22 inches x 34 inches in size, prepared by the Contractor, shall be furnished to the Engineer.

Working drawings shall show the State assigned designations for the contract number, bridge number, name of the structure as shown on the contract plans, and the District-County-Route-Post mile on each drawing and design calculation sheet. Each sheet shall be numbered in the lower right hand corner and shall contain a blank space in the upper right hand corner for future contract sheet numbers.

Working drawings shall be submitted in sets not exceeding 20 sheets. Each set of working drawings shall be identified with a unique and sequential number. Multiple sets of working drawings may be submitted simultaneously.

In the event several sets of working drawings are submitted simultaneously, or additional sets of drawings are submitted for review before the review of the previously submitted sets of drawings have been completed, the Contractor shall designate the sequence in which all of the sets of drawings which have been submitted are to be reviewed.

The Contractor may choose to change the priority of the set of working drawings that is designated as top priority. The Contractor shall submit a written notification outlining his

proposal for reprioritization of working drawing submittal reviews in conformance with the following requirements:

1) All sets of working drawings under review shall be reprioritized by the Contractor.
2) The proposed reprioritization, including review time for each submittal, shall be agreed upon by the Engineer and the Contractor before it is approved and implemented.
3) The review time for the new top priority set will restart and will not exceed 6 weeks from the time that the Contractor's reprioritization proposal has been approved, unless the set is returned for revisions.
4) The review time for each submittal will be adjusted based on the Contractor's reprioritization and the total number of working drawings under review at the time of the written notification.

When the total number of working drawings under review is less than 60 sheets, then the time to be provided for review for each set of drawings in the sequence shall not exceed 6 weeks for the top priority set, and not exceed 8 weeks from the original date received by the Engineer for each set of lower priority drawings which is still under review.

When the total number of working drawings under review exceeds 60 sheets, then the time to be provided for review for each set of drawings in the sequence shall not exceed 6 weeks for the top priority set, and not exceed 12 weeks from the original date received by the Engineer for each set of lower priority which is still under review.

Should the Engineer fail to review the complete working drawing submittal within the time specified and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the working drawing submittal, an extension of time commensurate with the delay in completion of the work thus caused will be granted in accordance with Section 8-1.09, "Right of Way Delays," of the State Standard Specifications.

Working drawings of the temporary structure shall include stress sheets, shop details, connection details, member sizes, all details of shop and field welds and their locations, shop and field quality control procedures, manufacturer product information for any manufactured assemblies to be used, and erection and removal plans. Manufactured assemblies shall conform to the provisions in Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the State Standard Specifications and these special provisions.

These working drawings shall include descriptions and values of all loads, including construction equipment loads, descriptions of equipment to be used, complete details and calculations for supporting and protecting the existing structure, complete details and calculations for the design of temporary structures, methods and sequences of installing and removing the temporary structures, and provisions to jack the structure should settlement occur in the temporary structures.

For all temporary scaffolds and platforms, the Contractor shall attach load limit signs to the temporary scaffolds and platforms to alert users of the load and usage limitations of the system in accordance with the design parameters. Details for the load limitation signs shall be included in the working drawings for review and the signs shall be constructed from a suitable durable material to endure the time the temporary scaffold and platform is in service.

Foundations for the temporary structures shall be designed to carry all vertical and horizontal loadings as determined by the Contractor's registered Civil Engineers including the temporary structure loads and any additional loads, which are a result of the Contractor's operations.

All shoring required for structure excavations for temporary structures shall be designed and independently checked, as described in this section, by the Contractor's engineers who are registered as Civil Engineers in the State of California. The excavations shall comply with the provisions of "Earthwork" elsewhere in these Special Provisions. The working drawings, design calculations and independent check design calculations shall be signed by the Contractor's registered Civil Engineer and shall be submitted to the Engineer as a temporary structure working drawing submittal.

Pile foundations shall not be used for the temporary structures or any other items of work within this project.

All soil values assumed by the Contractor in the design of the temporary structure foundations shall be determined by the Contractor's engineer who is a registered Geotechnical Engineer in the State of California and shall be shown on the working drawings. Anticipated temporary structure foundation settlement shall also be shown on the working drawings. Such working drawings shall be signed by the Contractor's registered Geotechnical Engineer. Additional soil borings and testing, if required to determine the soil designed values, shall be performed by the Contractor at his expense.

Temporary structure foundations shall be designed to carry all the loads imposed upon them without exceeding the design soil bearing values and allowable settlements determined by the Contractor's registered Geotechnical Engineer.

Bracing shall be provided to withstand all imposed loads during erection, when carrying all imposed loads, and during removal of any temporary structures. The temporary structure working drawings shall show provisions for such bracing or methods to be used to conform to these requirements during each phase of erection and removal. Wind loads shall be included in the design of such bracing.

The temporary structure design calculations shall show a summary of computed stresses in the (1) temporary structures; (2) connections between temporary structures and the existing structure; and, (3) load supporting members of the existing structure used to support or brace such system.

The existing condition of the bridge structure contains corroded, spalled, cracked, and deteriorated members. In addition, the existing concrete cover may be loose and delaminated. If the Contractor chooses to use existing bridge members as part of the temporary structure, the Contractor shall be responsible for any repairs to the existing members required to develop the design capacity of the temporary structure. The Contractor shall field verify the conditions of existing members prior to designing temporary structure and shall submit this information to the Engineer as part of the temporary structure working drawing submittal. Except as shown on the Plans, the Contractor will not be permitted and shall not drill holes, permanent or temporary, into any horizontal or vertical face of the existing concrete member for use in temporary structures, without the prior Engineer's approval of a corresponding work plan/working drawings.

Temporary structures used as protective covers shall have a minimum strength equivalent to that provided by good, sound Douglas fir planking having a nominal thickness of 2 inches. Additional layers of materials shall be furnished as necessary to prevent fine materials from sifting down onto the traveled way, shoulders, ground, public trails or waterways.

Temporary structures shall be used in order to perform such work as cleaning, painting the superstructure, bridge or bolt removal, bearing modifications, erect structural steel, provided the structures are of sufficient strength to support all loads and are sufficiently tight to prevent dust and fine material as well as preventing any excess welding materials and bi-products from sifting down on to the hill side, public trails, river and traveled way. Safety railings shall be installed on all sides of the temporary structures used to perform work and shall be fully sheathed with plywood.

Approval by the Engineer of the temporary structure plans or field inspection performed by the Engineer will in no way relieve the Contractor of full responsibility of the temporary structure plan and procedure.

TEMPORARY STRUCTURE DESIGN CRITERIA.

Unless otherwise specified in these Special Provisions, the design of temporary structures will not be approved unless it is based on the use of loads and conditions which are no less severe and on the use of the maximum stresses and deflections which are no greater than those specified in Section 51-1.06A, "Falsework Design and Drawings," of the State Standard Specifications and this Section "Temporary Structures" elsewhere in the Special Provisions.

The vertical load used for the design of the temporary supports shall be 150 percent of the design load specified in Section 51-1.06A(1), "Design Loads" of the State Standard Specifications.

The Contractor's calculations for the design of temporary supports and bracing determined to be required to provide sufficient structural capacity of the bridge deck and supporting bridge structure for the loads imposed by the Contractor's operations shall be prepared in conformance with the "Guy West Bridge Design Criteria" included in Appendix C in the Special Provisions. The loads shall be combined in conformance with the load combinations specified in the code to determine the load combinations creating the highest stresses and deflections. The vertical loads shall include the tributary Dead Load (DL) and Pedestrian Live Load (PL) on each bridge element investigated. Loads resulting from the Contractor's operations (CL) and thermally induced forces (T) must also be considered. Lateral loads must consider the effect of wind (W). Two specific construction load combinations must be considered:

1: $1.2(DL + T) + 1.6PL + 1.5CL$
2: $1.2DL + 1.6W + PL + CL$

The fourth paragraph of Section 51-1.06A(l), "Design Loads," of the State Standard Specifications is hereby deleted and replaced with the following:

> "The assumed horizontal load to be resisted by the temporary structures during bridge removal and construction operations shall be based on the analysis of the

bridge structure using the sum of the actual horizontal loads due to equipment, construction sequence or other causes and an allowance for wind, but in no case shall the assumed horizontal load to be resisted in any direction be less than a sum of 10 percent of the total tributary dead load of the structure including the temporary structures and equipment plus any horizontal loads from construction operations."

The last paragraph under "Timber" in the second paragraph of Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the State Standard Specifications is amended to read:

"Timber connections shall be designed in accordance with the procedures, stresses and loads permitted in the Falsework Manual as published by the Department of Transportation, Division of Structures, Office of Structure Construction."

Temporary supports and bracing for strengthening work and for maintaining structure stability that includes temporary disassembly, removal, or disconnection of existing members shall have a minimum capacity equivalent to that of the existing members that will be disassembled, removed, or disconnected.

If designed to be connected to any part of the existing structure, temporary structures shall be mechanically connected to the existing structure. The temporary structures shall be mechanically connected to their foundations. The mechanical connections shall be capable of resisting the lateral temporary structure design forces. Friction forces developed between the existing structure and temporary structure and temporary structure and its foundations shall not be used to reduce the lateral forces and shall not be considered as an effective mechanical connection. The mechanical connections shall be designed to tolerate adjustments to the temporary structures, throughout the use of the temporary structures.

The Contractor shall anticipate corroded, deteriorated, spalled, delaminated, warped and damaged existing steel and concrete members and shall account for these conditions in the design and be responsible for removing all existing paint, unsound concrete, and repairing and restoring deteriorated steel and concrete members for constructing the approved temporary structure connections. The Contractor shall include such costs in his bid for this work.

Manufactured assemblies shall conform to the provisions in Section 51-1.06A(2), of the State Standard Specifications and these Special Provisions.

Attention is directed to Section 51-1.06A(3), "Special Locations," of the State Standard Specifications. All reference to falsework in said Section shall also apply to temporary structures.

TEMPORARY STRUCTURE CONSTRUCTION.

Temporary structures shall be constructed in accordance with Section 51-1.06B, "Falsework Construction," of the State Standard Specifications and these Special Provisions. All references to falsework in Paragraphs 1 through 7 of Section 51-1.06B, "Falsework Construction," of the State Standard Specifications shall also apply to the temporary structures unless otherwise noted.

Connections of temporary structures to the existing structures shall be made only as shown on the approved working drawings.

Prior to stopping work for any reason, all holes formerly occupied by existing fasteners shall be filled with high strength bolts and tightened and all new open holes shall be plugged with fully tensioned high strength bolts.

Welding shall conform to the provisions in Sections "Steel Structures" and "Welding Quality Control" elsewhere in these Special Provisions. Field welding for connection of temporary structures to the permanent steel members will not be allowed.

Flame cutting of existing steel for connection of temporary structures will not be allowed.

Prior to proceeding with work requiring a temporary structure , an engineer for the Contractor who is registered as a Civil Engineer in the State of California shall inspect the temporary structures, including displacement monitoring systems, for conformity to the approved working drawings. The Contractor's registered engineer shall certify in writing that the temporary structures, including displacement monitoring systems, conform to the approved working drawings and are satisfactory for the purpose intended, and that the material and workmanship are satisfactory for the purpose intended. The Contractor's registered Civil Engineer shall sign and stamp such written certification. A copy of this certification shall be submitted to the Engineer and shall be available at the site of the work at all times.

Displacement monitoring equipment shall be provided and maintained at locations as determine by the Engineer. Vertical and horizontal displacements of the existing structure shall be monitored during retrofit operations and shall be accurately measured and recorded at least twice daily during repair work.

Should unanticipated displacements, cracking, or other damage occur, the construction shall be discontinued until corrective measures satisfactory to the Engineer are performed.

Prior to proceeding with work requiring a temporary structure , a meeting between the Contractor, the Engineer, and other agencies as required, shall be held to discuss the retrofit work.

During work requiring a temporary structure, a regularly scheduled weekly on-site meeting between the Contractor, Engineer, and other agencies as required, shall be held to discuss upcoming work.

Should unanticipated displacements, cracking, buckling, settlement or other damage occur, the construction shall be discontinued until corrective measures satisfactory to the Engineer are performed. Damage to the structure as a result of the Contractor's operations shall be repaired by the Contractor according to the requirements in Section 7-1.11, "Preservation of Property," of the State Standard Specifications.

REMOVING TEMPORARY STRUCTURES.

Removal of temporary structures shall conform to Section 5l-l.06C, "Removing Falsework," of the State Standard Specifications and these Special Provisions. All references to falsework in said Section 5l-l.06C shall also apply to temporary structures, except that when public traffic is

carried on the structure that is supported on temporary structures, paragraph 8 is amended to read:

Paragraph 11 in Section 51-1.06C, "Removing Falsework," of the State Standard Specifications is amended to read:

> "Temporary structure foundations shall be removed at least 2 feet below the surface of finished grade or original ground, whichever is lower."

Before removal, the temporary structures shall be cleaned of all debris and fine material.

Temporary structure attachments shall be removed from the existing structure and existing surfaces restored to original conditions, except where permanent alterations are shown on the Plans. All surfaces of the permanent steel within the temporary connections shall be cleaned and painted in accordance with "Surface Preparation and Painting of Steel and Galvanized Steel" elsewhere in these Special Provisions.

After removal of the temporary bolted connections of the temporary structures, the holes drilled in the permanent steel shall be plugged by installing fully tensioned high strength bolts in accordance with "Steel Structures" of these Special Provisions. All bolt holes and areas underneath the bolt heads and nuts shall be cleaned and painted in accordance with "Surface Preparation and Painting of Steel and Galvanized Steel" elsewhere in these Special Provisions prior to installing the bolts.

All removed materials that are not designated to be salvaged or used in the reconstruction shall become the property of the Contractor and shall be disposed of outside the highway right of way in accordance with the provisions in Section 7-1.13, "Disposal of Materials Outside the Highway Right of Way," of the State Standard Specifications.

2.33 STEEL STRUCTURES

Construction of steel structures shall conform to the provisions in Section 55, "Steel Structures," of the State Standard Specifications and these special provisions.

Attention is directed to "Welding" and "Materials," of these special provisions.

ROTATIONAL CAPACITY TESTING PRIOR TO SHIPMENT TO JOB SITE

Rotational capacity tests shall be performed on all lots of high-strength fastener assemblies prior to shipment of these lots to the project site. Zinc-coated assemblies shall be tested after all fabrication, coating, and lubrication of components has been completed. One hardened washer shall be used under each nut for the tests.

The requirements of this section do not apply to high-strength cap screws or high-strength bolts used for slip base plates.

Each combination of bolt production lot, nut lot, and washer lot shall be tested as an assembly.

A rotational capacity lot number shall be assigned to each combination of lots tested. Each shipping unit of fastener assemblies shall be plainly marked with the rotational capacity lot number.

Two fastener assemblies from each rotational capacity lot shall be tested.

The following equipment, procedure, and acceptance criteria shall be used to perform rotational capacity tests on and determine acceptance of ASTM A 325 long bolts. Fasteners are considered to be long bolts when full nut thread engagement can be achieved when installed in a bolt tension measuring device:

A. Long Bolt Test Equipment:
   1. Calibrated bolt tension measuring device with adequate tension capacity for the bolts being tested.
   2. Calibrated dial or digital torque wrench. Other suitable tools will be required for performing Steps 7 and 8 of the Long Bolt Test Procedure. A torque multiplier may be required for large diameter bolts.
   3. Spacer washers or bushings. When spacer washers or bushings are required, they shall have the same inside diameter and equal or larger outside diameter as the appropriate hardened washers conforming to the requirements in ASTM Designation: F 436.
   4. Steel beam or member, such as a girder flange or cross frame, to which the bolt tension measuring device will be attached. The device shall be accessible from the ground.

B Long Bolt Test Procedure:
   1. Measure the bolt length. The bolt length is defined as the distance from the end of the threaded portion of the shank to the underside of the bolt head.
   2. Install the nut on the bolt so that 3 to 5 full threads of the bolt are located between the bearing face of the nut and the underside of the bolt head. Measure and record the thread stickout of the bolt. Thread stickout is determined by measuring the distance from the outer face of the nut to the end of the threaded portion of the shank.
   3. Insert the bolt into the bolt tension measuring device and install the required number of washers, and additional spacers as needed, directly beneath the nut to produce the thread stickout measured in Step 2 of this procedure.
   4. Tighten the nut using a hand wrench to a snug-tight condition. The snug tension shall not be less than the Table A value but may exceed the Table A value by a maximum of 2 kips.

Table A

High-Strength Fastener Assembly Tension Values to Approximate Snug-Tight Condition	
Bolt Diameter (inches)	Snug Tension (kips)
1/2	1
5/8	2
3/4	3
7/8	4
1	5
1-1/8	6
1-1/4	7
1-3/8	9
1-1/2	10

5. Match-mark the assembly by placing a heavy reference start line on the face plate of the bolt tension measuring device which aligns with (1) a mark placed on one corner of the nut and (2) a radial line placed across the flat on the end of the bolt or on the exposed portions of the threads of tension control bolts. Place an additional mark on the outside of the socket that overlays the mark on the nut corner such that this mark will be visible while turning the nut. Make an additional mark on the face plate, either 2/3 of a turn, one turn, or 1-1/3 turn clockwise from the heavy reference start line, depending on the bolt length being tested as shown in Table B.

Table B

Required Nut Rotation for Rotational Capacity Tests[(a) (b)]	
Bolt Length (measured in Step 1)	Required Rotation (turn)
4 bolt diameters or less	2/3
Greater than 4 bolt diameters but no more than 8 bolt diameters	1
Greater than 8 bolt diameters, but no more than 12 bolt diameters[(c)]	1-1/3

(a) Nut rotation is relative to bolt, regardless of the element (nut or bolt) being turned. For bolts installed by 1/2 turn and less, the tolerance shall be plus or minus 30 degrees; for bolts installed by 2/3 turn and more, the tolerance shall be plus or minus 45 degrees.
(b) Applicable only to connections in which all material within grip of the bolt is steel.
(c) When bolt length exceeds 12 diameters, the required rotation shall be determined by actual tests in a suitable tension device simulating the actual conditions.

6. Turn the nut to achieve the applicable minimum bolt tension value listed in Table C. After reaching this tension, record the moving torque, in foot-pounds, required to turn the nut, and also record the corresponding bolt tension value in pounds. Torque shall be measured with the nut in motion. Calculate the value, T, where T = [(the measured tension in pounds) x (the bolt diameter in inches) / 48].

Table C

Minimum Tension Values for High-Strength Fastener Assemblies	
Bolt Diameter (inches)	Minimum Tension (kips)
1/2	12
5/8	19
3/4	28
7/8	39
1	51
1-1/8	56
1-1/4	71
1-3/8	85
1-1/2	103

7. Turn the nut further to increase bolt tension until the rotation listed in Table B is reached. The rotation is measured from the heavy reference line made on the face plate after the bolt was snug-tight. Record this bolt tension.
8. Loosen and remove the nut and examine the threads on both the nut and bolt.

C. Long Bolt Acceptance Criteria:

1. An assembly shall pass the following requirements to be acceptable: (1) the measured moving torque (Step 6) shall be less than or equal to the calculated value, T (Step 6), (2) the bolt tension measured in Step 7 shall be greater than or equal to the applicable turn test tension value listed in Table D, (3) the nut shall be able to be removed from the bolt without signs of thread stripping or galling after the required rotation in Step 7 has been achieved, (4) the bolt does not shear from torsion or fail during the test, and (5) the assembly does not seize before the final rotation in Step 7 is reached. Elongation of the bolt in the threaded region between the bearing face of the nut and the underside of the bolt head is expected and will not be considered a failure. Both fastener assemblies tested from one rotational capacity lot shall pass for the rotational capacity lot to be acceptable.

Table D

Turn Test Tension Values	
Bolt Diameter (inches)	Turn Test Tension (kips)
1/2	14
5/8	22
3/4	32
7/8	45
1	59
1-1/8	64
1-1/4	82
1-3/8	98
1-1/2	118

The following equipment, procedure, and acceptance criteria shall be used to perform rotational capacity tests on and determine acceptance of ASTM A 325 short bolts. Fasteners are considered to be short bolts when full nut thread engagement cannot be achieved when installed in a bolt tension measuring device:

A. Short Bolt Test Equipment:

1. Calibrated dial or digital torque wrench. Other suitable tools will be required for performing Steps 7 and 8 of the Short Bolt Test Procedure. A torque multiplier may be required for large diameter bolts.
2. Spud wrench or equivalent.
3. Spacer washers or bushings. When spacer washers or bushings are required, they shall have the same inside diameter and equal or larger outside diameter as the appropriate hardened washers conforming to the requirements in ASTM Designation: F 436.
4. Steel plate or girder with a hole to install bolt. The hole size shall be 1/16 inch greater than the nominal diameter of the bolt to be tested. The grip length, including any plates, washers, and additional spacers as needed, shall provide the proper number of threads within the grip, as required in Step 2 of the Short Bolt Test Procedure.

B. Short Bolt Test Procedure:
1. Measure the bolt length. The bolt length is defined as the distance from the end of the threaded portion of the shank to the underside of the bolt head.
2. Install the nut on the bolt so that 3 to 5 full threads of the bolt are located between the bearing face of the nut and the underside of the bolt head. Measure and record the thread stickout of the bolt. Thread stickout is determined by measuring the distance from the outer face of the nut to the end of the threaded portion of the shank.
3. Install the bolt into a hole on the plate or girder and install the required number of washers and additional spacers as needed between the bearing face of the nut and the underside of the bolt head to produce the thread stickout measured in Step 2 of this procedure.
4. Tighten the nut using a hand wrench to a snug-tight condition. The snug condition shall be the full manual effort applied to the end of a 12-inch long wrench. This applied torque shall not exceed 20 percent of the maximum allowable torque in Table E.

Table E

Maximum Allowable Torque for High-Strength Fastener Assemblies	
Bolt Diameter (inches)	Torque (ft-lb)
1/2	145
5/8	285
3/4	500
7/8	820
1	1220
1-1/8	1500
1-1/4	2130
1-3/8	2800
1-1/2	3700

5. Match-mark the assembly by placing a heavy reference start line on the steel plate or girder which aligns with (1) a mark placed on one corner of the nut and (2) a radial line placed across the flat on the end of the bolt or on the exposed portions of the threads of tension control bolts. Place an additional mark on the outside of the socket that overlays the mark on the nut corner such that this mark will be visible while turning the nut. Make 2 additional small marks on the steel plate or girder,

one 1/3 of a turn and one 2/3 of a turn clockwise from the heavy reference start line on the steel plate or girder.

6. Using the torque wrench, tighten the nut to the rotation value listed in Table F. The rotation is measured from the heavy reference line described in Step 5 made after the bolt was snug-tight. A second wrench shall be used to prevent rotation of the bolt head during tightening. Measure and record the moving torque after this rotation has been reached. The torque shall be measured with the nut in motion.

Table F

Nut Rotation Required for Turn-of-Nut Installation[(a),(b)]	
Bolt Length (measured in Step 1)	Required Rotation (turn)
4 bolt diameters or less	1/3

(a) Nut rotation is relative to bolt, regardless of the element (nut or bolt) being turned. For bolts installed by 1/2 turn and less, the tolerance shall be plus or minus 30 degrees.
(b) Applicable only to connections in which all material within grip of the bolt is steel.

7. Tighten the nut further to the 2/3-turn mark as indicated in Table G. The rotation is measured from the heavy reference start line made on the plate or girder when the bolt was snug-tight. Verify that the radial line on the bolt end or on the exposed portions of the threads of tension control bolts is still in alignment with the start line.

Table G

Required Nut Rotation for Rotational Capacity Test	
Bolt Length (measured in Step 1)	Required Rotation (turn)
4 bolt diameters or less	2/3

8. Loosen and remove the nut and examine the threads on both the nut and bolt.

C. Short Bolt Acceptance Criteria:

1. An assembly shall pass the following requirements to be acceptable: (1) the measured moving torque from Step 6 shall be less than or equal to the maximum allowable torque from Table E, (2) the nut shall be able to be removed from the bolt without signs of thread stripping or galling after the required rotation in Step 7 has been achieved, (3) the bolt does not shear from torsion or fail during the test, and (4) the assembly shall not seize before the final rotation in Step 7 is reached. Elongation of the bolt in the threaded region between the bearing face of the nut and the underside of the bolt head will not be considered a failure. Both fastener assemblies tested from one rotational capacity lot shall pass for the rotational capacity lot to be acceptable.

INSTALLATION TENSION TESTING AND ROTATIONAL CAPACITY TESTING AFTER ARRIVAL ON THE JOB SITE

Installation tension tests and rotational capacity tests on high-strength fastener assemblies shall be performed by the Contractor prior to acceptance or installation and after arrival of the fastener assemblies on the project site. Installation tension tests and rotational capacity tests

shall be performed at the job site, in the presence of the Engineer, on each rotational capacity lot of fastener assemblies.

The requirements of this section do not apply to high-strength cap screws or high-strength bolts used for slip base plates.

Installation tension tests shall be performed on 3 representative fastener assemblies in conformance with the provisions in Section 8, "Installation," of the RCSC Specification. For short bolts, Section 8.2, "Pretensioned Joints," of the RCSC Specification shall be replaced by the "Pre-Installation Testing Procedures," of the "Structural Bolting Handbook," published by the Steel Structures Technology Center, Incorporated.

The rotational capacity tests shall be performed in conformance with the requirements for rotational capacity tests in "Rotational Capacity Testing Prior to Shipment to Job Site" of these special provisions.

At the Contractor's expense, additional installation tension tests, tests required to determine job inspecting torque, and rotational capacity tests shall be performed by the Contractor on each rotational capacity lot, in the presence of the Engineer, if:

1. Any fastener is not used within 3 months after arrival on the job site,
2. Fasteners are improperly handled, stored, or subjected to inclement weather prior to final tightening,
3. Significant changes are noted in original surface condition of threads, washers, or nut lubricant, or
4. The Contractor's required inspection is not performed within 48 hours after all fasteners in a joint have been tensioned.

Failure of a job-site installation tension test or a rotational capacity test will be cause for rejection of unused fasteners that are part of the rotational capacity lot.

When direct tension indicators are used, installation verification tests shall be performed in conformance with Appendix Section X1.4 of ASTM Designation: F 959, except that bolts shall be initially tensioned to a value 5 percent greater than the minimum required bolt tension.

2.34 SURFACE PREPARATION AND PAINTING OF STEEL AND GALVANIZED STEEL

GENERAL

This work shall consist of (1) surface preparation and shop prime coat application of new structural steel for installation on the bridge, (2) field painting of newly erected steel, (3) surface preparation and field painting of all existing structural steel including truss members, stringers, diaphragms, connections, bearings and associated steel items unless explicitly excluded and (4) surface preparation of all galvanized steel surfaces including cables and their appurtenances, bolts, conduit, hangers, cables and other surfaces.

Abrasive blast cleaning shall be used to prepare the surfaces of the new steel in the shop. The properly prepared surfaces are to be primed in the shop with an organic zinc primer and then

over coated in the field with an epoxy intermediate coat and a high performance acrylic finish coat.

Abrasive blast cleaning and power tool cleaning shall be used to remove paint, rust and mill scale from the existing steel surfaces in the field. The properly prepared surfaces will be primed with an organic zinc primer and finished with an epoxy intermediate coat and high performance acrylic topcoat.

The tower columns from the base on the pedestal up to and including the first horizontal box beam shall be over coated with a water based urethane anti-graffiti coating.

Exposed galvanized steel is to be prepared for painting by detergent washing to remove all contaminates and zinc salts. Rust shall be removed by hand tool cleaning.

Areas of damaged galvanizing on all surfaces except cables are spot primed with an epoxy mastic primer and finished with epoxy primer and high performance acrylic finish coat.

All cables and appurtenances are to be coated with a waterborne acrylic elastomeric coating system.

The aluminum fence that runs on each side of the bridge will remain unpainted.

Specific coating removal and field priming operations associated with the installation of new steel may be necessary at select locations prior to the wholesale removal of the remainder of the coatings. The contractor shall erect the necessary containment to permit the removal of the existing coating and application of the specified primer onto the designated faying surfaces.

Lead and other toxic metals have been found in samples of the existing coatings removed from the bridge. Lead concentrations range between 230,000 ppm and 310,000 ppm. Cadmium was found on the underside of the decking. Cadmium was only found in one of the four samples that were analyzed. The cadmium concentration in that sample was measured at 5.3 ppm. Total chromium concentrations ranged between 9,500 ppm and 31,000 ppm.

"Existing Paint Systems" and "Work Area Monitoring" provide the minimum requirements necessary for worker and environmental protection when working with coatings containing toxic metals.

REFERENCES

The following is a listing of the publications referenced in this section of the Technical Specifications. Unless otherwise noted, the latest revision of the standards in effect at the time of bid shall apply. The absence of a reference otherwise identified does not negate the requirements or information therein.

American Institute for Steel Construction

AISC SPE "Certification Standard for Shop Application of Complex Protective Coating Systems,"

American Society for Testing Materials

ASTM D 3359 Standard Test Methods for Measuring Adhesion by Tape Test
ASTM D 4138 Standard Test Methods for Measurement of Dry Paint Thickness of Protective Coating Systems by Destructive Means
ASTM D 4285 Standard Test Method for Indicating Oil or Water in Compressed Air
ASTM D 4414 Standard Practice for Measurement of Wet Film Thickness by Notch Gages

ASTM D 4417 Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel. Method C
ASTM D 4541 Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers
ASTM D4752, Standard Test Method for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub"
ASTM D 6386 Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting
D 7091 Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals

SSPC: The Society for Protective Coatings (SSPC)

SSPC-PA 1 Shop, Field & Maintenance Painting
SSPC-PA 2 Measurement of Dry Paint Thickness with Magnetic Gages
SSPC-SP 1 Solvent Cleaning
SSPC-SP 2 Hand Tool Cleaning
SSPC-SP 3 Power Tool Cleaning
SSPC-SP 10 Near-White Blast Cleaning
SSPC-SP 11 Power Tool Cleaning to Bare Metal
SSPC-SP 16 Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals
SSPC-VIS 1 Visual Standard for Abrasive Blast Cleaned Steel
SSPC-VIS 3 Visual Standard for Hand and Power Tool Cleaned Steel
SSPC-Guide 12 Guide for Illumination of Industrial Painting Projects
SSPC-Guide 15 Field Methods for the Retrieval and Analysis of Soluble Salts on Steel and Other Non-Porous Substrates
SSPC-Guide 16 Guide to Specifying and Selecting Dust Collectors
SSPC-QP 1 Standard Procedure for Evaluating Painting Contractors (Field Application to Complex Industrial Structures)
SSPC-QP 2 Standard Procedure for the Qualification of Painting Contractors (Field Removal of Hazardous Coatings from Complex Structures)
SSPC-QP 3 Shop Painting Certification Program
SSPC-QS 1 Standard Procedure for Evaluating A Contractor's Advanced Quality Management System

Equipment and Coating Manufacturer Published Instructions

QUALIFICATIONS AND EXPERIENCE

The Field Painting Contractor shall be certified to SSPC QP-1 "Standard Procedure for Evaluating Painting Contractors (Field Application to Complex Industrial Structures)" and SSPC QP2 "Standard Procedure for the Qualification of Painting Contractors (Field Removal of Hazardous Coatings from Complex Structures)". Alternatively, provide evidence of equivalent qualifications with the bid. In addition the Contractor shall have, as a minimum, five (5) years of successful industrial painting experience, with a minimum of 3 projects in the last 5 years involving a similar scope of work that included lead paint removal and the same methods of removal and painting systems specified herein. A similar scope of work is defined as a bridge

that crosses over a waterway or roadway. The similar projects shall have been conducted without any serious safety incidents (hospitalizations) and with acceptable warranty inspections and repair.

The Shop Painting Contractor shall be certified to SSPC-QP 3 "Standard Procedure for Evaluating Qualifications of Shop Painting Applicators". The AISC's Sophisticated Paint Endorsement (SPE) quality program, Certification P-1 Enclosed, will be considered equivalent to SSPC-QP 3. In addition the Contractor shall have, as a minimum, five (5) years of successful industrial shop painting experience, with a minimum of three (3) projects in the last two (2) years involving a similar scope of work, including methods of surface preparation, and painting systems. A similar scope of work is defined as painting a quantity of components equivalent to the scope of work required by this specification.

SUBMITTALS REQUIRED WITH THE BIDS

Each Contractor and subcontractor (shop and field) submitting a proposal for completing the work specified herein shall provide the following documentation with their bids for review by the Owner:

A list of prior jobs similar in nature and scope to the one specified herein. All references shall include contact information (name, company name, phone number, address, etc.) and value of the contract.

A brief description of the methodologies that will be used for preparing the surfaces for painting and application of the coatings. The narrative shall include a description of the containment practices that will be employed to prevent the introduction of paint debris to the environment.

Identification of the coating materials that will be used.

A proposed schedule, with man-loading, for completing the work.

A copy of the Contractor's Corporate Safety Program with the history of lost time accidents.

Current copies of Contractor QP-1, QP-2 and QP-3 (or AISI SPE) certifications.

PRECONSTRUCTION SUBMITTALS – SHOP PAINTING

Before performing any shop painting, the Contractor shall submit to the Engineer, 3 copies of a Painting Quality Work Plan (PQWP). As a minimum, the PQWP shall include the following:

1. The name of each Contractor or subcontractor to be used.
2. One copy each of all current AISC, ASTM and "SSPC: The Society for Protective Coatings" methods of test, specifications and standards applicable to the painting and surface preparation to be performed. These documents shall become the permanent property of the Owner.
3. A copy of the coating manufacturer's guidelines and recommendations (product data sheets) for surface preparation, painting, drying, curing, handling, shipping, and storage of painted structural steel.
4. The documentation required in Section 5.6 of AASHTO Designation: M 300.
5. Special Requirements for Organic Zinc-Rich Primers: Organic zinc-rich primers shall be certified to Class B Slip Coefficients in the configurations required by this specification.
6. Proposed materials, methods, and equipment to be used for any paint application.
7. Proposed methods to control environmental conditions for cleaning and painting in accordance with the coating manufacturer's recommendations and these technical specifications.
8. Proposed methods to protect the coating during curing, handling, storage and shipping.

9. A detailed coating repair plan for the repair of damaged areas prior to shipping.
10. Examples of proposed daily reports for quality control inspections to be performed, including type of testing/observation, location, lot size, time, weather conditions, inspection personnel, and results. At a minimum, the content of the daily reports shall include measurements, tests, observations and performance requirements contained herein.
11. A proposed schedule, with man-loading, for completing the work.

PRECONSTRUCTION SUBMITTALS – FIELD PAINTING

Within 20 working days after notice to proceed, the Contractor shall submit the following to the Engineer for review and acceptance. Detailed requirements for each of the submittals are provided throughout this specification.

Prior to performing any painting or paint removal, the Contractor shall submit to the Engineer, 3 copies of a separate Painting Quality Work Plan (PQWP) for each item of work for which painting or paint removal is to be performed. As a minimum, each PQWP shall include the following:

The name of each Contractor or subcontractor to be used along with evidence of the experience and qualifications for each of their supervisors. Include the names, locations and telephone numbers of the owners of previously completed projects worked on by the supervisory personnel. The Owner has the right to review and reject contractors/sub-contractors and key personnel if the qualifications do not demonstrate adequate experience or acceptable past performance.

One copy each of all current ASTM and SSPC methods and specifications applicable to the painting or paint removal to be performed. These documents shall become the permanent property of the Department.

A copy of the coating manufacturer's guidelines and recommendations (product data sheets) for surface preparation, painting, drying, and curing of painted structural steel, including testing methods and maximum allowable levels for soluble salts.

Provide written procedures for conducting the Work of this Section including, but not limited to, the preparation of carbon steel and galvanized surfaces; coating mixing, application, and repair; recoat times and cleaning between coats; and the installation of caulking materials.

Provide a comprehensive listing of the equipment that will be used for surface preparation and painting. Include a description of equipment repair and replacement capability, including the procedures that will be followed in the event of equipment failure so that lost production time is kept to a minimum.

Identify the methods of protection or work isolation procedures that will be followed to protect surrounding structures, equipment, and property from exposure to surface preparation and paint drips, spills, and overspray.

Identify the name and chemical composition of detergents or solutions that will be used if it is necessary to clean the surface of the steel or one coat prior to the application of the next. Only detergents which are environmentally safe and which will have no adverse effect on aquatic life are acceptable. Submit the MSD Sheets for the chemicals and detergents.

Coating Materials - Identify the coating materials to be applied. In the event of a conflict between the manufacturers's technical data and the requirements of this Section, comply with this Section unless the requirements of the manufacturer are more

restrictive. In these cases, advise the Engineer of the discrepancies in writing, and comply with the Engineer's written resolution.

Provide documentation that that the primer used in faying surfaces is compliant with Class B certifications of Appendix A of the "Specification for Structural Joints Using ASTM A325 or A490 Bolts" of the Research Council on Structural Connections (RCSC Specification).

Caulking Materials - Provide the name, generic type, Product Data Sheet, and MSDS for the proposed caulk. In the event of a conflict between the manufacturers's published technical data and the requirements of this specification comply with this specification unless the requirements of the manufacturer are more restrictive. In these cases, advise the Engineer of the discrepancies in writing, and comply with the Engineer's written resolution.

Include a letter from the coating manufacturer stating acceptance of the caulking material for use with the coating system.

Provide letters from the caulking manufacturer stating that the materials are suitable for the intended use.

Provide written application instructions from the caulking manufacturers. Include equipment needed for application, mixing and application procedures, temperature and weather restrictions for application and curing. Identify thickness requirements and drying times for overcoating or exposure to weather.

Quality Control Inspection Plan - Submit a project specific quality control inspection plan that will be followed to confirm that all Work complies with the requirements of this Section.

The plan must include the following at a minimum:

Inspection organization chart including lines of authority and the experience, training, and qualifications of all quality control personnel.

Written inspection procedures for all phases of the Work, including the frequency of inspections that will be performed, and the handling of non-conforming work.

Documentation procedures including samples of the actual inspection forms that will be used for Work of this Section.

Written description of equipment to be used for surface preparation and coating application inspection, calibration procedures, frequency of calibration, and the methods for handling equipment that is found to be out of calibration.

Examples of proposed daily reports for all testing to be performed, including type of testing, location, lot size, time, weather conditions, test personnel, and results.

A proposed schedule, with man-loading, for completing the work.

Paint Samples - Provide the following paint samples for review and approval of the Owner:

Paint and coating samples roller applied on 24 inch x 24 inch hardboard, and 8 ½ inch x 11 inch paper board, stepped back 2 inches to show all layers of paint, with textures to simulate actual conditions.

Submit the samples in colors with a finish coat that matches the color requirements specified herein.

Identify each sample as to manufacturer, color and product name.

SHOP AND FIELD PRE-PAINTING MEETING AND REVIEW OF PQWP

Two PQWP's shall be prepared - one by the shop painter and the second by the field painter. Before submitting the PQWP's, a pre-painting meeting between the Engineer, the Contractor,

and a representative from each entity performing surface preparation and painting for this project shall be held to discuss the requirements for the PQWP.

The Engineer shall have 20 working days to review the PQWP submittal after a complete plan has been received. No painting or surface preparation shall be performed until the PQWP for that work is accepted by the Engineer. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the PQWP, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The Engineer's acceptance of the Contractor's PQWP does not relieve the Contractor of any responsibility under the contract for the successful completion of the work in conformity with the requirements of the plans and specifications.

EQUIPMENT

Provide and use surface preparation and painting equipment in accordance with the requirements of the Execution Section of this Technical Specification. Provide all equipment needed to perform the work including the necessary power supplies, even if the required equipment is not specifically designated in this specification.

POWER AND WATER - The Contractor shall provide all power and water necessary to complete the surface preparation and cleaning work specified herein.

BLAST CLEANING EQUIPMENT - Provide blast-cleaning equipment that is well maintained with properly sized pots, hoses, nozzles, and all support equipment (e.g., compressors) needed to perform the work as specified. If recycled abrasives are used, provide appropriate equipment to clean the abrasive for reuse, including the removal of fine particulate and dust.

HAND AND POWER TOOLS - Provide brushes, discs, wheels, scrapers, descalers, and other equipment that are clean and sized properly to accomplish the work, including the required surface profile when specified.

BRUSHES AND ROLLERS - Provide brushes and rollers that are clean, constructed of a material that will not be softened or deteriorated by the paint material or solvents, that will not leave excessive amounts of roller nap or bristles in the applied paint film, and which is sized properly to perform the work.

SPRAY EQUIPMENT - Provide airless, conventional, and/or other spraying equipment that is clean, equipped with agitators and ancillary equipment (e.g., heaters) as required, and is sized properly to perform the work.

SHOP COATING MATERIALS

Abrasive blasted steel shall be primed with an organic zinc primer in one application. Acceptable coatings include:

Sherwin Williams Zinc Clad III HS
Carboline Carbozinc 859 VOC
Tnemec Series 94H2O Hydro Zinc

Alternative products will be considered provided the documentation required in the Alternative Coatings Section of this technical specification has been submitted and is acceptable.

The specific product shall be selected in consultation with the field painting contractor in order for the shop and field coatings to be supplied by the same manufacturer. The field painting contractor shall have the final say in manufacturer selection.

The primer selected for use shall meet the current applicable volatile organic compound limits for the air district in which the project is located.

FIELD COATING MATERIALS

All coating materials must be supplied by the same manufacturer, including shop and field. The Contractor shall provide a finish coat in the color and gloss approved by the Owner, with all underlying coats, including the stripe coats, in contrasting colors. It is imperative that the finish coat be produced in the same color and gloss throughout the duration of the Contract.

Deliver paint ready mixed to approved tints and colors. Construction site tinting is prohibited.

Steel

The following paint system shall be used for field painting all steel surfaces in the order listed:

Abrasive blasted steel shall be primed with an organic zinc primer in one application. Acceptable coatings include:

Sherwin Williams Zinc Clad III HS
Carboline Carbozinc 859
Tnemec Series 94H2O Hydro Zinc

In addition, the organic zinc shall also be used to spot repair damaged shop primed new steel.

An intermediate coat of epoxy shall be applied in one application. Acceptable coatings include:

Sherwin Williams Macropoxy 646 -100 PW
Carboline Carboguard 890 VOC
Tnemec Series L69F Hi Build Epoxoline

A high performance topcoat shall be applied in one application. Acceptable coatings include:

Sherwin Williams Shercryl
Carboline Carboxane 2000
Tnemec Enduratone 1029

The topcoat shall be tinted to match the Golden Gate International Orange color.[1]

A water based urethane anti-graffiti coating shall be applied over the finish coat on the tower columns from the base on the pedestal up to and including the first horizontal box beam. The following coating is acceptable:

Sherwin Williams 2K Water Based Urethane Anti Graffiti Coating

Galvanized Steel Except Cables, Appurtenances and Bolts

The following paint system shall be used for painting all galvanized steel surfaces, except for cables, appurtenances and bolts:

Areas of damaged galvanizing shall be spot primed with an epoxy mastic primer in one application. Acceptable coatings include:

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[1] BYK Spectro-Guide Sphere, D65 Ilum. 10° Obs., X 14.47, Y 11.05, Z 6.24, *L 39.66, *a 26.28, *b 18.49.

Sherwin Williams Epoxy Mastic Aluminum II
Carboline Carbomastic 15
Tnemec Series 135 Chembuild

All surfaces (bare galvanized steel and repair areas) shall be primed with an epoxy primer coat in one application.

Sherwin Williams Macropoxy 646 -100 PW
Carboline Carboguard 890 VOC
Tnemec Series L69F Hi Build Epoxoline

A high performance topcoat shall be applied in one application. Acceptable coatings include:

Sherwin Williams Shercryl
Carboline Carboxane 2000
Tnemec Enduratone 1029

Galvanized Steel Cables and Appurtenances

The following paint system shall be used for painting all galvanized steel cable surfaces and associated appurtenances:

All galvanized steel cable surfaces shall be primed with a water based adhesion promoting primer in one application. Acceptable coatings include:

Rustoleum Pegalink
Thortex Uni-Tech MC Primer

Two coats of an acrylic elastomeric coating shall be applied over the primed surfaces. Acceptable coatings include:

Rustoleum Noxyde
Thortex Poly-Nox

The acrylic elastomeric coating shall match the color of the existing galvanized steel.

Galvanized Steel Bolts

The following paint system shall be used for painting all galvanized steel bolts:

All bolt surfaces shall be spot primed with an epoxy mastic primer in one application. Acceptable coatings include:

Sherwin Williams Epoxy Mastic Aluminum II
Carboline Carbomastic 15
Tnemec Series 135 Chembuild

A high performance acrylic topcoat[1] shall be applied in one application. Acceptable coatings include:

Sherwin Williams Shercryl
Carboline Carboxane 2000
Tnemec Enduratone 1029

ALTERNATIVE COATINGS

Acceptable coating products are identified in Shop Coating Materials and Field Coating Materials, above. If an alternate coating system is to be proposed for the project all of the requirements detailed below must be met.

COMPLIANCE WITH VOLATILE ORGANIC CONTENT (VOC) REGULATIONS: A manufacturer seeking approval for an alternative coating system shall provide certified test results verifying that each coating submitted for acceptance is in compliance with all prevailing local, state and federal VOC regulations. To qualify for

acceptance each coating must meet the regulation requirements in an as supplied and as thinned for application composition plus meet performance requirements. Any coating system identified to be in noncompliance with prevailing regulations will automatically be disqualified.

PACKAGING AND MIXING: All coatings (primer, intermediate and top coats) shall be supplied in prepackaged components that when fully mixed will yield a volume that can be applied within the time frame and conditions available for proper application.

STORAGE LIFE: The paint shall not exhibit thickening, curdling, gelling, gassing, or hard caking after being stored 9 months from date of delivery in a tightly covered unopened container.

PRODUCT DATA SHEET: To be approved a coating must have a MANUFACTURERS DATA SHEET that provides the following information:

VOLATILE ORGANIC CONTENT (VOC): VOC supplied in the container and the volume of the thinner that can be added and not exceed the maximum permissible VOC level.

PROPERTIES OF MATERIALS:
% Total Solids by weight.
% Pigment by weight.
% Total Solids by volume in accordance with ASTM D 2697.
Mass per liter in grams or weight per gallon.
Viscosity (Stormer @ 77°F) KU.
Recommended minimum and maximum dry film thickness in mils.
Theoretical Coverage
Minimum and maximum drying times,(as applicable) at 77°F and relative humidity of 50%, for to Touch, to Handle and to Recoat.
Shelf Life of each component stored at 77°F.
APPLICATION INFORMATION:
Ambient temperature, surface temperature, material temperature and humidity requirements for application.
Requirements for application by brush or roller.
Mixing instructions.

NOTE: If a manufacturer's standard PRODUCT DATA SHEET does not contain all of the above required information, a supplemental sheet from the manufacturer with the additional information shall be provided.

Special Requirements for Organic Zinc-Rich Primers: Organic zinc-rich primers shall be certified to Class B Slip Coefficients in the configuration required by this specification. A copy of the slip coefficient test reports shall be submitted to the Engineer for review. If the slip coefficient testing has not been performed that supports the coating configuration required by this specification, then it is the responsibility of the Contractor to arrange to have the testing completed prior to the start of any painting work.

INSPECTION OF TESTING: Authorized representatives of the Engineer shall be permitted access at any time to inspect testing procedures being performed and or review test records of any coating systems being evaluated for approval. The reported field measurements and test results may be verified in the field.

CAULKING MATERIALS

Provide caulking materials recommended by the coating supplier and approved by the Engineer.

The caulking shall be tinted by the manufacturer to match the finish coat color.

Obtain the caulk from a single manufacturer for all work of this special provision.

Provide caulks that are compatible with the coating system specified. Provide written verification from the coatings supplier as to the compatibility of the caulk and coating. Use caulk that is paintable clear or the same color as the finish coating.

ABRASIVES

Abrasives used for blast cleaning when performed by in the shop by automated blast cleaning equipment shall be a blend of steel shot with a minimum addition of 25% steel grit to provide an angular profile.

Abrasives supplied for open nozzle abrasive blast cleaning of steel surfaces shall be either clean dry natural mineral abrasive, coal slag grit or steel grit, at the option of the Contractor. Select abrasive size to be of a grading suitable to produce the surface profile specified in "Surface Preparation – New and Existing Steel" or "Surface Preparation – Galvanized Steel" of this special provision. The use of abrasives other than those specified in this special provision will not be permitted unless authorized in writing by the Engineer.

The use of sand abrasive will not be allowed.

Mineral and slag abrasives used for blast cleaning steel surfaces shall conform to the requirements for Class A, Grade 3 abrasives contained in SSPC-AB 1, "Mineral and Slag Abrasives," and shall not contain hazardous material.

Steel abrasives used for blast cleaning steel surfaces shall comply with the requirements of SSPC-AB 3, "Ferrous Metal Abrasive." If steel abrasive is recycled through shop or field abrasive blast cleaning units, the recycled abrasive shall conform to the requirements of SSPC-AB 2, "Specification for Cleanliness of Recycled Ferrous Metallic Abrasive."

A Certificate of Compliance conforming to the provisions in the Standard Specifications Section 6-1.07, "Certificates of Compliance" and a Material Safety Data Sheet shall be furnished prior to use for each shipment of blast cleaning material for cleaning existing steel.

Steel and iron abrasives shall not be used for blast cleaning galvanized steel. Use abrasives which meet the requirements in ASTM D 6386

PROTECTIVE COVERINGS

Provide all protective coverings needed to protect those surfaces that are not designated to be prepared or coated.

EXECUTION

Protection of Surfaces Not To Be Coated

Use extreme diligence to assure that vehicles, equipment, hardware, fixtures, and other surfaces are protected against abrasive damage, paint spillage, overspray, etc.

Use protective coverings, shields, or masking, as necessary, to protect equipment and surfaces such as lighting and electrical fixtures, windows, hardware, floors, etc. that are not designated to receive coating. The Contractor is responsible to make full restitution for damages caused.

Field Pre-Production Surface Preparation and Job Site Standards

Prior to proceeding with production surface preparation operations conduct abrasive blast cleaning and power tool cleaning in each of two representative test areas for each method to achieve the degree of cleaning as defined in these specifications. The areas will be selected by the Engineer. If limited access areas are identified and accepted by the Engineer, then pre-production tests will be performed at areas representing these conditions as well.

Upon acceptance by the Engineer the level of cleaning represented by the job site standards represent the minimum that will be performed throughout the project. SSPC-VIS 1 and SSPC-VIS 3 may be used as aids in determining the degree of cleaning obtained. Verify that the specified anchor profile has been achieved. If the specified anchor profile is not achieved, change the methodology and prepare a new test area until the specified anchor profile is achieved.

Arrange for representatives of the coating manufacturers to be present during this testing to confirm that the cleaning meets the specification requirements and is satisfactory for the application of their products.

Do not proceed with production surface preparation activities until the Owner/Engineer agrees that the test area(s) conforms to the requirements of this section. Document the conforming surfaces photographically and provide the Owner/Engineer with photographs.

Maintain the minimum quality of cleaning as established in the test areas, and as defined in these specifications throughout the duration of the project.

General Surface Preparation Requirements

Notify the Engineer of any conditions that will interfere with conducting the required surface preparation and coating application.

Inspect with the Engineer to identify areas between steel members where difficult to access areas exist that have corrosion and where water may accumulate. Areas accepted by the Engineer as being "limited access" shall be prepared as specified later in this specification under "Surface Preparation Requirements – Limited Access Areas."

Weld Spatter, Sharp Edges, and Holes - Remove slag, flux deposits, weld spatter, and surface irregularities such as slivers, tears, fins, and hackles. Grind any resulting burrs completely smooth. This includes burrs around punched, burned, and drilled holes. Prior to surface preparation, break all sharp edges such as those created by flame cutting, shearing and corrosion. The rolled edges of angles, channels, and wide flange beams do not normally require further rounding unless specifically required by the Engineer.

Excessive Metal Loss and Pitting - Examine substrates for the presence of excessive metal loss and corrosion pitting. Report all locations to the Engineer. The Engineer will determine what degree of degradation requires structural remediation.

General Cleaning – Steel and Galvanized Steel Surfaces (Except for Cables)

Prior to surface preparation operations, remove all visible oil grease and water insoluble drawing and cutting compounds in accordance with SSPC-SP 1, Solvent Cleaning.

Blast cleaning and Power Tool cleaning shall not be performed until the surfaces are thoroughly dry.

Ambient Conditions

Do not conduct final surface preparation which exposes bare steel under damp environmental conditions, or when the surface temperature is less than 5°F greater than the dew point temperature of the surrounding air.

Paint shall be applied only on dry surfaces and during conditions that are compliant with those included in this specification and the manufacturer's recommendations. Blast cleaning or application of solvent-borne paint will not be permitted when the atmospheric or surface temperature is at or below 40 F or above 100 F, or when the relative humidity exceeds 85 percent at the site of the work. Application of water-borne paint will not be permitted when the atmospheric or surface temperature is at or below 50 F, or above 100 F, or when the relative humidity exceeds 75 percent at the site of the work. Application of paint will not be permitted when the steel surface temperature is less than 5 F above the dew point. If the manufacturer's required ambient conditions are more restrictive than those specified above, comply with the manufacturer's requirements.

Ambient, temperatures and relative humidity are required to be measured in the area where the surface preparation/painting is being performed.

Compressed Air Cleanliness

Provide compressed air that is free from moisture and oil contamination for use in any shop or field operations that may impact the cleanliness of the substrate or coating materials.

Perform the white blotter test in accordance with ASTM D 4285 to verify the cleanliness of the compressed air. Conduct and document the test at least once per shift for each compressor system. Sufficient freedom from oil and moisture is confirmed if soiling or discoloration is not visible on the paper.

If air contamination is evidenced, examine the work completed since the last satisfactory test for evidence of contamination, and conduct any necessary clean up or repair. Change filters, clean traps, add moisture separators or filters, or make other adjustments as necessary to achieve clean, dry air.

Surface Preparation – New and Existing Steel

The flame cut edges of new steel shall be ground in the shop prior to abrasive blasting in accordance with AASHTO/NSBA Steel Bridge Collaboration S 8.1-2002 Standard, "Guide Specification for Coating Systems with Inorganic Zinc-Rich Primers"

Prior to performing surface preparation operations on existing steel remove all pack rust and rust scale by power tool cleaning.

Prepare all steel surfaces, unless otherwise directed to achieve an SSPC-SP 10, Near White Blast Cleaning, the degree of cleanliness. Blast cleaning shall leave all surfaces with a dense, uniform, angular anchor pattern of between 1.5 and 2.5 mils as measured in conformance with the requirements in ASTM D 4417 Method C.

SSPC-VIS 1 shall be used as an aid in determining the quality of cleaning.

Limited access areas shall be prepared in accordance with SSPC-SP 11, Power Tool Cleaning to Bare Metal. The use of power tool cleaning in limited access areas may only be performed with the authorization of the Owner/Engineer in lieu of abrasive blast cleaning to prepare surfaces of less than one (1) square foot in areas where clamps, braces or supports for containment interfered with blast cleaning, or surfaces where abrasive blast cleaning may damage adjacent or nearby equipment such as motors, gears and electrical connections. The Contractor shall obtain a minimum profile of 2 mils and a maximum of no more than the coating manufacturer's recommended maximum limit. SSPC-VIS 3 shall be used as an aid in

determining the cleanliness of SSPC-SP 11 cleaning. Containment and vacuum shrouded power tools shall be employed. Surfaces that cannot be properly cleaned using power tools or specialty blast cleaning accessories shall be cleaned using hand tools to a "best effort" degree of cleaning as agreed to by the Engineer.

Surface Preparation – Limited Access Areas

The design of the bridge may create areas of limited access which are not conducive to achieving the specified degree of surface preparation across every square inch of the surface. In limited access areas approved by the Engineer, provide surface preparation as follows.

Thoroughly prepare the surfaces by using methods designated above (Surface Preparation – New and Existing Steel) in all areas that can be viewed without the use of mirrors.

In all remaining areas, the intent is to clean the surfaces, at a minimum, by removing all loose coatings. Inspect the surfaces for compliance by touch, using a putty knife, and by using inspection mirrors. Cleaning and painting of these areas may require the use of specialized equipment.

Surface Preparation – Galvanized Steel (Except Cable Surfaces and Fasteners)

Galvanized steel surfaces shall be prepared in accordance with ASTM D6386, Standard Practice for Preparation of Zinc (Hot-Dip Galvanized) Coated Iron and Steel Product and Hardware Surfaces for Painting, using either abrasive blast cleaning or the application of a zinc phosphate treatment (Galva-Prep).

If abrasive blasting is elected, all surfaces shall be prepared in accordance with SSPC SP-16, Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals.

Consider using mild abrasive blasting techniques (sodium bicarbonate, sponge jet, etc.). If standard abrasive blasting is used control the blast cleaning to minimize damage to zinc surfaces and the amount of galvanizing that is removed. Use reduced blast pressures to achieve the level of cleanliness required with minimal damage to substrates. Galvanizing loss will not be permitted.

Power Tool Cleaning in accordance with SSPC SP 11 Power Tool Cleaning to Bare Metal, can be used in areas that cannot be reached by abrasive blasting. Upon completion of the cleaning, verify that a minimum 1 mil surface profile, or deeper if required by the coating manufacturer, has been achieved uniformly and densely across the surface. When preparing galvanize, use care to minimize the amount of galvanizing removed during the cleaning.

Surface Preparation - Galvanized Steel Cables

Remove all surface debris, chalk, grease, oil, dirt, mold and mildew. Clean by water washing and hand scrubbing the entire surface with stiff bristled non-metallic scrub brushes. Do not use pressurized water in excess of 150psi. Use solvent cleaning and mold/mildew remover as necessary to thoroughly remove grease, oil, and mold/mildew.

Supplement the water cleaning/scrubbing with hand tools in accordance with SSPC-SP 2, "Hand Tool Cleaning" to removal all loose rust. Use power tool cleaning in accordance with SSPC-SP 3, "Power Tool Cleaning" only upon specific approval of the Engineer. Select and use hand tools and power tools, if approved, so as to not damage the zinc coating on any exposed wrapping wire. Following surface preparation and prior to coating application verify the cable is dry and contains no free water.

Surface Preparation - Galvanized Steel Bolts

Solvent clean galvanized bolts in accordance with SSPC SP-1, Solvent Cleaning, to remove all oil, grease, dirt and other contaminants. Remnants of any die that may have been applied during fabrication is permissible. Use a white rag to verify that contaminants have been removed.

Paint Storage

Keep all containers of paint unopened until required for use.

Store all paint, thinners, and solvents in accordance with OSHA regulations and the requirements of the paint manufacturer. Store the paint and solvents under cover, out of direct sunlight. Maintain the temperature between 40°F and 90°F, unless the requirements of the manufacturer are more restrictive.

Provide the size and number of fire extinguishers in proper proportion to the quantity of paint stored.

Do not permit smoking in paint storage, mixing, and application areas.

Do not open or mix paints in the storage area unless authorized by the Owner.

Do not return mixed paints to the storage area.

Bulk containers for solvents and thinners must be equipped with spring-loaded, self-closing, dispensing nozzles and Underwriter's Laboratories approved drum bung vents. Use Underwriter's Laboratories approved containers for transporting paint to mixing areas.

Use explosion-proof lighting fixtures.

Do not permit the accumulation of empty paint cans, combustibles, and other debris.

Maintain MSD sheets for all materials.

Mixing and Thinning of Coating Materials

Verify that the paint to be mixed has not exceeded its shelf life. When required by the manufacturer, warm paints stored at less than 50°F to above 50°F prior to mixing.

Utilize proper ventilation in the mixing area to prevent injury to workers or the accumulation of volatile gases.

Mix all coatings in accordance with the requirements of the coating manufacturer using mechanical equipment such as a Jiffy mixer. Observe induction times as applicable.

Mix only complete kits of material. Mixing of partial kits is not allowed.

Do not use two component materials beyond the pot life established by the manufacturer's written instructions.

Thin paints in strict accordance with the coating manufacturer's written instructions. Use only those types, brands, and amounts of thinner recommended by the coating manufacturer. Limit the thinning to the minimum amount necessary to facilitate application.

Assure that thinning operations do not violate all federal and local VOC limits.

Coating Application

Surface Preparation - Verify that the surface exhibits the specified degree of cleaning immediately prior to painting. This includes verification of cable dryness.

Grease/Oil - If grease or oil have become deposited on the bare substrate or on the surface of any of the applied coats, remove by solvent cleaning in accordance with SSPC-SP 1 prior to the application of the next coat.

Surface Cleanliness - Thoroughly clean the surface of each coat prior to the application of the next to remove spent abrasive, dirt, dust, and other interference material.

Ambient Conditions - Apply coatings under the following conditions unless the requirements of the coating manufacturer are more restrictive or permit otherwise (moisture cured urethanes). When applying coatings that are specifically designed for application over condensation, wipe the surface free of visible moisture immediately prior to application. The dew point restrictions do not apply in these cases.

Surface and Air Temperatures - Between 50°F and 110°F.

Relative Humidity - Less than 85%.

Dew Point - Surface temperature at least 5°F above the dew point temperature of the surrounding air.

Frost/Rain - Do not apply coatings to surfaces containing frost or during rain, fog, or similar conditions.

Remove and replace any paint that is exposed to unacceptable conditions (e.g. rain or dew) prior to adequate curing.

Methods of Application - Apply all coats by the methods shown below unless the methods recommended by the paint manufacturer are more restrictive:

Airless or conventional spray application - If conventional spray is used, verify that the compressed air supply is clean and dry as determined by the blotter test per ASTM D4285. When spraying, use extreme care to avoid contamination of surrounding areas or property by overspray.

Brush or roller application - Brushes or rollers may be used to control overspray, or for localized application such as touch-up, in areas of limited accessibility for spraying, or for stripe coating. Do not use brushes or rollers for the application of inorganic zinc-rich coatings.

Coverage, Continuity, and Stripe Coating

Apply each coat to assure thorough wetting of the substrate or underlying coat, and to achieve a smooth, streamline surface relatively free of dry spray, overspray, and orange peel. Shadow-through, pinholes, bubbles, skips, misses, lap marks between applications, variations in color or texture, or other visible discontinuities in any coat are unacceptable. Runs or sags shall be brushed out while the material remains wet.

Thoroughly coat all surfaces with special attention to hard-to-reach areas and irregular surfaces such as edges, corners, welds, and bolts.

Apply a stripe coat to edges, welds, crevices, rivets, bolts, nuts, bolt threads, and other similar surface irregularities prior to the application of the intermediate and finish coats.

Tint - Use materials of sufficiently different color to facilitate proper coverage and to provide a visual distinction between coats.

Recoat Time - Apply each coat only after the previous coat has been allowed to dry as required by the manufacturer's written instructions, but as soon as possible to minimize the length of exposure to dust and contamination.

Coating Adhesion

Apply all coats in such a manner to assure that they are well-adherent to each other and to the substrate.

As required by the Owner, conduct adhesion tests of the coating. Use ASTM D3359 and/or ASTM D4541, as directed.

If the application of any coat causes lifting of an underlying coat, or there is poor adhesion between coats or to the substrate, remove the coating in the affected area to adjacent sound, adherent, coating, and reapply the material.

Wet Film Thickness

Use wet film thickness gages in accordance with ASTM D4414 to verify the thickness of each coat at the time of application. The use of these gages is particularly critical when coating concrete, masonry, FRP, PVC, insulation, and wooden substrates. Wet film thickness measurements on these substrates will be the primary means of establishing conformance with the specification.

Dry Film Thickness - General

Apply each coat to the thickness specified in Table 1 – General Coating Systems for Steel Surfaces, Table 2 – Coating System for Galvanized Steel (Except Cables and Appurtenances), Table 3 – Coating System for Cables and Appurtenances and Table 4 - Coating System for Galvanized Bolts.

Measure the thickness of each coat applied to ferrous substrates using nondestructive magnetic dry film thickness gages. Comply with SSPC-PA 2 for the calibration and use of the gages, and the frequency of thickness measurements.

Measure the thickness of each coat applied to non-ferrous metal substrates using nondestructive thickness gages in accordance with ASTM D 7091.

If there are questions regarding the thickness of the coating applied to concrete or wooden substrates, or there are disputes regarding the non-destructive measurements of coating thickness on metal substrates, a Tooke Gage (destructive scratch gage) may be used when authorized by the Owner. Conduct measurements in accordance with ASTM D4138, but limit its use to a minimum of locations. Mark and repair all damage created by the destructive testing.

Apply additional coating in areas of insufficient thickness with care to assure that all repairs blend in with the surrounding material.

Unless directed otherwise by the Owner, remove excessive coating thickness and reapply the affected coat(s).

Dry Film Thickness - Steel

Apply each coat to the dry film thickness specified in Table 1.

Table 1
Shop and Field Coating System DFT's for Steel Surfaces

System Description	Generic Coating Type	Approved Coatings	Dry Film Thickness (mils)
Shop Primer	Organic Zinc	Sherwin Williams Zinc Clad III HS Carboline Carbozinc 859 Tnemec Series 94H2O Hydro Zinc	3 to 5

Field System for Steel	Organic Zinc Primer[2]	Sherwin Williams Zinc Clad III HS Carboline Carbozinc 859 Tnemec Series 94H2O Hydro Zinc	3 to 5
	Epoxy Intermediate Coat	Sherwin Williams Macropoxy 646 -100 PW Carboline Carboguard 890 VOC Tnemec Series L69F Hi Build Epoxoline	5 to 7
	High Performance Acrylic Finish Coat	Sherwin Williams Shercryl Carboline Carboxane 2000 Tnemec Enduratone 1029	2 to 3
The total dry film thickness of the coating system shall not be less than 11 mils or more than 15 mils.			
One coat of Sherwin Williams 2K Water Based Urethane Anti-Graffiti Coating shall be applied to the specified surfaces at a dry film thickness of 2 to 4 mils. If used on other manufacturer's coatings, test patches shall be prepared in order to verify compatibility.			

[1] Used as spot primer for shop primed new steel and as a general primer on abrasive blasted existing steel

Dry Film Thickness on Steel Faying Surfaces

The total dry film thickness of all applications of the organic zinc undercoat, including the surfaces of outside existing members within the grip under bolt heads, nuts, and washers, shall be not less than 3 mils nor more than 5 mils, except that the total dry film thickness on each faying (contact) surface of high strength bolted connections shall be between one mil and the maximum allowable dry film thickness for Class B coatings as determined by certified testing in conformance with Appendix A of the "Specification for Structural Joints Using ASTM A325 or A490 Bolts" of the Research Council on Structural Connections (RCSC Specification). Unless otherwise stated, all organic zinc coatings used on faying surfaces shall meet the slip coefficient requirements for a Class B coating on blast-cleaned steel, as specified in the RCSC Specification. The Contractor shall provide results of certified testing, performed for or by the coating manufacturer, showing the maximum allowable dry film thickness for the Class B coating from the qualifying tests for the coating chosen, and shall maintain the coating thickness on actual faying surfaces of the structure at or below this maximum allowable coating thickness.

Dry Film Thickness - Galvanized Steel Except Cables and Appurtenances

Apply each coat to the dry film thickness specified in Table 2.

Table 2
Coating System DFT's for Galvanized Steel Surfaces Except Cables and Appurtenances

Generic Coating Type	Approved Coatings	Dry Film Thickness (mils)
Spot Primer	Sherwin Williams Macropoxy 646-100 PW Carboline Carbomastic 15 Tnemec Series 135 Chembuild	5 to 7
Epoxy Full Prime Coat	Sherwin Williams Macropoxy 646 -100 PW Carboline Carboguard 890 Tnemec Series L69F Hi Build Epoxoline	5 to 7
High Performance Acrylic Finish Coat	Sherwin Williams Shercryl Carboline Carboxane 2000 Tnemec Enduratone 1029	2 to 3

Dry Film Thickness - Galvanized Steel Cables and Appurtenances

Apply each coat to the dry film thickness specified in Table 3.

Table 3
Coating System DFT's for Galvanized Steel Cables and Appurtenances

Generic Coating Type	Approved Coatings	Dry Film Thickness (mils)
Primer	Rustoleum Pegalink Thortex Uni-Tech MC Primer	1.5 to 2
First Coat	Rustoleum Noxyde Thortex Poly-Nox	7 to 8
Second Coat	Rustoleum Noxyde Thortex Poly-Nox	7 to 8

Dry Film Thickness - Galvanized Steel Bolts

Apply each coat to the dry film thickness specified in Table 4.

Table 4
Coating System DFT's for Galvanized Steel Bolts

Generic Coating Type	Approved Coatings	Dry Film Thickness (mils)
Primer	Sherwin Williams Epoxy Mastic Aluminum II Carboline Carbomastic 15 Tnemec Chembuild Series 135	1.5 to 2
Finish Coat	Sherwin Williams Shercryl Carboline Carboxane 2000 Tnemec Enduratone 1029	7 to 8

Shop Coating Application Requirements

Prior to shipment all primed surfaces shall be inspected in order to identify (1) any areas of non-compliance and (2) areas with coating misapplications.

The Contractor shall measure dry film thickness in accordance with SSPC PA-2, Measurement of Dry Paint Thickness with Magnetic Gages. Correct excessive or deficient coating thickness using procedures approved by the Engineer.

Handling and Shipment – Handle, store, and load all steel members with care to prevent damage to, or contamination of the coating. Use nylon straps, padded blocks and/or wrappings that do not gouge, scratch or chip the coatings

Painting Sequence

Painting of new structural steel shall be done at the following stages of construction unless otherwise specified in these specifications or approved in writing by the Engineer:

New steel shall be blast cleaned and primed in the shop before erection. Care shall be taken to assure that the primer is applied in compliance with the criteria used in the slip coefficient testing.

Intermediate coats and final coats shall be field applied after erection and following touch-up to the shop primer if damaged.

Surfaces exposed to the atmosphere and which would be inaccessible for painting after erection shall be painted the full number of coats prior to erection.

Field painting of existing structural steel shall be done at the following stages of construction unless otherwise specified in these specifications or approved in writing by the Engineer.

Field painting shall be sequenced such that the faying surfaces of the existing steel are prepared and primed, prior to erection of the new steel. Care shall be taken to assure that the primer is applied in compliance with the criteria used in the slip coefficient testing.

All other surfaces of the existing steel can be painted at the will of the Contractor and in accordance with the following:

If concrete deck is to be placed on a steel member to be painted, intermediate and finish coats shall be applied after concrete deck placement. Before applying paint, following erection and deck placement thoroughly clean areas of exposed unpainted surfaces and where paint has been damaged or has deteriorated; remove of foreign substances including cement spatter and dust. Spot paint surfaces with undercoats to the specified thickness. Damaged areas of undercoat paint shall be blast cleaned and painted as specified in the special provisions.

Metal surfaces embedded in concrete including un-galvanized anchor bolt assemblies shall be painted prior to installation with two applications of unthinned zinc-rich primer (organic vehicle type) conforming to the provisions in Section 91, "Paint" of the Standard Specifications. Aerosol cans shall not be used.

The bottom surfaces of masonry plates and surfaces of structural steel to be in contact with elastomeric bearing pads or preformed fabric pads shall be cleaned and painted with the full number of applications prior to erection.

Caulking Application

Unless otherwise directed, apply caulking to creviced areas. Apply the caulking in accordance with the manufacturer's instructions in such a manner to seal the area from penetration by moisture.

Apply the caulking after the application of the finish coat.

Large crevices or gaps may require the use of specialized construction materials such as polyethylene backing rods in conjunction with the caulking.

Use caulking materials that are acceptable to the coating manufacturer. Provide the proposed methods of caulking to the Owner in advance for approval.

Repair of Damage and Unacceptable Coatings

Upon completion of all painting operations and of any other work that would cause dust, grease or other foreign materials to be deposited upon the painted surfaces, the painted surfaces shall be thoroughly cleaned and examined for defects and deficiencies.

All painted surfaces that are marred, damaged, display areas of corrosion or have unacceptable coatings as a result of operations of the Contractor shall be repaired by the Contractor, at the Contractor's expense, with materials and to a condition equal to that of the coating specified herein. The surfaces shall be thoroughly cleaned of loose coating and corrosion, surrounding coating feathered, and the effected coats reapplied.

Surface Preparation of Localized Areas: Solvent clean in accordance with SSPC-SP 1 using a solvent that is acceptable to the paint manufacturer. When the substrate is exposed, prepare the area in accordance with SSPC-SP11. When the substrate is not exposed, conduct power tool cleaning in accordance with SSPC-SP 3 to remove all loose material. Feather the existing coating surrounding each repair location for a distance of 1 to 2 inches on to each affected coat to provide a smooth, tapered transition into the existing intact coating. Verify that the edges of coating around the periphery of the repair areas are tight and intact by probing with a dull putty knife. Roughen the existing coating in the feathered area to assure proper adhesion of the repair coats.

Coating Application in Repair Areas: When the bare substrate is exposed in the repair area, apply primer, intermediate and a finish coat to achieve the specified thickness. When the damage does not extend to the bare substrate, the Contractor shall apply only the effected coats. Maintain the thickness of the system in overlap areas within the specified total thickness tolerances.

Housekeeping and Clean-Up

Conduct housekeeping daily to maintain the work site in a neat and orderly condition. .

Solvent cleaning of all paint application equipment shall be conducted in accordance with all federal and local VOC requirements.

At the end of each day at a minimum, haul empty paint cans and other debris to the waste storage area.

Promptly remove all paint drips, splashes, and overspray from surfaces not intended to be painted.

Upon project completion, remove all equipment and materials, correct any damage caused by the operation, and leave all surfaces in a clean and acceptable condition.

QUALITY CONTROL / ASSURANCE

General

The Contractor shall be held in strict accordance with the requirements and intent of the Specifications.

The Contractor shall perform the quality control inspections and testing specified herein on all phases of surface preparation and coating application throughout the duration of the project. Procedures or practices not specifically defined herein may be used provided they meet recognized and acceptable professional standards and are approved by the Engineer.

All materials furnished and all work accomplished under the Contract shall be subject to inspection by the Engineer. The Contractor shall provide access and allow for adequate time to perform all inspections and testing by the Owner/Engineer.

Work accomplished in the absence of prescribed inspection may be required to be removed and replaced under the proper inspection. The entire cost of removal and replacement, including the cost of all materials which may be furnished by the Owner and used in the work thus removed, shall be borne by the Contractor regardless of whether the work removed is found to be defective or not. Work covered up without the authority of the Engineer, shall, upon order of the Engineer, be uncovered to the extent required. The Contractor shall similarly bear the entire cost of performing all the work and furnishing all the materials necessary for the removal of the covering and its subsequent replacement, as directed and approved by the Engineer. Except as otherwise provided herein, the Owner will pay the cost of inspection.

The Engineer will make, or have made, such tests as he deems necessary to assure the work is being accomplished in accordance with the requirements of the Contract. Unless otherwise specified, the cost of such testing will be borne by the Owner. In the event such tests reveal non-compliance with the requirements of the Contract, the Contractor shall bear the cost of such corrective measures deemed necessary by the Engineer, as well as the cost of subsequent retesting. It is understood and agreed the conducting of tests shall not constitute an acceptance of any portion of the work, nor relieve the Contractor from compliance with the terms of the Contract.

The Contractor's Quality Control Inspector and the Owner's Quality Assurance Inspector shall be NACE Certified Level III Inspectors with over five years of experience with similar bridge painting projects.

Methods and Practices

Ambient Conditions: Dew point shall be measured in accordance with ASTM D337. If ambient conditions are unacceptable, coating or paint application shall be delayed or postponed until conditions are favorable. The day's coating or paint application shall be completed in time to permit the film sufficient drying time prior to damage though atmospheric conditions.

Surface Preparation: Surface preparation acceptance will be based upon the written requirements of the applicable surface preparation standard and comparison with: "Pictorial Surface Preparation Standards for Painting Steel Surfaces," SSPC-Vis 1, SSPC-Vis 3 and as described herein. Anchor profile for prepared surfaces shall be measured in accordance with ASTM D4417. Temperature and dew point requirements noted herein shall apply to all surface preparation operations, except low and high temperature limits.

Cleanliness of Compressed Air Supply: Compressed air cleanliness shall be verified daily, and as deemed necessary by Engineer, by directing a stream of air, without abrasive, from the blast nozzle onto a white blotter or cloth for twenty seconds in accordance with ASTM D4285. If air contamination is evident, change filters, clean traps, add moisture separators or filters, or make adjustments as necessary to achieve clean, dry air.

Witnessing Application Activities: All mixing, thinning, application and holiday detection of coatings shall be performed in the presence of the Engineer.

Film Thickness Testing: thickness of coatings and paint shall be checked with a non-destructive film thickness gauge in accordance with ASTM D 7901 An instrument such as Tooke Gage should be used in accordance with ASTM D4138 if a destructive tester is deemed necessary. The sampling of film thickness of flat (e.g. plate) surfaces shall be tested in accordance with SSPC-PA2. The sampling of structural members or irregular surfaces shall be tested in frequency and locations, as directed by the engineer.

Inspection Devices

Contractor shall furnish, until final acceptance of coating and painting, all inspection devices required for quality control inspections and tests. Provide inspection devices in good working condition including those for detection of holidays and measurement of dry-film thickness of coatings and paints. They shall also furnish National Institute of Standards and Technology/National Bureau of Standards (NIST/NBS) certified thickness calibration plates to test accuracy of thickness gauges. Dry film thickness gauges and holiday detectors shall be available at all times until final acceptance of application. Inspection devices shall be operated by, or in the presence of the Engineer with location and frequency basis determined by the Engineer. The Engineer is not precluded from furnishing his own inspection devices and rendering decisions based solely upon their tests.

Anchor profile measurement shall be accomplished nondestructively using Testex Press-0-Film System with anvil micrometer.

Acceptable devices for ferrous metal surfaces include, but are not limited to Tinker-Rasor Models AP and AP-W holiday detectors and "Elcometer" or "Positector" units for dry film thickness gauging. Inspection devices shall be calibrated and operated in accordance with the manufacturer's instructions and SSPC-PA2.

Ambient conditions shall be monitored with the use of an instrument such as a Sling Psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychrometer Tables or equivalent.

WARRANTY / ANNIVERSARY INSPECTIONS

The Contractor shall warranty (Paint Warranty) all defects or failures in the materials and/or workmanship for this section of the specification, Surface Preparation and Painting of Steel and Galvanized Steel, for a period of two (2) years after interim project acceptance as defined in Section 9-1.08D, "Final Payment and Claims," of these specifications. The Paint Warranty shall cover any and all defects or failures in material and/or workmanship that are not compliant with the acceptance criteria defined under "Inspections and Acceptance Criteria" below.

The Contractor shall repair defects identified during the two (2) year Paint Warranty period in conformance with these specifications. The warranty period shall start and end in conformance with the provisions in Section 9-1.08D, "Final Payment and Claims" of these specifications.

Attention is directed to "Surface Preparation and Painting of Steel and Galvanized Steel" of these specifications.

The Contractor shall obtain from the Coating Manufacturer (Manufacturer) their standard material warranty and provide a signed copy to the City at the time of interim project acceptance.

Maintenance Bonds

The Contractor shall provide a surety bond (Paint Maintenance Bond) which shall cover repair of any and all defects or failures in paint materials and/or workmanship that do not meet the acceptance criteria listed in "Inspections and Acceptance Criteria" below.

The Paint Maintenance Bond shall be provided prior to the termination of the Performance Bond and no later than (1) one year after interim acceptance as defined in Section 9-1.08D, "Final Payment and Claims" of these specifications.

The Paint Maintenance Bond shall become effective no later than one (1) year from interim acceptance and remain in effect until two (2) years after interim acceptance.

The Paint Maintenance Bond shall be in an amount of one and a half Million Dollars ($1,500,000.00) through the end of two years after interim acceptance.

Inspections And Acceptance Criteria

Frequency – Warranty inspections will be conducted up to 60 days prior to the one and two year anniversary following project acceptance:

Responsibility – The warranty inspection will be conducted by the City.

Attendance – The Contractor is required to attend all inspections. The Manufacturer may attend the inspections as desired. The City will advise the Contractor/Manufacturer at least 30 days prior to the date of the inspection.

Access – The City will provide access to the bridge for the inspections. Inspections will be conducted from the bridge deck and the banks on either side of the bridge. Binoculars will be used to aid in the warranty inspection.

Omissions from bonds and warranties - Defects that have occurred as a result of impact damage are omitted from all bonds and warranties.

Rust Evaluations - SSPC VIS-2, Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces will be used as a guide for determining the percentages of visible rusting on the surface.

Reduction in gloss shall be no greater than 20% from the gloss at the time of original installation. Gloss measurements shall be made in accordance with ASTM D523, Test Method for Specular Gloss.

Change in color shall be no greater than 5 ΔE^* from the color at the time of original installation. Tristimulous color shall be measured in accordance with ASTM D2244, Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinate.1

Test Site Selection for Color and Gloss - Measurements will be taken at twelve spots selected at random on the exterior surface (both outside faces) of the bridge structure (structural steel, towers and main cable). Measurements will be taken at the conclusion of the painting work and then at the one and two year warranty inspections.

Paint on steel/galvanized steel - All corrosion, rust bleed, blistering, cracking, peeling, and lifting visible using binoculars, or by close-up inspections (without the use of magnification), shall be cleaned and repainted.

There shall be zero visible defects, two (2) years after construction completion.

Reports - The City will provide the Contractor and bonding company (years 1and 2) a written report of defects/failures that are observed and require remediation. A copy of the report will be made available to the Manufacturer if requested.

Repairs

During the warranty period, should an area be found to be defective as defined above, the City will notify the Contractor in writing of the areas to be repaired. The Contractor shall complete the repairs within sixty (60) calendar days from the date of the notification letter, unless the City determines that weather conditions are unsuitable, in conformance with the provisions in Section 8-1.06, "Time of Completion," of the Standard Specifications, for completing the repair work, in which case the City will allow additional time for completion of the repairs.

All repairs shall be performed in accordance with the requirements of this specification and the paint manufacturers' written instructions. All applicable state of California and Federal safety and environmental regulations shall be followed throughout the warranty repairs. The Contractor/ shall provide for complete protection of the public around the bridge during the repair process.

The Contractor shall submit a repair plan that includes a written repair procedure along with all appropriate safety and environmental protection safety measures. The procedure must be approved by the City prior to starting warranty work.

The finish coat applied in any repair area shall match the color and gloss of the surrounding coating that exists at the time of the repair.

The repair work shall be performed without closing the bridge to pedestrian traffic..

The City is hereby authorized to make such repairs or to have such repairs made by others, if the Contractor fails to make such repairs or to have such repairs made by others within one hundred eighty (180) calendar days after receiving written notice, or undertake with due diligence the aforesaid repairs within ten (10) working days after receiving written notice or within a time specified in the notice if different. The Contractor's sureties shall be liable for the entire cost of warranty repairs including materials and labor.

The City shall decide all questions which arise as to the performance of the Surface Preparation and Painting of Steel and Galvanized Steel during the warranty period and as to the acceptable fulfillment of the warranty, in conformance with the provisions in Section 5-1.01, "Authority of the Engineer," of the Standard Specifications. Construction area signs, shown on the plans shall be removed upon completion of the contract item work, except for work required by the warranty. During the warranty period, the Contractor shall place and maintain signs in conformance with the provisions in Section 12-3, "Traffic-Handling Equipment and Devices," of the Standard Specifications and these specifications. Signs shall be, at the Contractor's option, either stationary mounted or portable signs conforming to the provisions in "Construction Area Signs" of these specifications.

Repairs made or caused to be made by the City due to the Contractor's failure to comply with the requirements of the warranty, shall not void the warranty of the Surface Preparation and Painting of Steel and Galvanized Steel. The Contractor shall continue to warranty the Surface Preparation and Painting of Steel and Galvanized Steel, including areas repaired by the Contractor or by the City, for the remainder of the warranty period.

Conflicts regarding the warranty shall be resolved utilizing the partnering relationship in conformance with the provisions in "Partnering" and "Dispute Resolution" of these specifications. If the Contractor's authorized representative, as specified in Section 5-1.06, "Superintendence," of the Standard Specifications, and the City are unable to resolve the conflicts, the next level of resolution of the partnering process shall consist of the Contractor's project manager, the Engineer and representatives from the City. If no partnering relationship has been formed, the Engineer will notify the Contractor of the City's decision regarding the conflicts.

Full compensation for paint warranty and surety bond shall be considered as included in the contract price paid for surface preparation and painting of steel and galvanized steel and no additional compensation will be allowed therefore.

Full compensation for construction area signs required for the direction of pedestrian traffic through or around the work during the warranty period and for erecting or placing, maintaining (including covering and uncovering as needed) and, when no longer required, removing construction area signs at locations shown on the plans, during the warranty period, shall be considered as included in the contract price paid for surface preparation and painting of steel and galvanized steel and no additional compensation will be allowed therefore.

Full compensation for providing the pedestrian traffic control system shown on the plans (including flagging and signs), during the warranty period, shall be considered as included in the contract price paid for surface preparation and painting of steel and galvanized steel and no additional compensation will be allowed therefore.

2.35 WORK AREA MONITORING

General

The Contractor's CIH shall be responsible for designing a monitoring program for airborne concentrations of lead, cadmium, arsenic, and chromium at the perimeter of the work area. The purpose of the area monitoring is to verify the effectiveness of the containment system at limiting the release of emissions of toxic metals to the environment. The Engineer in concert with the Contractor's CIH will be responsible for establishing the locations for the sampling pumps. It is anticipated that daily sampling of the pedestrian walkway will be performed during work that disturbs lead paints at abutments and other areas monitoring shall also be done.

Identifying and Monitoring Regulated Areas

The Contractor shall establish regulated areas around locations or activities that might generate airborne emissions of lead, cadmium, chromium, or other toxic metals in excess of the Action Level (e.g., paint removal and clean-up locations, waste storage areas, etc.). Ropes, ribbons, tape, signs, or other visible means shall be used to define the areas and prohibit entrance into regulated areas by unprotected or untrained personnel to ensure that they are not exposed to toxic metals.

Initial instrument monitoring shall be conducted to verify the adequacy of the regulated area. Use a minimum of two low flow pumps located at a point on the perimeter of the regulated area (e.g., one pump upwind and one pump downwind). Unless otherwise directed by the City, until the monitoring results are available to establish the perimeter of the regulated area, initially establish the boundary a minimum of 15 feet away from any equipment or operations that might generate airborne emissions of toxic metals.

Conduct the monitoring according to NIOSH Method 7082 at the pre-established boundaries of the regulated area(s). Collect the samples throughout an entire work shift upon commencement of the paint removal activities.

If the monitoring confirms that emissions at the established boundary do not exceed the Action Level as an 8-hour TWA, establish the boundary at that location and discontinue monitoring.

If the monitoring shows that the emissions exceed the Action Level, modify and improve work practices and containment to provide better controls over the emissions, or reestablish the boundary at a different location if allowed by the City. Repeat the monitoring in either case.

Provide the test results to the City within 10 days of sampling.

Pedestrian Bridge Monitoring

If the pedestrian bridge remains open to the public during the Work, conduct area air monitoring on the bridge each day during dust producing operations, including during containment movement, vacuuming, and vacuum-shrouded power tool cleaning. Collect samples throughout the entire work shift using a minimum of two personal sampling pumps operating at a flow rate of 2.0 liters per minute. Include the proposed sampling strategy and locations in the Environmental Compliance Plan for City review and acceptance.

Conduct sampling according to NIOSH Method 7082, or equivalent. Samples should be analyzed for lead and any other toxic metals present in the coating or abrasive.

Cassettes should be analyzed only by laboratories that have been accepted for use by the City.

Monitoring may be discontinued at the discretion of the City.

Results of samples collected on the pedestrian bridge shall not exceed the OSHA Action Level of 30 ug/m^3 for lead, as an 8-hour TWA, or the corresponding OSHA Action Level for any other toxic metal for which area air monitoring was conducted. If any sample result exceeds the OSHA Action Level for lead or any other toxic metal, immediately stop all work, modify controls and work practices, and clean the bridge deck.

Have the laboratory provide results within 72 hours of the field sampling. Provide the test results to the City upon receipt of the results from the laboratory.

ENVIRONMENTAL COMPLIANCE

General

The Contractor shall conduct daily visual assessments of visible emissions and releases to the air, soil, water, and sediment, as applicable. Undertake all necessary corrective action to control emissions and clean up the work site during and after the project, including the removal of pre-existing litter or debris.

Assessment and Correction of Visible Emissions

The Contractor shall conduct visible emissions assessments as defined in this Section and in accordance with 40 CFR 60, Appendix A, Method 22. This assessment is based on total visible emissions regardless of the opacity of the emission. Method PD/Lead A4 of SSPC publication 95-06, Project Design, provides guidance on visible emissions assessments.

The Contractor shall conduct the visible emissions assessments to account for all locations where emissions of lead dust might be generated, including but not limited to, the containment or work area, dust collection and waste recovery equipment as applicable, and waste containerizing areas.

In addition to assessing airborne emissions, conduct visual inspections for releases or spills of dust and debris that have become deposited on surrounding property, structures, equipment or vehicles, and in the American River.

Include procedures in the Environmental Compliance Plan for the assessment of visible emissions and releases, the frequency of observations and inspections that will be made, the equipment and work areas that will be observed for visible emissions, and the surrounding property and structures that will be examined for deposited debris, and the corrective action that will be taken should emissions occur. Include a copy of the form that will be completed to document visible emission observations.

Note that State of California regulations regarding visible emissions, as well as any local requirements, are in addition to, but not in lieu of, the requirements of this Section.

Acceptance Criteria for Visible Emissions Assessments

Due to the frequency and proximity of the general public to the work area, visible emissions from project activities are not permitted. Visible emissions of any duration or intensity are cause for immediate shutdown.

Immediately stop the applicable operations if emissions are observed. Correct and repair the deficiencies causing the emission, and undertake clean up with HEPA vacuums.

Violations of any high volume ambient air monitoring acceptance criteria is cause for immediate project shut down and the initiation of corrective action, even if the visible emissions results are acceptable.

Frequency and Location of Emissions Assessments

The Contractor shall conduct the specialized assessments as described in this Section at least once per hour (for a minimum of fifteen minutes each) during each shift in which paint disturbance operations are underway. Document all observations even if visible emissions are not observed. Perform casual observations on an ongoing basis.

Assessment and Correction of Spills or Releases

The Contractor shall conduct all activities so that spills or releases of paint chips or debris do not occur.

On a daily basis, the Contractor shall visually inspect the site for releases of dust, paint chips, and debris outside of the work area that have become deposited on surrounding property, structures, equipment, or vehicles; on the unprotected ground or in areas where rain water could carry the debris outside of the work area.

Clean up all visible paint chips and debris on a daily basis at the end of each shift, or more frequently if directed by the City. Conduct the cleaning by manually removing paint chips or by HEPA vacuuming.

When releases are observed, in addition to cleaning the debris, change work practices, extend the ground coverings, modify the containment, or take other appropriate corrective action to prevent similar releases from occurring in the future. Do not resume operations until the corrective measures have been inspected and approved by the City.

Reporting of Visible Emissions and Releases

The Contractor shall document all visible emission observations and all cases where work has been halted due to unacceptable visible emissions or releases, the cleanup activities invoked, and the corrective action taken to avoid reoccurrence. Maintain and make available for City review a log for the documentation of daily inspections and the documentation of unusual incidents or releases. Provide the City with an immediate verbal report each time that Work has been halted due to unacceptable visible emissions or releases. Provide a written report to the City within 48 hours of the occurrence.

Maintain the results of the assessments in a log at the site. Identify the frequency of observations made, the methods of observation utilized, the name of the observer(s), and documentation completed. Include and summarize the documentation prepared for work stoppages due to unacceptable visible emissions or releases. Make the log available to the City for review upon request.

High Volume Ambient Air Monitoring

The Contractor shall conduct daily high volume ambient air monitoring for TSP-Lead during any abrasive blast cleaning, containment movement, and/or clean-up activities (vacuuming spent abrasive) to confirm that emissions do not impact the public. High volume ambient air monitoring is not required during vacuum-shrouded power tool cleaning activities.

Identify for City approval the number and location of monitors in the Environmental Compliance Plan, taking into consideration proximity to the general public. At a minimum, conduct monitoring at four locations; two locations to the east of the bridge (one location to the north of the bridge and one location to the south of the bridge) and two locations to the west of the bridge (one location to the north of the bridge and one location to the south of the bridge). Conduct one day of background ambient air monitoring for TSP-lead at two locations, one location to the east of the bridge and a second location to the west of the bridge.

High volume ambient air sample results will be compared to the acceptance limit of 1.5 micrograms per cubic meter over a 90-day period. The formulae of SSPC Guide 6 will be used to extrapolate the acceptance limit to a daily allowable and adjusted daily allowable concentration.

In the event that the TSP-Lead air monitoring results exceed the acceptance criteria on any one day of blasting, the Contractor shall suspend dust producing operations (e.g., paint removal and/or clean-up) and implement appropriate corrective action to control emissions.

Provide written results to the City within 4 days of sampling. The analytical laboratory should be instructed to report results in micrograms per cubic meter of air. The laboratory report should include the date of sampling, work location, activities performed, wind speed/direction, and start/stop times, as well as a comparison of actual results to the calculated adjusted daily allowable concentration.

Document all cases when work has been suspended due to emissions exceeding the ambient air monitoring limit.

CLEANING OF MATERIALS, EQUIPMENT AND SURROUNDING PROPERTY

Equipment and Material Cleaning

Thoroughly HEPA vacuum, wash, or otherwise decontaminate reusable items until all loose surface dust and debris have been removed. Items requiring cleaning include, but are not limited to, paint removal equipment, containment materials, and ground covers. If adequate cleaning is not possible, treat the materials as a separate waste stream, and dispose of in accordance with the requirements of this Section.

Final Cleaning of Construction Site and Surrounding Property

Upon completion of all Work, and after all Contractor equipment and materials have been removed, conduct a thorough inspection of the construction site, and all surrounding property and surfaces located within the likely dispersion zone of dust and debris for the presence of debris. Debris includes, but is not limited to, paint chips, materials of construction, fuel, and other litter.

Remove all visible debris from the work site, even if the debris was a pre-existing condition. Use HEPA vacuums when cleaning paint chips and dust.

Collect water used for cleaning and dispose of in accordance with this Section.

After all cleanup activities are completed, conduct a final inspection with the City. Conduct any additional cleaning identified by the City. The work site is considered properly cleaned under the following conditions:

a) Paint chips, fuel, materials of construction, litter, or other types of debris are not visible on or around the construction site.

b) Lead dust has been removed from the surface of the completed structure as well as from the surrounding area.

c) Engineer's approval

Prepare a letter report documenting that a final clearance inspection has been conducted to verify the final cleanliness of the work site, and include a summary of any clean up and corrective action measures that were needed.

2.36 CHAIN LINK FENCE

Chain link fence shall be Type CI-6 and shall conform to the provisions in Section 80, "Fences," of the State Standard Specifications

2.37 PAINT TRAFFIC STRIPE

Traffic stripes , white, shall be placed on the portion of the parking lot located at 1025 University Avenue at where the temporary construction easement is granted, as shown on the plans, as directed by the Engineer and shall conform to these Special Provisions.

The Contractor shall place the striping after the resurfacing has been set for three (3) calendar days, but no later than seven (7) calendar days after resurfacing. If the Contractor fails to place the striping in the time period allowed, the Contractor shall pay liquidated damages of $500 per calendar day for each street that is not completed.

Painted traffic stripes (traffic lines) shall be applied in conformance with the provisions in Section 84, "Traffic Stripes and Pavement Markings," of the State Standard Specifications and these special provisions.

For each batch of paint for traffic stripes, the Contractor shall submit to the Engineer:

1. Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications
2. Department's Materials Engineering and Testing Services notification letter stating that the material is approved for use
3. Material Safety Data Sheet

Traffic stripe paint shall conform to the requirements in State Specification No. PTWB-01.

The color of the painted traffic stripes shall conform to the requirements in ASTM Designation: D 6628-01.

2.38 REPLACE ELECTRICAL CONDUIT

Electrical conduit shall be replaced as shown on the plans and as directed by the Engineer.

Required submittals shall be submitted at the preconstruction meeting. The Contractor shall not be allowed to begin work until the plans have been reviewed and approved by the Engineer.

* END OF SECTION *

SECTION 3.0 -MITIGATION MEASURES

1.01 TRANSPORTATION AND CIRCULATION

To satisfy the City's responsibilities for mitigation measures TC-1 from the Mitigation Reporting Program (MRP) and those responsibilities list elsewhere in the attachments to the Appendix A of these Special Provisions, the Contractor shall complete all work listed in these measures. The Contractor's attention is directed to "Construction Area Traffic Control Devices", "Maintaining Public Access", "Construction Area Signs", and "Traffic Control Plan, Public Safety And Convenience" of these special provisions.

1.02 BIOLOGICAL RESOURCES

COORDINATION WITH USFWS

To satisfy the City's responsibilities for mitigation measures BR-1 from the Mitigation Reporting Program (MRP) and those responsibilities list elsewhere in the attachments to the Appendix A of these Special Provisions, the Contractor shall complete all work listed in these measures.

VALLEY ELDERBERRY SHRUBS

To satisfy the City's responsibilities for mitigation measures BR-2 from the Mitigation Reporting Program (MRP) and those responsibilities list elsewhere in the attachments to the Appendix A of these Special Provisions, the Contractor shall complete all work listed in these measures. The Contractor's attention is directed to "Construction Notes" and "Clearing and Grubbing" of these special provisions.

A Contractor provided Biologist will be on site to monitor site preparation activities that occur in the vicinity of elderberry bushes. The biological monitor will be present during activities which involve the installation of scaffolding adjacent to the east tower and installation of protective fencing for elderberry shrubs and environmentally sensitive areas on the east and west sides of the bridge. During active construction on the vicinity of elderberry shrubs, the biological monitor will conduct weekly site visits to inspect the condition of protective fencing around each elderberry shrub. The health condition of the retained shrubs will be assessed weekly and photographs will be taken to record site activities. The biological monitor will provide recommendations to the Contractor if protective fencing requires maintenance or repair.

PRECONSTRUCTION SURVEYS

To satisfy the City's responsibilities for mitigation measures BR-3 from the Mitigation Reporting Program (MRP) and those responsibilities list elsewhere in the attachments to the Appendix A of these Special Provisions, the Contractor shall complete all work listed in these measures.

A Contractor provided Biologist will perform all preconstruction biological surveys, including nesting surveys for Swainson's Hawks, and other protected or sensitive avian species.

If active Swainson's Hawk nests are found in the construction area, the following mitigation measures shall be implemented:

1. No intensive new disturbances (e.g., heavy equipment operation associated with construction, use of cranes or draglines, new rock crushing activities) or other project-

related activities that may cause nest abandonment or forced fledging, can be initiated within 500 feet (buffer zone) of an active nest between March 1 and September 15. The size of the buffer area may be adjusted if a qualified biologist and California Department of Fish and Game (CDFG) determine it would not be likely to have adverse effects on the hawks. No project activity shall commence within the buffer area until a qualified biologist confirms that the nest is no longer active.

2. Nest trees shall not be removed unless there is no feasible way of avoiding removal of the tree. If a nest tree must be removed, a Management Authorization (including conditions to offset the loss of the nest tree) must be obtained from CDFG with the tree removal period specified in the management Authorization, generally between October 1 and February 1.
3. If construction or other project-related activities that may cause nest abandonment or forced fledging are necessary within the buffer zone, monitoring of the nest site (funded by the project proponent) by a qualified biologist will be required to determine if the nest is abandoned. If the nest is abandoned and if the nestlings are still alive, the project proponent shall fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).
4. Routine disturbances, such as routine maintenance activities within 0.25 mile of an active nest, shall not be prohibited.

If delay of work in the area delays the current controlling operation, the delay will be considered a differing site condition and the Contractor will be compensated for the delay in conformance with the provisions in Section 5-1.116, "DIFFERING SITE CONDITIONS," of the State Standard Specifications.

1.03 HYDROLOGY AND WATER QUALITY

To satisfy the City's responsibilities for mitigation measures HWQ-1 from the Mitigation Reporting Program (MRP) and those responsibilities list elsewhere in the attachments to the Appendix A of these Special Provisions, the Contractor shall complete all work listed in these measures.

1.04 AIR QUALITY CONFORMANCE

To satisfy the City's responsibilities for mitigation measures AQ-1 from the Mitigation Reporting Program (MRP) and those responsibilities list elsewhere in the attachments to the Appendix A of these Special Provisions, the Contractor shall complete all work listed in these measures.

Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.

Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.

Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).

All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible.

Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

Maintain all equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

1.05 NOISE

To satisfy the City's responsibilities for mitigation measures N-1 from the Mitigation Reporting Program (MRP) and those responsibilities list elsewhere in the attachments to the Appendix A of these Special Provisions, the Contractor shall complete all work listed in these measures.

Sound control shall conform to the provisions in Section 14-8.02, "Noise Control," of the State Standard Specifications, Section 66 of the City Code, and these Special Provisions.

The contractor shall ensure that the following measures are implemented during all phases of project construction:

1. Construction activities shall comply with the City of Sacramento Noise Ordinance, which limits such activity to the hours of 7:00 a.m. to 6:00 p.m. Monday through Saturday, the hours of 9:00 a.m. to 6:00 p.m. on Sunday, prohibits nighttime construction, and requires the use of exhaust and intake silencers for construction equipment engines. Exceptions to these regulations may be granted by the building inspector, consistent with the Noise Ordinance. Work on Saturday, Sunday and Holidays requires advance approval form the Engineer. Submit request 10 working days in advance.
2. Maintenance equipment and vehicle noise would be minimized during project construction by muffling and shielding intakes and exhaust on maintenance/construction equipment (per the manufacturer's specifications) and by shrouding or shielding paint application/recycling equipment.
3. All equipment, haul trucks, and worker vehicles would be turned off when not in use for more than 10 minutes.
4. Residences and businesses would be notified about the type and schedule of maintenance activities at least two weeks prior to mobilization.
5. During construction, should damage occur despite the above mitigation measures, construction operations shall be halted and the problem activity shall be identified. The Engineer shall establish vibration limits based on soil conditions and the types of buildings in the immediate area. The contractor shall monitor the buildings throughout the remaining construction period and follow all recommendations of the Engineer to repair any damage that has occurred to the pre-existing state, and to avoid further structural damage.

The noise level requirement shall apply to the equipment on the job or related to the job, including but not limited to trucks, transit mixers or transient equipment that may or may not be

owned by the Contractor. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws for the protection of personnel. As directed by the Owner, implement appropriate additional noise mitigation measures that may include changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, or installing acoustic barriers around stationary construction noise sources.

1.06 PAYMENT

Full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all work involved in this section, "Mitigation Measures" shall be considered as included in the prices bid for various items of work.

* END OF SECTION *

SECTION 4.0 - ITEMS OF THE PROPOSAL

ITEM NO. 1 - MOBILIZATION

Mobilization shall conform to the provisions in Section 9-1.07D, "MOBILIZATION," of the State Standard Specifications. Attention is directed to Section 15 "LIQUIDATED DAMAGES", of the Agreement Between the City of Sacramento and Contractor for Guy West Bridge Rehabilitation Project (PN: K15105000/RR16).

The bid amount for this item shall not exceed 2% of the bid amount excluding this item. If the amount shown on the bid form is greater than 2% of the bid amount excluding this item, the City will adjust the bid amount of this item to 2% of the total bid amount excluding this item.

Payment shall be at the lump sum bid price and shall be full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in mobilizing the contractor for work as shown on the Drawings, as specified in these Special Provisions or as directed by the Engineer.

ITEM NO. 2 - FURNISH FIELD OFFICE

Furnish Field Office shall conform to the provisions in Section 2.02, "FURNISH FIELD OFFICE" of Section 2 – Technical Specifications in these Special Provisions. For bidding purposes, the Contractor shall furnish the field office approximately 7 months, as defined in Section 2.02.

Payment shall be per month (each) for field office furnished and delivered to the site fully ready for service and shall be full compensation for furnishing, delivering, securing, connecting utilities and removal of the field office at the completion of the project and for furnishing all labor, materials, tools, equipment and incidentals as required to furnish the field office and its accompanying appurtenances as specified in these Special Provisions, or as directed by the Engineer.

ITEM NO. 3 - TEMPORARY FENCE

Temporary fence shall conform to the provisions in Section 2.07, "TEMPORARY FENCE" of Section 2 – Technical Specifications in these Special Provisions.

Full compensation for maintaining, removing, and disposing of temporary fence and gates shall be considered as included in the contract prices paid per linear foot for the temporary fence and no additional compensation will be allowed therefor.

Payment shall be made per linear foot of Temporary Fence and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in Temporary Fence, complete in place, including temporary gates, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 4 - TEMPORARY FENCE (TYPE ESA)

Temporary fence (Type ESA) shall conform to the provisions in Section 2.08, "TEMPORARY FENCE (TYPE ESA)" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per linear foot of Temporary Fence (Type ESA) and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in Temporary Fence (Type ESA), including signs, complete in place, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 5 - CONSTRUCTION SITE MANAGEMENT

Construction Site Management shall conform to the provisions in Section 2.04, "CONSTRUCTION SITE MANAGMENT" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made at the lump sum price for construction site management includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in spill prevention and control, material management, waste management, nonstormwater management, and dewatering activities, including identifying, sampling, testing, handling, and disposing of hazardous waste resulting from your activities, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as ordered by the Engineer.

ITEM NO. 6 - PREPARE STROM WATER POLLUTION PREVENTION PLAN

Prepare Storm Water Pollution Prevention Plan shall conform to the provisions in Section 2.03, "WATER POLLUTION CONTROL" of the technical specifications and these special provisions.

Payment shall be at the lump sum price for prepare storm water pollution prevention plan includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in developing and implementing a SWPPP, including providing a WPC manager, conducting water pollution control training, and monitoring, inspecting and correcting water pollution control practices at the job site, as shown on the plans, as specified in the State Standard Specifications and these special provisions, and directed by the Engineer.

For projects with 60 working days or less, the Department pays you for prepare stormwater pollution prevention plan as follows:

1. A total of 75 percent of the item total upon approval of the SWPPP
2. A total of 100 percent of the item total upon contract acceptance

For projects with more than 60 working days, the Department pays you for prepare stormwater pollution prevention plan as follows:

1. A total of 50 percent of the item total upon approval of the SWPPP
2. A total of 90 percent of the item total over the life of the contract
3. A total of 100 percent of the item total upon contract acceptance

Water pollution control practices for which there are separate contract items of work will be measured and paid for as those contract items of work.

ITEM NO. 7 - TEMPORARY FIBER ROLL

Temporary fiber rolls shall conform to the provisions in Section 2.05, "TEMPORARY FIBER ROLL" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per linear foot of Temporary Fiber Roll and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in Temporary Fiber Roll, complete in place, including maintenance, removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 8 - TEMPORARY SILT FENCE

Temporary silt fence shall conform to the provisions in Section 2.06, "TEMPORARY SILT FENCE" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per linear foot of Temporary Silt Fence and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in Temporary Silt Fence, complete in place, including maintenance, removal of materials, cleanup and disposal of retained sediment and debris, and backfilling and repairing holes, depressions and other ground disturbance, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 9 - TEMPORARY CONSTRUCTION ENTRANCE

Temporary construction entrance shall conform to the provisions in Section 2.09, "TEMPORARY CONSTRUCTION ENTRANCE" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per each unit for Temporary Construction Entrance and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in Temporary Construction Entrance, complete in place, including removal of temporary construction entrance, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 10 - RAIN EVENT ACTION PLAN

Rain event action plan shall conform to the provisions in Section 2.03, "WATER POLLUTION CONTROL" of the technical specifications and these special provisions.

The City pays $500 for each rain event action plan submitted. The City does not adjust payment for an increase or decrease in the quantity of rain event action plan. Section 4-1.03B, "Increased or Decreased Quantities," of the State Standard Specifications does not apply.

Payment shall be made per each unit for rain event action plan includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in preparing REAPs, including preparing and submitting REAP forms, and monitoring weather forecasts, as shown on the plans, as specified in the State Standard Specifications and these special provisions, and as directed by the Engineer.

ITEM NO. 11 - STORM WATER ANNUAL REPORT

Storm water annual report shall conform to the provisions in Section 2.03, "WATER POLLUTION CONTROL" of the technical specifications and these special provisions.

The City pays $2,000 for each storm water annual report submitted. The City does not adjust payment for an increase or decrease in the quantity of storm water annual report. Section 4-1.03B, "Increased or Decreased Quantities," of the State Standard Specifications does not apply.

The work to complete the final storm water annual report contract item is excluded from Section 7-1.17, "Acceptance of Contract," of the State Standard Specifications.

For each failure to submit a completed storm water annual report, the City withholds $10,000. This withhold is in addition to other withholds under Section 9-1.07E(3) "Performance Failure Withholds," of the State Standard Specifications.

Payment shall be made per each unit for storm water annual report includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in preparing and submitting storm water annual reports, including annual certifications, monitoring reports, inspection, and sampling results, and obtaining acceptance of storm water annual reports, as shown on the plans, as specified in the State Standard Specifications and these special provisions, and as directed by the Engineer.

ITEM NO. 12 - STORM WATER SAMPLING AND ANALYSIS DAY

Storm water sampling and analysis day shall conform to the provisions in Section 2.03, "WATER POLLUTION CONTROL" of the technical specifications and these special provisions.

The Department does not adjust payment for an increase or decrease in the quantity of storm water sampling and analysis day. Section 4-1.03B, "Increased or Decreased Quantities," of the State Standard Specifications does not apply.

The Department does not pay for the preparation, collection, laboratory analysis, and reporting of stormwater samples for nonvisible pollutants if water pollution control practices are not implemented before precipitation or if you fail to correct a water pollution control practice before precipitation.

Payment shall be made per each unit for storm water sampling and analysis day includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in reporting on stormwater quality per storm events and qualifying rain events, including preparation, collection, analysis of stormwater samples for pH, turbidity, and other constituents, as shown on the plans, as specified in the State Standard Specifications and these special provisions, and as directed by the Engineer. A single day of sampling is counted as 1 unit.

ITEM NO. 13 - CONSTRUCTION AREA SIGNS

Construction area signs and barricades shall conform to the provisions in Section 2.12, "CONSTRUCTION AREA SIGNS" and Section 2.13, "BARRICADES" of Section 2 – Technical Specifications in these Special Provisions.

Full compensation for barricades shall be considered as included in the contract lump sum price paid for construction area signs and no separate payment will be made therefor.

Payment shall be at the lump sum bid price for Construction Area Signs and shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals as specified in the State Standard Specifications and these special provisions.

ITEM NO. 14 - MAINTAINING PUBLIC ACCESS

Maintaining public access shall conform to the provisions in Section 2.14, "MAINTAINING PUBLIC ACCESS" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be at the lump sum bid price for Maintaining Public Access and shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals as specified in the State Standard Specifications and these special provisions.

ITEM NO. 15 - REMOVE CHAIN LINK FENCE

Remove chain link fence shall conform to the provisions in Section 2.16, "REMOVE CHAIN LINK FENCE" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per linear foot of Remove Chain Link Fence and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in Remove Chain Link Fence, complete in place, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 16 - REPAIR SUSPENDER CONNECTION

Repair suspender connection shall conform to the provisions in Section 2.17, "REPAIR SUSPENDER CONNECTION" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per each unit of Repair Suspender Connection and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in Repair Suspender Connection, complete in place, including jacking, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 17 - RELOCATE CABLE CLAMP

Relocate Cable Clamp shall conform to the provisions in Section 2.18, "RELOCATE CABLE CLAMP" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per each unit of Relocate Cable Clamp and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in Relocate Cable Clamp, complete in place, as shown on the Drawings, as

specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 18 - WRAP MAIN CABLE

Wrap main cables shall conform to the provisions in Section 2.19, "WRAP MAIN CABLE" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per lump sum for wrap main cable and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in repairing handrails, complete in place, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 19 - REMOVE UNSOUND CONCRETE

Remove unsound concrete shall conform to the provisions in Section 2.20, "REMOVE UNSOUND CONCRETE" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per cubic foot for remove unsound concrete and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in removing unsound concrete, including saw cutting, complete in place, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 20 - REPAIR HANDRAILS

Repair handrails shall conform to the provisions in Section 2.21, "REPAIR HANDRAILS" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per lump sum for repair handrails and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in repairing handrails, complete in place, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 21 - BRIDGE REMOVAL (PORTION)

Bridge removal (portion) shall conform to the provisions in Section 2.22, "BRIDGE REMOVAL (PORTION)" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per lump sum for bridge removal (portion) and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in removing portion of the existing bridge, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 22 - CLEARING AND GRUBBING

Clearing and grubbing shall conform to the provisions in Section 2.24, "CLEARING AND GRUBBING" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per lump sum for clearing and grubbing and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing

all the work involved in clearing and grubbing, including tree removal and tree trimming, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 23 - EROSION CONTROL (HYDROSEED)

Erosion control (Hydroseed) shall conform to the provisions in Section 2.25, "EROSION CONTROL (HYDROSEED)" of Section 2 – Technical Specifications in these Special Provisions.

Erosion control (hydroseed) will be measured by the square foot or by the acre, whichever is designated in the Engineer's Estimate. The area will be calculated on the basis of actual or computed slope measurements.

Payment shall be made per square foot for erosion control (hydroseed) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in erosion control (hydroseed), complete in place, as shown on the plans, as specified in the State Standard Specifications and these special provisions, and as directed by the Engineer.

ITEM NO. 24 - SLURRY SEAL (TYPE II)

Slurry seal (Type II) shall conform to the provisions in Section 2.26, "SLURRY SEAL (TYPE II)" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be at the lump sum bid price for Slurry Seal (Type II) and shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals as specified in the State Standard Specifications and these special provisions and as directed by the Engineer.

ITEM NO. 25 - MINOR CONCRETE (MINOR STRUCTURE)

Minor Concrete (Minor Structure) shall conform to the provisions in Section 2.27, "CONCRETE STRUCTURES" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per cubic yard for minor concrete (minor structure) and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in minor concrete (minor structure), complete in place, including excavation and backfill, U bars, nuts, washers, grout and bar reinforcing steel, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 26 - RAPID SETTING CONCRETE (PATCH)

Rapid Setting Concrete (Patch) shall conform to the provisions in Section 2.28, "RAPID SETTING CONCRETE (PATCH)" of Section 2 – Technical Specifications in these Special Provisions.

Rapid setting concrete (patch) will be measured and paid for by the cubic foot.

The quantities of rapid setting concrete (patch), in cubic feet, to be paid for will be determined from the total number of pounds of concrete actually used in the patch divided by a

plastic density of 135 pounds per cubic foot. Wasted or unused concrete will not be included. The number of pounds of concrete, with or without aggregate filler, will be determined from scale weights.

Payment shall be made per cubic foot for rapid setting concrete (patch) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing concrete patches, including cleaning contact surfaces, complete in place, as shown on the plans, as specified in the State Standard Specifications and these special provisions, and as directed by the Engineer

ITEM NO. 27 - REPLACE BEARING PAD

Replace Bearing Pad shall conform to the provisions in Section 2.30, "REPLACE BEARING PAD" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per each unit for Replace bearing pad and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in replacing bearing pads, complete in place, including jacking, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 28 - JOINT SEAL (TYPE A)

Joint Seal Type A shall conform to the provisions in State Standard Specifications 51-1.12F "Sealed Joints". Cleaning expansion joints shall conform to the provisions in Section 2.29, "CLEAN EXPANSION JOINTS" of Section 2 – Technical Specifications in these Special Provisions.

Joint Seal Type A will be measured by the linear foot from end to end along the centerline of the completed seal including return sections at curb faces or as shown on the plans. Where individual seals are overlapped or are superimposed, each seal will be measured separately.

Payment shall be made per linear foot for joint seal (Type A) and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in the constructing the joint seals, including cleaning expansion joints, protecting, repairing, and cleaning complete in place, as shown the plans, as specified in the State Standard Specifications, in these Special Provisions, and as directed by the Engineer.

ITEM NO. 29 - TEMPORARY STRUCTURES

Temporary structures shall conform to the provisions in Section 2.32, "TEMPORARY STRUCTURES" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per lump sum for Temporary structures and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in temporary structures, complete in place, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

Full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in designing, preparing and submitting working drawings;

furnishing, constructing, maintaining, removing and disposing of the temporary supports, temporary bracing, temporary scaffolds, temporary platforms, walkways and ladders, temporary protective covers and temporary containment systems; inspecting and certifying these temporary structures by the Contractor's registered Civil Engineer; designing repairs and repairing existing bridge members for connections of these temporary structures to the existing structure and for use of the existing structure as part of the temporary supports and bracing; connecting to the existing structure, including drilling holes in the existing steel and concrete; restoring, cleaning and painting surfaces of the permanent structure; and plugging open bolt holes after removal of temporary structure bolted connections with high strength bolts as shown on the working drawings, as specified in the State Standard Specifications and these Special Provisions, and as directed by the Engineer shall be considered as included in the Contract lump sum price paid for "Temporary Structures" and no additional compensation will be allowed therefore.

The Contractor shall determine the quantities required to complete the work shown on the plans. The quantities and values shall be included in the cost break-down submitted to the Engineer for Approval. The Contractors shall be responsible for the accuracy of the quantities and values used in the cost break-down submitted for approval.

No adjustment in compensation will be made in the contract lump sum prices paid for temporary structures work items due to differences between the quantities shown in the cost break-down furnished by the Contractor and the quantities required to complete the work as shown on the plans and as specified in these specifications and the special provisions.

The sum of the amounts for the units of work listed in the cost break-down for temporary structures work shall be equal to the contract lump sum price bid for the work.

At the Engineer's discretion, the approved cost break-down may be used to determine partial payments during the progress of the work and as the basis of calculating the adjustment in compensation for the item or items of temporary structures work due to changes ordered by the Engineer. When an ordered change increases or decreases the quantities of an approved cost break-down, the adjustment in compensation may be determined, at the Engineer's discretion, in the same manner specified for increases and decreases in the quantity of a contract item of work in Section 4-1.03B, "Increased or Decreased Quantities," of the State Standard Specifications.

ITEM NO. 30 - FURNISH STRUCTURAL STEEL (BRIDGE)

Furnish structural steel (Bridge) shall conform to the provisions in Section 2.33, "STEEL STRUCTURES" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per pound for furnish structural steel (Bridge) and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnish structural steel (Bridge), complete in place, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 31 - ERECT STRUCTURAL STEEL (BRIDGE)

Erect structural steel (Bridge) shall conform to the provisions in Section 2.33, "STEEL STRUCTURES" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per pound for erect structural steel (Bridge) and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in erect structural steel (Bridge), complete in place, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 32 - SURFACE PREPARATION AND PAINTING OF STEEL AND GALVANIZED STEEL

Surface preparation and painting of steel and galvanized steel shall conform to the provisions in Section 2.34, "SURFACE PREPARATION AND PAINTING OF STEEL AND GALVANIZED STEEL" of Section 2 – Technical Specifications in these Special Provisions.

The Contractor shall determine the quantities required to complete the work shown on the plans. The quantities and values shall be included in the cost break-down submitted to the Engineer for Approval. The Contractors shall be responsible for the accuracy of the quantities and values used in the cost break-down submitted for approval.

No adjustment in compensation will be made in the contract lump sum prices paid for surface preparation and painting of steel and galvanized steel work items due to differences between the quantities shown in the cost break-down furnished by the Contractor and the quantities required to complete the work as shown on the plans and as specified in these specifications and the special provisions.

The sum of the amounts for the units of work listed in the cost break-down for surface preparation and painting of steel and galvanized steel work shall be equal to the contract lump sum price bid for the work.

At the Engineer's discretion, the approved cost break-down may be used to determine partial payments during the progress of the work and as the basis of calculating the adjustment in compensation for the item or items of surface preparation and painting of steel and galvanized steel work due to changes ordered by the Engineer. When an ordered change increases or decreases the quantities of an approved cost break-down, the adjustment in compensation may be determined, at the Engineer's discretion, in the same manner specified for increases and decreases in the quantity of a contract item of work in Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.

Surface preparation and painting of steel and galvanized steel will be paid for on the basis of lump sum prices, unless otherwise specified in the special provisions.

Payment shall be at the lump sum price paid for surface preparation and painting of steel and galvanized steel shall include full compensation for furnishing all labor, materials, tool, equipment, and incidentals, and for doing all the work involved in cleaning and painting structural steel and galvanized steel as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

ITEM NO. 33 - WORK AREA MONITORING

Work area monitoring shall conform to the provisions in Section 2.35, "WORK AREA MONITORING" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be at the lump sum price paid for work area monitoring shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in collecting and analyzing samples of ambient air and soil for lead, complete in place, including reporting the test results equipment and material cleaning, environmental compliance plan, visual emissions assessment and final clean up, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

ITEM NO. 34 - CHAIN LINK FENCE (TYPE CL-6)

Chain Link Fence (Type CL-6) shall conform to the provisions in Section 2.36, "CHAIN LINK FENCE" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be made per linear foot for chain link fence (Type CL-6) and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in chain link fence (Type CL-6), complete in place, as shown on the Drawings, as specified in these Special Provisions and State Standard Specifications, or as directed by the Engineer.

ITEM NO. 35 - TRAFFIC STRIPE PAINT

Traffic Stripes shall conform to the provisions in Section 2.37, "PAINT TRAFFIC STRIPE" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be at the lump sum bid price for traffic stripe paint and shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals as specified in the State Standard Specifications and these special provisions and as directed by the Engineer.

ITEM NO. 36 - STRUCTURAL CONCRETE, BRIDGE

Structural Concrete, Bridge shall conform to the provisions in Section 2.27, "CONCRETE STRUCTURES" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be per cubic yard for structural concrete, bridge and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in constructing the concrete work, complete in place, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer, except as otherwise provided.

ITEM NO. 37 - BAR REINFORCING STEEL (BRIDGE)

Bar reinforcing steel (bridge) shall conform to the provisions in Section 2.31, "REINFORCEMENT" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be per pound for bar reinforcing steel (bridge) and shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and placing the bar reinforcing steel, complete in place, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

ITEM NO. 38 - REPLACE ELECTRICAL CONDUIT

Replace electrical conduit shall conform to the provisions in Section 2.38, "REPLACE ELECTRICAL CONDUIT" of Section 2 – Technical Specifications in these Special Provisions.

Payment shall be at the lump sum bid price for replace electrical conduit and shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals, including removing the existing conduit hanger system, installing the new hanger systems and removal of the temporary conduit system, as specified in the State Standard Specifications and these special provisions and as directed by the Engineer.

* END OF SECTION *

SECTION 5.0 - STANDARD DRAWINGS

STATE STANDARD PLANS LIST

The State Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. Applicable Revised Standard Plans (RSP) and New Standard Plans (NSP) indicated below are included in the project plans as Standard Plan sheets.

ACRONYMS, ABBREVIATIONS AND SYMBOLS

A10A	Acronyms and Abbreviations (Sheet 1 of 2)
A10B	Acronyms and Abbreviations (Sheet 2 of 2)
A10C	Symbols (Sheet 1 of 2)
A10D	Symbols (Sheet 2 of 2)

OBJECT MARKERS, DELINEATORS, CHANNELIZERS AND BARRICADES

A73C	Delineators, Channelizers and Barricades

FENCES

RSP A85	Chain Link Fence
NSP A85A	Chain Link Fence Details
NSP A85B	Chain Link Fence Details

TEMPORARY WATER POLLUTION CONTROL

T51	Temporary Water Pollution Control Details (Temporary Silt Fence)
RSP T56	Temporary Water Pollution Control Details (Temporary Fiber Roll)
T58	Temporary Water Pollution Control Details (Temporary Construction Entrance)
NSP T65	Temporary Water Pollution Control Details [Temporary Fence (Type ESA)]
NSP T67	Temporary Water Pollution Control Details (Temporary Construction Roadway)

ROADSIDE SIGNS

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

* END OF SECTION *

APPENDIX

APPENDIX A – PERMITS AND MITIGATION REPORTING PLAN

Item 1 – Central Valley Flood Protection Board Letter of Agreement (LOA)
Item 2 – 1600 Streambed Alteration Agreement (Draft)
Item 3 – Elderberry Shrub Protection Measures (USFWS VELB Correspondence)
Item 4 – Guy West Bridge Restoration Program – Mitigation Reporting Program
Item 5 – Temporary Permit – California State University
Item 6 – Permit To Enter – County of Sacramento
Item 7 – State Lands Lease Agreement (Draft)
Item 8 – United States Coast Guard Requirements
Item 9 – Temporary Construction Easement Agreement (Draft)
Item 10 – American River Flood Control (ARFC) Temporary Use Permit & Agreement
Item 11 – Sacramento Municipal Utility District (SMUD) Correspondence
Item 12 – Sacramento Municipal Utility District (SMUD) Record Drawings
Item 13 – PG&E Gas Map Record Drawings
Item 14 – Sacramento County Regional Sanitation District (SCRSD) Record Drawings
Item 15 – California State University Easement

Item 1

DEPARTMENT OF
PUBLIC WORKS

ENGINEERING SERVICES DIVISION

CITY OF SACRAMENTO
CALIFORNIA

915 I STREET
ROOM 2000
SACRAMENTO, CA
95814-2604

PH (916) 808-8300
FAX (916) 808-8281

REQUEST TO AUTHORIZE MAINTENANCE FOR THE GUY WEST BIRDGE OVER AMERICAN RIVER

Part One: Project Work Information

1. Proponent(s): The City of Sacramento, its authorized representatives, and contractors

2. Address: Department of Public Works, 915 I Street, Sacramento, CA 95814

3. Phone Number(s): (916) 808-5050

4. Type of Project Work: The City of Sacramento will perform rehabilitation work of the Guy West Bridge over American River. Rehabilitation work will include minor structural repairs and full removal and replacement of the existing paint system. Construction activities will require staging areas near the base of each tower on both sides of the river for stockpiling materials (scaffolding, paint materials, etc.) and equipment including paint blaster/recycling machine, dust collector, air compressor, heavy duty pick-ups, loaders, forklifts, and manlifts. Construction access routes to the Guy West Bridge and staging areas will be along the levee roads and established maintenance roads within the floodplains from each side of American River. A temporary eastern construction access route will access the work area from a temporary earth ramps on the landslide and watersides of the levee slope. Minor earth fill will be required on the water side of the levee to slightly widen and improve established maintenance roads on the existing levee ramps on the west side of the river. Upon completion of the bridge rehabilitation, all temporary fill will be removed and disturbed ground will restored to previous condition. The Proponent (s) considers the proposed Project Work as a minor alteration within an adopted plan of flood control and would not be injurious to the adopted plan of flood control. Therefore, per CCR, Title 23, Article 6 (e), the Proponent(s) requests an authorization of the Project.

5. Date(s) of Project Work: All rehabilitation construction activities performed within the floodplain will only occur from June 2, 2014 through October 31, 2014.

6. Area of Project Work: Areas include the Guy West Bridge itself and immediate surrounding areas including portions of the floodplain for staging and portions of the levee roads, established maintenance roads within the floodplains, levee ramps, and the adjacent private properties for construction access routes. The attached plans show the areas of construction activity.

Part Two: Conditions of the Authorization

7. The authorization granted is strictly limited to the Project described above.
8. The project area shall be restored to at least the same conditions that existed prior to start of work.
9. The Proponent (s) will be responsible for any and all damages to the levee, floodway and adjacent properties resulting from this project.
10. The Proponent (s) will notify the local maintenance agency (LMA), e.g. Reclamation District, levee District, State Maintenance area, County, etc. prior to start of work.
11. The Proponent (s) will notify the Department of Water Resource's Flood Project Inspection Section at (916) 574-1213, at least 5 working days prior to start of work.
12. The Proponent (s) understand(s) this authorization does not relieve the Proponent (s)' responsibility to obtain authorization from all concerned Federal, State and local agencies or to satisfy any California Environmental Quality Act (CEQA) requirements.

DATED: February 7, 2014

REQUESTED BY: Ricky Chuck

Signature R Chuck

(PROPONENT): Ricky Chuck

For and on behalf of City of Sacramento

DATED: 2/10/14

APPROVED BY: L J Marino

Len Marino

Chief Engineer

Central Valley Flood Protection Board

Western Side to the American River:

Photo #1

Western Staging Area on the Levee

Photo #2

Western Work Area near the Tower from bridge (does not include bike path)

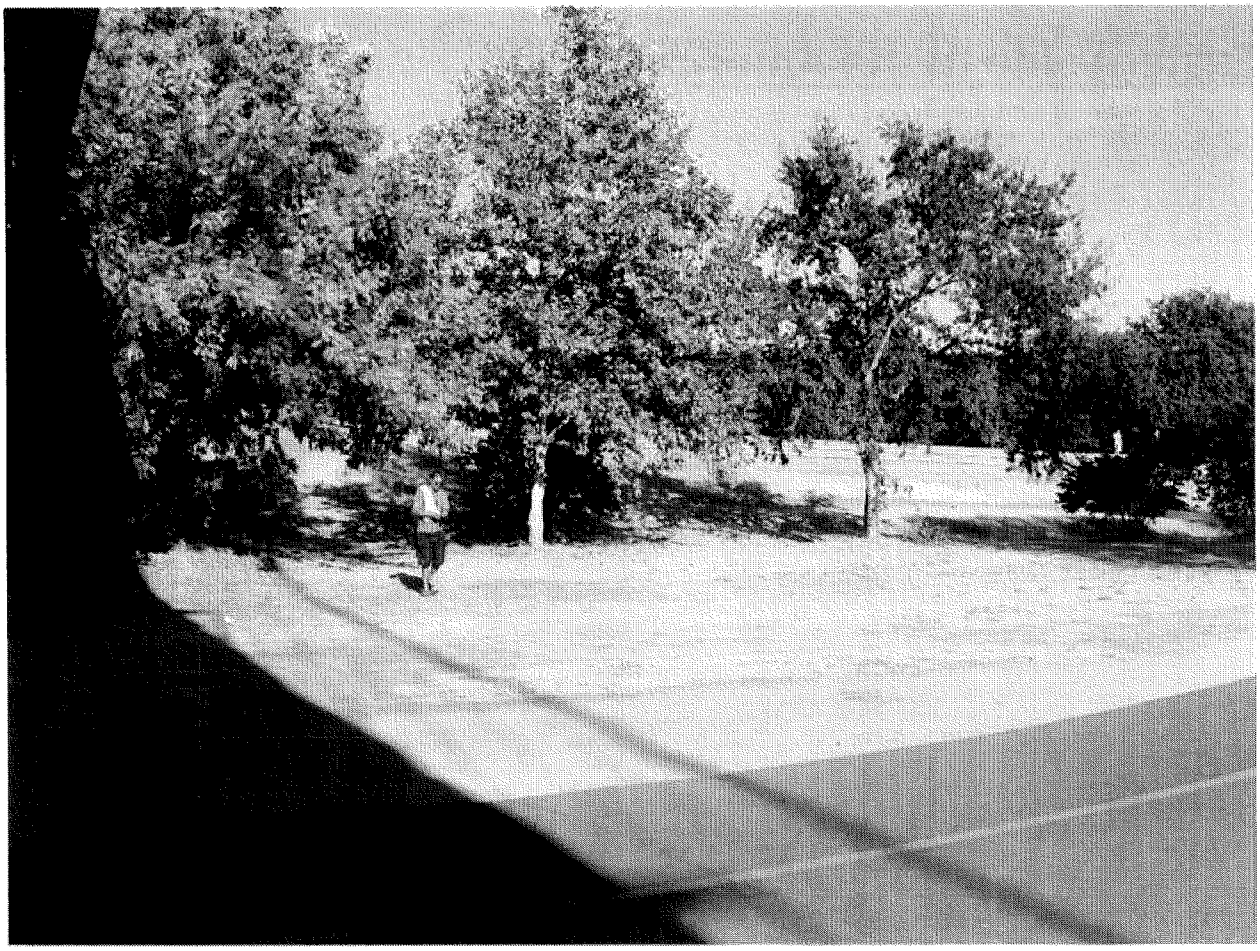


Photo #3

Western Work Area near the Tower from floodplain (does not include bike path)

Eastern Side to the American River:

Photo #4

Eastern Staging & Work Area near the Tower (does not include sloped levee area)

Photo #5

Existing Eastern Landside Levee Access Ramp

Photo #6

Existing Eastern Waterside Levee Access Ramp

Photo #7

Established Eastern Waterside Maintenance Road at ramp base

Photo #8

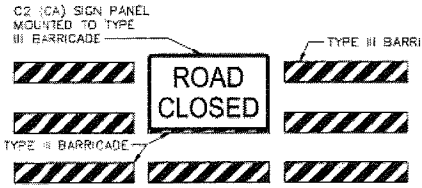
Established Eastern Waterside Maintenance Road at bridge base

NOTES:

1. THIS SHEET IS ACCURATE FOR CONSTRUCTION ACCESS AND STAGING ONLY. AERIAL IS NOT GEOREFERENCED.
2. FOR SECTION A-A, SECTION B-B AND SECTION C-C, SEE "STAGING DETAILS" SHEET.
3. FOR UTILITY INFORMATION, SEE "UTILITY PLAN" SHEET. THE EXISTENCE AND LOCATION OF ALL UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR.
4. FOR ADDITIONAL SIGNAGE INFORMATION, SEE "SIGN DETAILS" SHEET.
5. TREES AND VEGETATION WITHIN THE PROJECT LIMITS SHALL ONLY BE REMOVED AS DETERMINED BY THE ENGINEER.
6. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND MAINTAINING ALL WARNING SIGNS, DEVICES AND FEATURES NECESSARY TO PROTECT THE HEALTH AND SAFETY OF THE GENERAL PUBLIC.
7. CONTRACTOR SHALL MANAGE CONSTRUCTION TO ALLOW SAFE ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC FOR THE DURATION OF CONSTRUCTION.
8. CONTRACTOR SHALL MAINTAIN PUBLIC ACCESS ON BRIDGE DURING CONSTRUCTION WITH THE EXCEPTION OF FULL CLOSURE PERIODS. CONTRACTOR MUST OBTAIN THE ENGINEER'S APPROVAL AND ESTABLISH DETOUR ROUTES WITH SIGNAGE AND PROVIDE NOTICE PRIOR TO FULL CLOSURE PERIODS. FOR FULL CLOSURE DETOUR ROUTES, SEE "DETOUR PLAN AND DETOUR SIGNAGE ALT 1" & "DETOUR PLAN AND DETOUR SIGNAGE ALT 2".

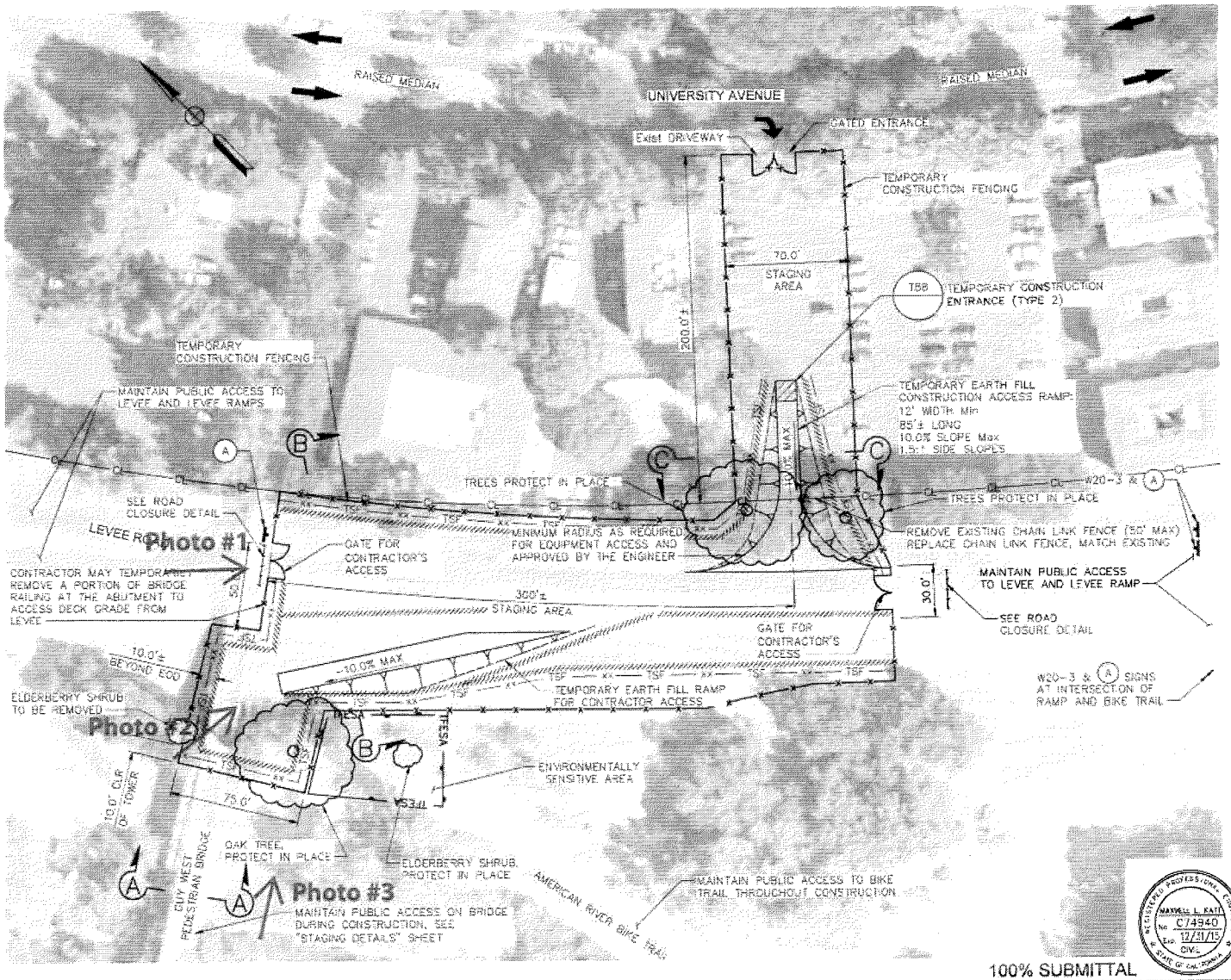
LEGEND:

- TFESA — TEMPORARY FENCE ENVIRONMENTALLY SENSITIVE AREA (ESA)
- TEMPORARY CONSTRUCTION FENCE CHAIN LINK (8' Min)
- TEMPORARY FIBER ROLL
- xx TSF — TEMPORARY SILT FENCE
- Cc Cc — Exist. CHAIN LINK FENCE
- ELDERBERRY SHRUB
- 1 — CONSTRUCTION AREA SIGN
- X — CONSTRUCTION AREA SIGN, SEE "SIGN DETAILS" SHEET



ROAD CLOSURE DETAIL
NO SCALE

Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.



100% SUBMITTAL

MAXWELL KATZ — No. C74940 — Exp. 12/31/15 — CIVIL — STATE OF CALIFORNIA

REVISIONS				FIELD BOOK	QUINCY ENGINEERING	CITY OF SACRAMENTO DEPARTMENT OF PUBLIC WORKS			GUY WEST BRIDGE REHABILITATION PROJECT EASTERN STAGING LAYOUT PLAN	PN: K151950000	SHEET 3 OF 21
NO.	DESCRIPTION	DATE	BY	SCALE HOR. AND SCALE VERT.	1017 SUNRISE BLVD. SUITE 100 RANCHO CORDOVA, CA 95670	DRAWN BY: DCP DATE 8/13/13	DESIGN BY: VLK DATE 8/13/13	CHECKED BY: RHC DATE 1/31/14			

DATE PLOTTED: Wednesday, February 05, 2014 TIME PLOTTED: 8:31:32 PM, Andy Chow

NOTES:

1. THIS SHEET IS ACCURATE FOR CONSTRUCTION ACCESS AND STAGING ONLY. AERIAL IS NOT GEOREFERENCED.
2. FOR SECTION A–A, SECTION D–D AND SECTION E–E, SEE "STAGING DETAILS" SHEET.
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LEGEND:

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- TEMPORARY CONSTRUCTION FENCE CHAIN LINK (6' Min)
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- TSF — TEMPORARY SILT FENCE
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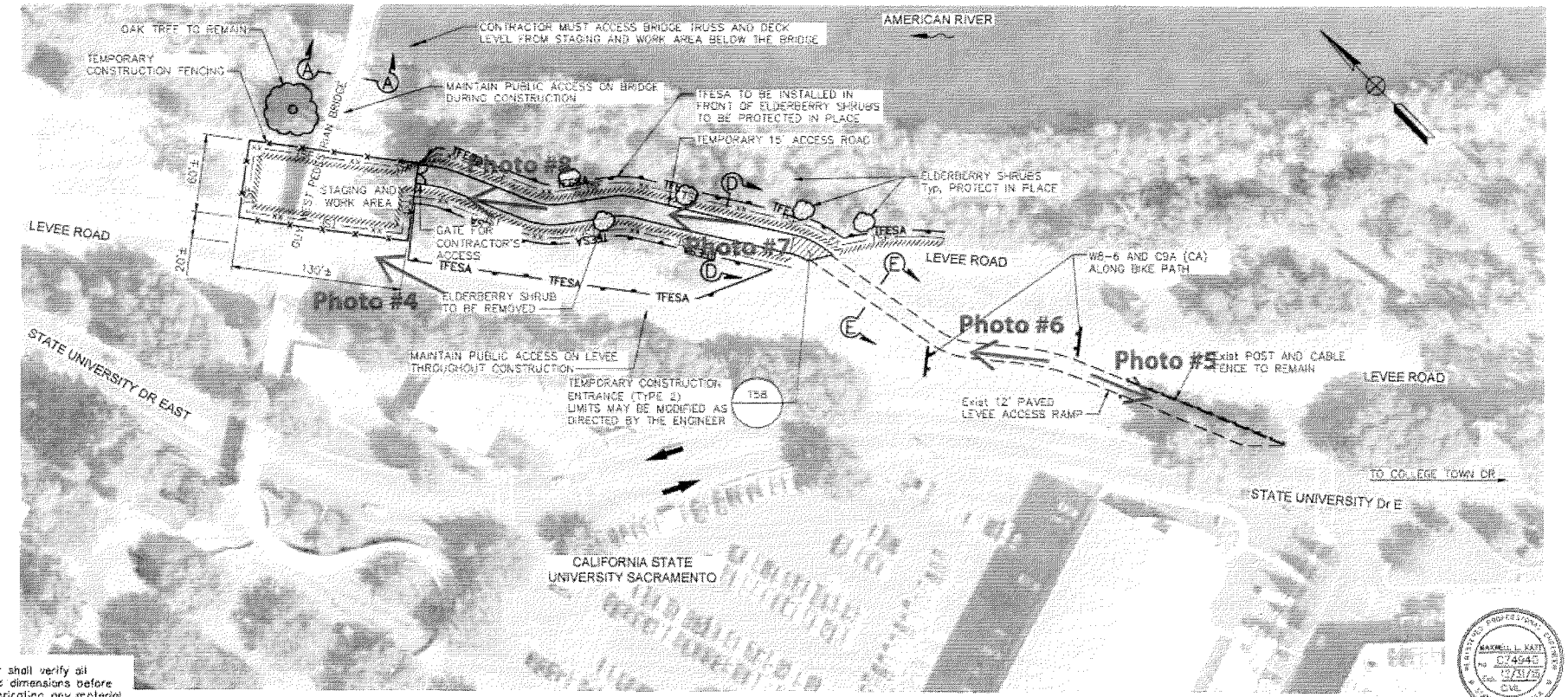
- CONSTRUCTION AREA SIGN



Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

100% SUBMITTAL

REVISIONS			
NO.	DESCRIPTION	DATE	BY

FIELD BOOK

SCALE HORIZ. NO SCALE VERT. N/A

QUINCY ENGINEERING
11017 COBBLEROCK DRIVE SUITE 100
RANCHO CORDOVA, CA 95670

CITY OF SACRAMENTO
DEPARTMENT OF PUBLIC WORKS

DRAWN BY: DCP DATE: 8/13/13
DESIGN BY: MLK DATE: 8/13/13
CHECKED BY: RHG DATE: 1/31/14

GUY WEST BRIDGE REHABILITATION PROJECT
WESTERN STAGING LAYOUT PLAN

P.N.: K15105000

SHEET 4 OF 21

DATE PLOTTED: Wednesday, February 05, 2014 TIME PLOTTED: 6:31:37 PM, Andy Chao

Item 2

DEPARTMENT OF
PUBLIC WORKS

ENGINEERING SERVICES DIVISION

CITY OF SACRAMENTO
CALIFORNIA

915 I STREET
ROOM 2000
SACRAMENTO, CA
95814-2604

PH (916) 808-8300
FAX (916) 808-7903

March 3, 2014

California Department of Fish and Wildlife
Central Region (Region 2)
Attn: Lake and Streambed Alteration Program
1701 Nimbus Road
Rancho Cordova, 95670

Subject: Streambed Alteration Agreement Request – Guy West Bridge Restoration Project

To Whom It May Concern:

This notification is prepared for the proposed Guy West Bridge Restoration Project (proposed project). The City of Sacramento is the owner and operator of the Guy West Bridge, a suspension bridge located adjacent to California State University, Sacramento that connects the east and west banks of the American River. The Guy West Bridge was built in 1966.

Following an inspection in 2011, it was determined that the bridge required the following restorative measures:

- Restore two suspender rope connections;
- Repair one truss strut member;
- Replace all deck seals and repair deck spalls;
- Full removal and replacement of paint system;
- Replace handrail hardware;
- Repair loose utility conduit; and
- Replace approach truss bearing pads.

Given that the proposed project would not alter the existing footprint of the bridge, impacts to vegetation communities within the project site would be minimal and temporary. Impacts would only occur in upland annual grassland and barren habitats. There would be no impacts to jurisdictional waters of the U.S. or riparian habitat.

We have enclosed for your consideration the following elements to this request for a Streambed Alteration Agreement:

1. Completed Notification of Streambed Alteration form with supporting text, designs, and project documentation.
2. The signed Notice of Determination, proof of environmental filing fee payment, and the Guy West Bridge Restoration Project Initial Study/Mitigated Negative Declaration (City of Sacramento, 2013), and
3. Request for USFWS Technical Assistance for the Guy West Bridge Restoration Project: Elderberry Shrub Protective Measures.

A U.S. Army Corps of Engineers Section 404 Department of the Army Permit is not required as no impacts to waters of the U.S. are expected. Enclosed is a check made payable to the Department for a total of $4,482.75 for the proposed project.

Thank you for your assistance with this important project. If you have any questions, please contact Ray Weiss at Environmental Science Associates 916-564-4500 or the undersigned at 916-808-5050

Sincerely,

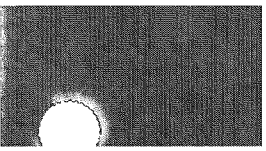
Ricky Chuck, P.E.
Project Manager

GUY WEST BRIDGE RESTORATION PROJECT

Streambed Alteration Agreement

Prepared for
City of Sacramento

March 2014



ESA

GUY WEST BRIDGE RESTORATION PROJECT

Streambed Alteration Agreement

Prepared for
City of Sacramento

March 2014

2600 Capitol Avenue
Suite 200
Sacramento, CA 95816
916.564.4500
www.esassoc.com

Los Angeles

Oakland

Orlando

Palm Springs

Petaluma

Portland

San Diego

San Francisco

Santa Cruz

Seattle

Tampa

Woodland Hills

120851

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FOR DEPARTMENT USE ONLY				
Date Received	*Amount Received*	*Amount Due*	*Date Complete*	*Notification No.*
	$	$		

STATE OF CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE

NOTIFICATION OF LAKE OR STREAMBED ALTERATION

Complete EACH field, unless otherwise indicated, following the enclosed instructions and submit ALL required enclosures. Attach additional pages, if necessary.

1. APPLICANT PROPOSING PROJECT

Name	Ricky Chuck, P.E.		
Business/Agency	City of Sacramento, Department of Public Works		
Street Address	915 I Street, Room 2000		
City, State, Zip	Sacramento, CA 95814		
Telephone	916-808-5050	Fax	916-808-7903
Email	RChuck@cityofsacramento.org		

2. CONTACT PERSON (*Complete only if different from applicant*)

Name	Same as Applicant		
Street Address			
City, State, Zip			
Telephone		Fax	
Email			

3. PROPERTY OWNER (*Complete only if different from applicant*)

Name	Same as Applicant		
Street Address			
City, State, Zip			
Telephone		Fax	
Email			

4. PROJECT NAME AND AGREEMENT TERM

A. Project Name	Guy West Bridge Restoration Project			
B. Agreement Term Requested	☑ Regular (*5 years or less*) ☐ Long-term (*greater than 5 years*)			
C. Project Term		D. Seasonal Work Period		E. Number of Work Days
Beginning (*year*)	Ending (*year*)	Start Date (*month/day*)	End Date (*month/day*)	
2014	2014	05/01	11/01	194

5. AGREEMENT TYPE

Check the applicable box. If box B, C, D, or E is checked, complete the specified attachment.		
A.	☑ Standard *(Most construction projects, excluding the categories listed below)*	
B.	☐ Gravel/Sand/Rock Extraction (*Attachment A*)	*Mine I.D. Number:* _____
C.	☐ Timber Harvesting (*Attachment B*)	THP *Number:* _____
D.	☐ Water Diversion/Extraction/Impoundment (*Attachment C*)	*SWRCB Number:* _____
E.	☐ Routine Maintenance (*Attachment D*)	
F.	☐ CDFW Fisheries Restoration Grant Program (FRGP)	*FRGP Contract Number* _____
G.	☐ Master	
H.	☐ Master Timber Harvesting	

6. FEES

Please see the current fee schedule to determine the appropriate notification fee. Itemize each project's estimated cost and corresponding fee. ***Note: The Department may not process this notification until the correct fee has been received.***

	A. Project	B. Project Cost	C. Project Fee
1	Guy West Bridge Restoration Project	$2,200,000	$4,482.75
2			
3			
4			
5			
		D. Base Fee *(if applicable)*	
		E. TOTAL FEE ENCLOSED	$4,482.75

7. PRIOR NOTIFICATION OR ORDER

A. Has a notification previously been submitted to, or a Lake or Streambed Alteration Agreement previously been issued by, the Department for the project described in this notification?

☐ Yes (*Provide the information below*) ☑ No

Applicant: _____ Notification Number: _____ Date: _____

B. Is this notification being submitted in response to an order, notice, or other directive ("order") by a court or administrative agency (including the Department)?

☑ No ☐ Yes (*Enclose a copy of the order, notice, or other directive. If the directive is not in writing, identify the person who directed the applicant to submit this notification and the agency he or she represents, and describe the circumstances relating to the order.*)

☐ *Continued on additional page(s)*

8. PROJECT LOCATION

A. Address or description of project location.
(Include a map that marks the location of the project with a reference to the nearest city or town, and provide driving directions from a major road or highway)

Please see Technical Attachment (see page 2). A location map is provided in Figure 1.

☑ *Continued on additional page(s)*

B. River, stream, or lake affected by the project.	American River
C. What water body is the river, stream, or lake tributary to?	Sacramento River
D. Is the river or stream segment affected by the project listed in the state or federal Wild and Scenic Rivers Acts?	☐ Yes ☐ No ☐ Unknown
E. County	Sacramento

F. USGS 7.5 Minute Quad Map Name	G. Township	H. Range	I. Section	J. ¼ Section
Sacramento East, CA	8N	5E	10	

☐ *Continued on additional page(s)*

K. Meridian (*check one*) ☐ Humboldt ☑ Mt. Diablo ☐ San Bernardino

L. Assessor's Parcel Number(s)

Affected assessor parcel numbers (APNs) include: 295-0040-003-0000, 295-0040-004-0000, 295-0040-002-0000, 295-0040-012-0000, 005-0010-008-0000.

☐ *Continued on additional page(s)*

M. Coordinates (*If available, provide at least latitude/longitude or UTM coordinates and check appropriate boxes)*

Latitude/Longitude	*Latitude:* 38□33' 44.02" N	*Longitude:* 121□25' 13.31" W	
	☑ Degrees/Minutes/Seconds	☐ Decimal Degrees	☐ Decimal Minutes
UTM	*Easting:*	*Northing:*	☐ Zone 10 ☐ Zone 11
Datum used for Latitude/Longitude or UTM	☐ NAD 27	☐ NAD 83 or WGS 84	

9. PROJECT CATEGORY AND WORK TYPE *(Check each box that applies)*

PROJECT CATEGORY	NEW CONSTRUCTION	REPLACE EXISTING STRUCTURE	REPAIR/MAINTAIN EXISTING STRUCTURE
Bank stabilization – bioengineering/recontouring	☐	☐	☐
Bank stabilization – rip-rap/retaining wall/gabion	☐	☐	☐
Boat dock/pier	☐	☐	☐
Boat ramp	☐	☐	☐
Bridge	☐	☐	☐
Channel clearing/vegetation management	☐	☐	☐
Culvert	☐	☐	☐
Debris basin	☐	☐	☐
Dam	☐	☐	☐
Diversion structure – weir or pump intake	☐	☐	☐
Filling of wetland, river, stream, or lake	☐	☐	☐
Geotechnical survey	☐	☐	☐
Habitat enhancement – revegetation/mitigation	☐	☐	☐
Levee	☐	☐	☐
Low water crossing	☐	☐	☐
Road/trail	☐	☐	☐
Sediment removal – pond, stream, or marina	☐	☐	☐
Storm drain outfall structure	☐	☐	☐
Temporary stream crossing	☐	☐	☐
Utility crossing : Horizontal Directional Drilling	☐	☐	☐
Jack/bore	☐	☐	☐
Open trench	☐	☐	☐
Other *(specify)*:	☐	☐	☐

10. PROJECT DESCRIPTION

A. Describe the project in detail. Photographs of the project location and immediate surrounding area should be included.

- Include any structures (e.g., rip-rap, culverts, or channel clearing) that will be placed, built, or completed in or near the stream, river, or lake.
- Specify the type and volume of materials that will be used.
- If water will be diverted or drafted, specify the purpose or use.

Enclose diagrams, drawings, plans, and/or maps that provide all of the following: site specific construction details; the dimensions of each structure and/or extent of each activity in the bed, channel, bank or floodplain; an overview of the entire project area (i.e., "bird's-eye view") showing the location of each structure and/or activity, significant area features, and where the equipment/machinery will enter and exit the project area.

Please see Technical Attachment (pages 4-14).

☑ *Continued on additional page(s)*

B. Specify the equipment and machinery that will be used to complete the project.

Please see Technical Attachment (see pages 8-14).

☑ *Continued on additional page(s)*

C. Will water be present during the proposed work period (specified in box 4.D) in the stream, river, or lake (specified in box 8.B).	☑ Yes ☐ No (*Skip to box 11*)
D. Will the proposed project require work in the wetted portion of the channel?	☐ Yes (*Enclose a plan to divert water around work site*) ☑ No

11. PROJECT IMPACTS

A. Describe impacts to the bed, channel, and bank of the river, stream, or lake, and the associated riparian habitat. Specify the dimensions of the modifications in length (linear feet) and area (square feet or acres) and the type and volume of material (cubic yards) that will be moved, displaced, or otherwise disturbed, if applicable.

Please see Technical Attachment (see page 20).

☑ *Continued on additional page(s)*

B. Will the project affect any vegetation? ☑ Yes (*Complete the tables below*) ☐ No

Vegetation Type	Temporary Impact	Permanent Impact
Annual Grassland	Linear feet: _____ Total area: 0.90 acres	Linear feet: _____ Total area: 0
Barren	Linear feet: _____ Total area: 0.20 acres	Linear feet: _____ Total area: 0

Tree Species	Number of Trees to be Removed	Trunk Diameter (range)
No heritage trees are to be removed.		

☑ *Continued on additional page(s)*

C. Are any special status animal or plant species, or habitat that could support such species, known to be present on or near the project site?

☑ Yes *(List each species and/or describe the habitat below)* ☐ No ☐ Unknown

Please see Technical Attachment (see page 17).

☑ *Continued on additional page(s)*

D. Identify the source(s) of information that supports a "yes" or "no" answer above in Box 11.C.

Please see Technical Attachment (see page 17).

☑ *Continued on additional page(s)*

E. Has a biological study been completed for the project site?

☑ Yes (*Enclose the biological study*) ☐ No

Note: A biological assessment or study may be required to evaluate potential project impacts on biological resources.

F. Has a hydrological study been completed for the project or project site?

☐ Yes (*Enclose the hydrological study*) ☑ No

Note: A hydrological study or other information on site hydraulics (e.g., flows, channel characteristics, and/or flood recurrence intervals) may be required to evaluate potential project impacts on hydrology.

12. MEASURES TO PROTECT FISH, WILDIFE, AND PLANT RESOURCES

A. Describe the techniques that will be used to prevent sediment from entering watercourses during and after construction.

Please see Technical Attachment (see pages 23 - 27).

☑ *Continued on additional page(s)*

B. Describe project avoidance and/or minimization measures to protect fish, wildlife, and plant resources.

Please see Technical Attachment (see pages 23 - 27).

☑ *Continued on additional page(s)*

C. Describe any project mitigation and/or compensation measures to protect fish, wildlife, and plant resources.

None Required.

☑ *Continued on additional page(s)*

13. PERMITS

List any local, state, and federal permits required for the project and check the corresponding box(es). Enclose a copy of each permit that has been issued.

A. N/A ☐ Applied ☐ Issued

B. _____ ☐ Applied ☐ Issued

C. _____ ☐ Applied ☐ Issued

D. Unknown whether ☐ local, ☐ state, or ☐ federal permit is needed for the project. (*Check each box that applies*)

☐ *Continued on additional page(s)*

14. ENVIRONMENTAL REVIEW

A. Has a draft or final document been prepared for the project pursuant to the California Environmental Quality Act (CEQA), National Environmental Protection Act (NEPA), California Endangered Species Act (CESA) and/or federal Endangered Species Act (ESA)?

☑ Yes (*Check the box for each CEQA, NEPA, CESA, and ESA document that has been prepared and enclose a copy of each*)

☐ No (*Check the box for each CEQA, NEPA, CESA, and ESA document listed below that will be or is being prepared*)

☐ Notice of Exemption	☑ Mitigated Negative Declaration	☐ NEPA document (*type*):
☑ Initial Study	☐ Environmental Impact Report	☐ CESA document (*type*):
☐ Negative Declaration	☐ Notice of Determination *(Enclose)*	☐ ESA document (*type*):
☐ THP/ NTMP	☐ Mitigation, Monitoring, Reporting Plan	

B. State Clearinghouse Number (*if applicable*): 2013102021

C. Has a CEQA lead agency been determined? ☑ Yes (*Complete boxes D, E, and F*) ☐ No (*Skip to box 14.G*)

D. CEQA Lead Agency: City of Sacramento

E. Contact Person: Scott Johnson | F. Telephone Number: 916-808-5842

G. If the project described in this notification is part of a larger project or plan, briefly describe that larger project or plan.

The City of Sacramento determined that the project described in this notification is a subsequent project under the City's 2030 General Plan. The 2030 General Plan establishes the land use and development goals for the City of Sacramento, and establishes goals and policies for achieving these objectives. The project is consistent with the land use designation and the permissible densities and intensities of use for the project site as set forth in the 2030 General Plan.

☐ *Continued on additional page(s)*

H. Has an environmental filing fee (Fish and Game Code section 711.4) been paid?

☑ Yes (*Enclose proof of payment*) ☐ No (*Briefly explain below the reason a filing fee has not been paid)*

See Appendix B of the attached Technical Attachment.

Note: If a filing fee is required, the Department may not finalize a Lake or Streambed Alteration Agreement until the filing fee is paid.

15. SITE INSPECTION

Check one box only.

☐ In the event the Department determines that a site inspection is necessary, I hereby authorize a Department representative to enter the property where the project described in this notification will take place at any reasonable time, and hereby certify that I am authorized to grant the Department such entry.

☑ I request the Department to first contact (*insert name*) Ricky Chuck, P.E., Project Manger at (*insert telephone number*) 916-808-5050 to schedule a date and time to enter the property where the project described in this notification will take place. I understand that this may delay the Department's determination as to whether a Lake or Streambed Alteration Agreement is required and/or the Department's issuance of a draft agreement pursuant to this notification.

16. DIGITAL FORMAT

Is any of the information included as part of the notification available in digital format (i.e., CD, DVD, etc.)?

☑ Yes (Please enclose the information via digital media with the completed notification form)

☐ No

17. SIGNATURE

I hereby certify that to the best of my knowledge the information in this notification is true and correct and that I am authorized to sign this notification as, or on behalf of, the applicant. I understand that if any information in this notification is found to be untrue or incorrect, the Department may suspend processing this notification or suspend or revoke any draft or final Lake or Streambed Alteration Agreement issued pursuant to this notification. I understand also that if any information in this notification is found to be untrue or incorrect and the project described in this notification has already begun, I and/or the applicant may be subject to civil or criminal prosecution. I understand that this notification applies only to the project(s) described herein and that I and/or the applicant may be subject to civil or criminal prosecution for undertaking any project not described herein unless the Department has been separately notified of that project in accordance with Fish and Game Code section 1602 or 1611.

_____ _____

Signature of Applicant or Applicant's Authorized Representative Date

_____

Print Name

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A. Elderberry Shrub Protective Measures
B. Final Initial Study/Mitigated Negative Declaration

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TECHNICAL ATTACHMENT – STREAMBED ALTERATION AGREEMENT

Guy West Bridge Restoration Project

Introduction and Purpose

This Streambed Alteration Agreement (SAA) application was prepared by Environmental Science Associates (ESA) on behalf of the project applicant, the City of Sacramento (City), for the proposed Guy West Bridge Restoration Project (proposed project). Located within the City of Sacramento, the purpose of the proposed project is to implement a restoration work plan that completes the Priority Task Two and Three recommendations identified in the Guy West Bridge Condition Assessment Report (as summarized in **Table 1**, below) to ensure the continued safe performance of this suspension bridge.

Additional objectives include the following:

- Given the bridge's location within the environmentally sensitive American River Parkway, the City proposes to complete the restoration work in a manner that minimizes environmental impacts to the American River Parkway;
- Implement restoration/maintenance activities in a manner that maintains pedestrian/recreation access, circulation, and connectivity to the surrounding Campus Commons area, the Sacramento State University Campus, and for users of the Jedediah Smith Recreation Trail as much as possible; and
- Incorporate restoration/maintenance activities (i.e., paint coatings, materials, etc.) that maintain the unique aesthetic and design features of the existing suspension bridge.

TABLE 1
PROPOSED RESTORATION WORK PLAN

Priority	Description	Status
One (highest)	• Sample broken wires & test to verify fatigue failure • Wrap damaged cables to prevent unraveling • Relocate out of position main cable spacer	Complete
Two (moderate)	• Restore two suspender rope connections • Repair one truss strut member • Replace all deck seals and repair deck spalls • Full removal and replacement of paint system	In Process
Three (lowest)	• Replace handrail hardware • Repair loose utility conduit • Replace approach truss bearing pads	In Process

Existing Documentation

This SAA application relies on information from the following documents: Guy West Bridge Restoration Project Final Initial Study/Mitigated Negative Declaration (City of Sacramento, 2013); Guy West Bridge Restoration Project Biological Assessment (ESA, 2014); Federal Endangered and Threatened Species that may be Affected by Projects in the Sacramento East, California 7.5-Minute Topographic Quadrangles (United States Fish and Wildlife Service [USFWS], 2013a); USFWS Critical Habitat for Threatened and Endangered Species (online mapping program) (USFWS, 2013b); California Natural Diversity Database (CNDDB), Rarefind 4 computer program (California Department of Fish and Wildlife [CDFW], 2013a); California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS, 2013) Special Vascular Plants, Bryophytes, and Lichens List (CDFW, 2013b); and Special Animals List (CDFW, 2011).

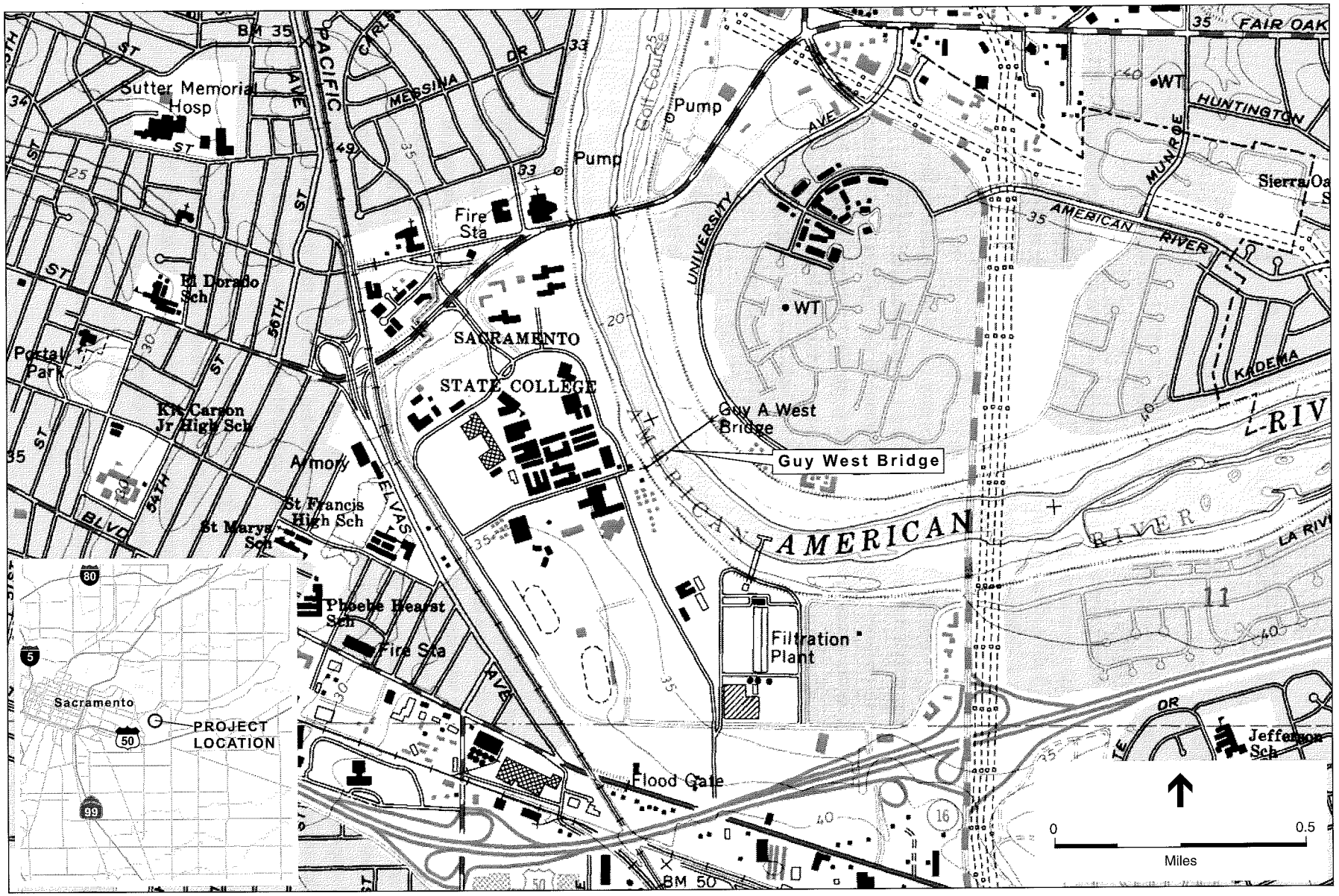
Documents attached as appendices with this SAA include the Request for Technical Assistance for the Guy West Bridge Restoration Project: Elderberry Shrub Protective Measures (**Appendix A**) and the certification for the Guy West Bridge Restoration Project Final Initial Study/Mitigated Negative Declaration (**Appendix B**).

Project Location (FG2023 Section 8.A – M)

The Guy West Bridge Rehabilitation and Maintenance Project spans and is located on both the eastern and western sides of the American River Parkway within the City of Sacramento (City) (**Figure 1**). The existing Guy West Bridge is a suspension bridge that provides a primary access route for pedestrians and bicyclists travelling from the Campus Commons residential area (east of the existing bridge) to the California State University Sacramento (CSUS) Campus (west of the bridge). The bridge also provides an important connection point for a variety of recreation users along American River Parkway (in particular both the eastern and western segments of the Jedediah Smith Recreation Trail). This location corresponds to Township 8N, Range 5E, Section 10 of the Sacramento East, CA U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map (USGS, 1980). Elevation on the site ranges from approximately 20 feet above mean sea level (msl) within the channel of the American River to approximately 35 feet above msl along the eastern bank of the American River. While a majority of the project site is located within the American River Parkway, the project site is surrounded by an urbanized portion of the community. The predominant surrounding land uses include CSUS, residential areas, commercial/office uses, and public land maintained by the County of Sacramento.

Affected assessor parcel numbers (APNs) include: 295-0040-003-0000, 295-0040-004-0000, 295-0040-002-0000, 295-0040-012-0000, 005-0010-008-0000.

Driving directions: from Sacramento, take Highway (HWY) 50 east towards Lake Tahoe. Take exit 9 toward Howe Avenue. Turn left on Howe Avenue and left on University Avenue.



SOURCE: USGS Topographic Quadrangle (Sacramento East, 1967; Photorevised, 1980); DeLorme Street Atlas, 2000; ESA, 2013

Guy West Bridge Rehabilitation Project . 120851

Figure 1

Project Site and Surrounding Vicinity

Project Description (FG2023 Section 10.A – D)

Project Features

The restoration work plan for the proposed project is comprised of the following features:

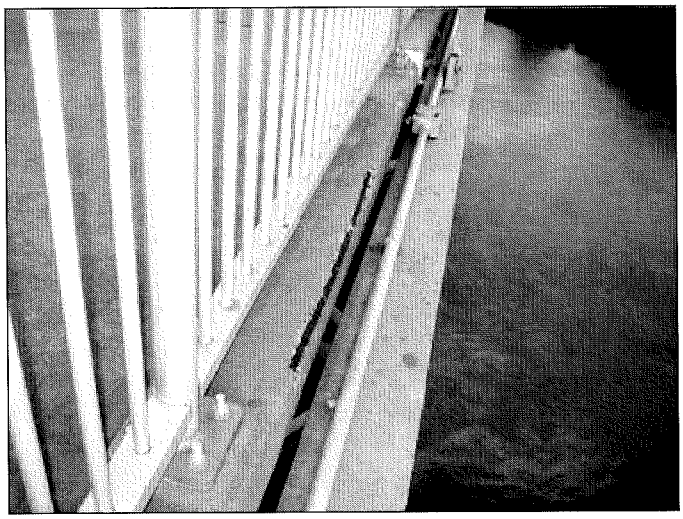
Bridge Deck. While the lightweight reinforced concrete deck was observed to be in satisfactory-to-good condition, the inspection conducted as part of the Guy West Bridge Condition Assessment Report identified hairline cracking on the bottom surface and some scattered, minor spalling (<3% total deck area) as shown in **Figure 2a**. The repair of minor concrete spalls and failed joint seals are included as part of the proposed project.

Suspended Span Stiffening Trusses and Floor System. Spotty conditions of paint failure and light surface corrosion along with a few areas exhibiting larger areas of paint failure were observed as part of the last inspection. One indication of damage to the structure that is unrelated to normal use was located on the lower strut at L53′ (on the north tower) shown in **Figure 2a** and **2b**. The flanges of this strut have been cut through and the strut section has been greatly reduced. This structural steel member will be repaired with field drilled bolts and cover plates to restore the steel section to its original area and stiffness as part of the proposed project.

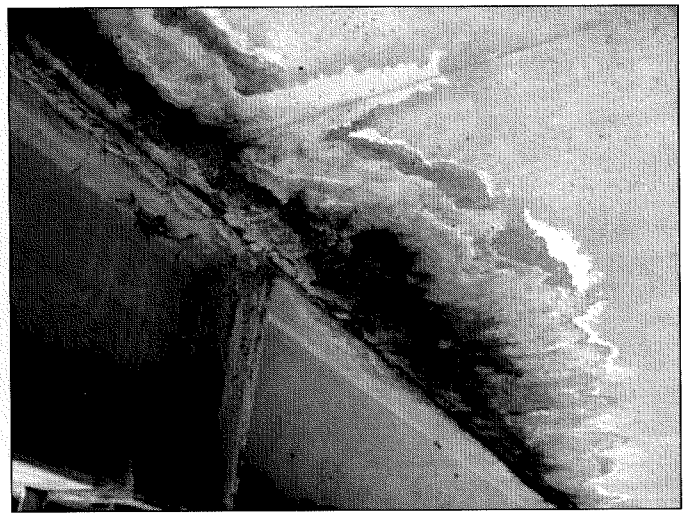
Bearings. The approach span trusses each have a fixed end bearing at the towers and a free end bearing at the abutments. The free end (expansion) bearings were observed to be in satisfactory-to-good condition. However, the elastomeric bearing pad at each of the four fixed bearing locations was observed to have failed and is bulging out around the lower chord bottom flange as shown in Figure 2a and 2b. Replacement of these fixed bearing pads is included as part of the proposed project.

Vertical Suspender Ropes and Sockets. The main vertical load carrying elements of the bridge were found to be in fair condition due to noted deterioration of the galvanized coating and some minor surface corrosion. The wire suspender ropes were observed to exhibit varying degrees of galvanized coating failure and surface corrosion at the point of entry into the sockets at locations throughout the structure. Additionally, it was noted that a cotter pin was determined to be missing at some past inspection point and was replaced by a piece of wire in place of the pin joining the vertical suspender rope anchorage to the cable clamp on the north cable. A pin at one of the vertical suspender anchorages on the north truss is moderately corroded, indicating that the pin was not galvanized as specified. Replacement of these items is included as part of the proposed project.

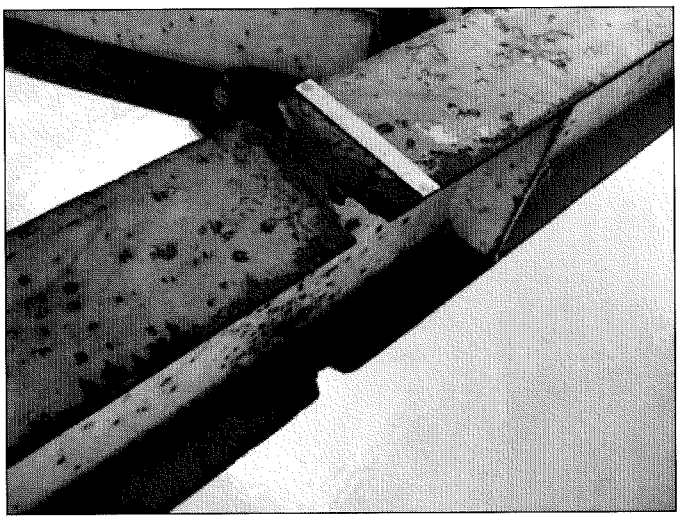
Suspension Cables. The suspension cables are in fair to satisfactory condition due to fracture of several wires in three of the four strands that make up the southern main cable. The fractures were found at the south saddle of the tower on the approach span side (see Figures 2a and 2b). In addition, the galvanized coating has begun to show signs of weathering and is absent or thin in small areas over the full length of the cables. Tree foliage was observed to encroach both the north and south cables at the east anchorage and the north cables at the west anchorage.



PHOTOGRAPH 1 – Spalling of the deck panel edge beyond the handrail. Note the exposed reinforcing bar.



PHOTOGRAPH 2 – Typical staining on the bottom of a deck panel at the location of a joint seal.



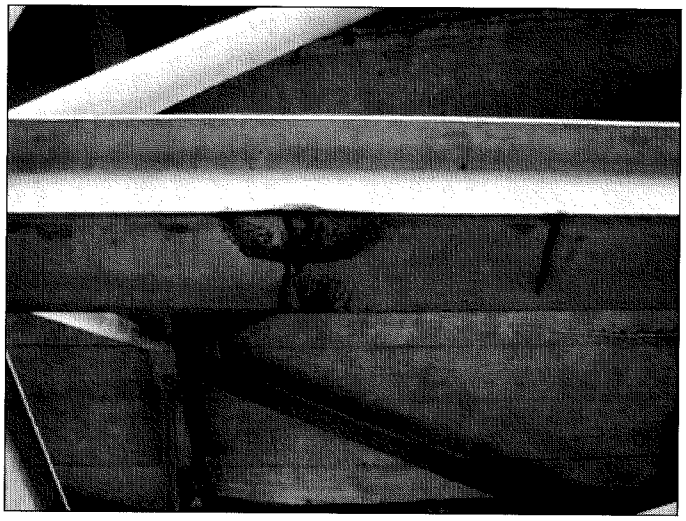
PHOTOGRAPH 3 – Damage to the stiffening truss lower strut at L53'.

SOURCE: Quincy Engineering, Inc., 2011

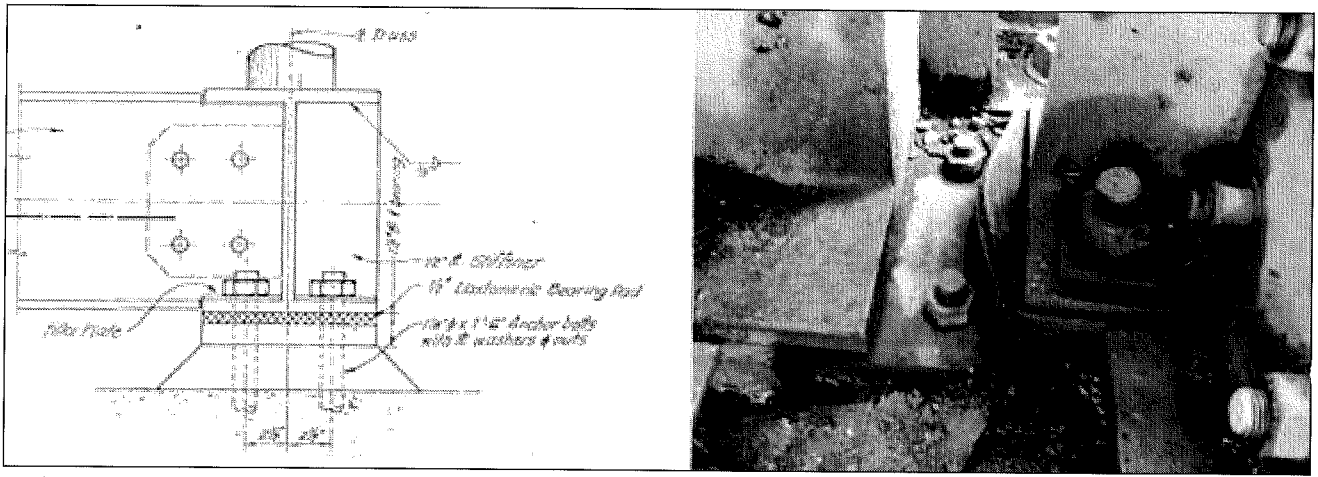
Guy West Bridge Rehabilitation Project . 120851

Figure 2a

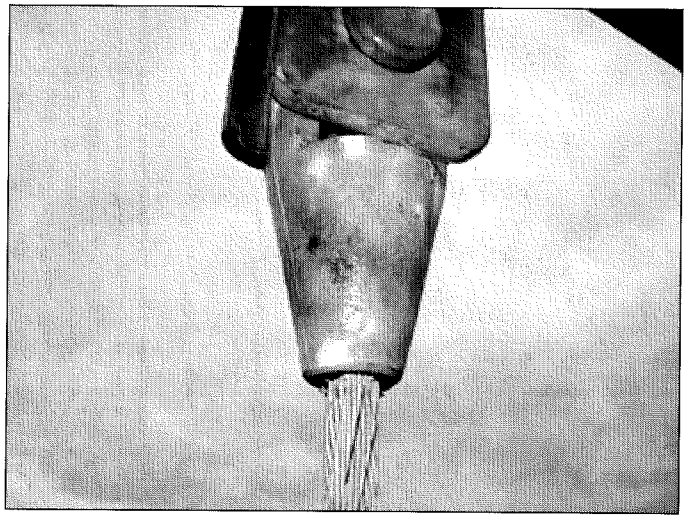
Bridge Features Requiring Maintenance



PHOTOGRAPH 4 – Impact damage to the north approach truss lower chord bottom flange between L4' and L5'.



PHOTOGRAPH 5 – Fixed bearing detail and bulging elastomeric bearing pad.



PHOTOGRAPH 6 – Wire suspender rope at top socket connection in good condition.

SOURCE: Quincy Engineering, Inc., 2011

Guy West Bridge Rehabilitation Project . 120851

Figure 2b
Bridge Features Requiring Maintenance

Restoration of these items through galvanized paint coating is included as part of the proposed project.

Handrail System. In general, the handrail system was observed to be in fair to satisfactory condition. However, several of the anchor nuts (approximately 29) were found to be loose. In addition, 14 anchor nuts were observed not having the correct engagement of the U-bolt, and 3 anchor bolts were observed to be broken off. In addition, many grout pads below the handrail post base plates were observed to be cracked as shown in Figures 2a and 2b. Minor repairs of the handrail system are included as part of the proposed project.

Utilities. Two utility conduits run from abutment to abutment and are hung from the upper strut of each floor beam. These conduits appear to carry electric cables, but they are not marked for contents. The conduits were observed to be separated or broken at their expansion joint in three locations. Restoration of the utility conduit integrity is included as part of the proposed project.

Paint. The existing paint system consists of a red lead-type primer that typically contains greater than 40% lead with alkyd topcoat that contains lead and other heavy metals. This existing system shows signs of widespread failure and is no longer providing adequate protection. Widespread areas of paint flaking and incipient corrosion can be observed throughout the structure. The paint system is extremely brittle and is exhibiting blistering. The top coat shows extensive chalking and color change and is easily separated from the base primer. As part of the proposed project, the existing paint system will be removed and replaced as soon as possible to prevent further corrosion of exposed steel surfaces. The same paint color—"International Orange"; which matches the Golden Gate Bridge—will be used for the proposed project and will restore the bridge to its original color.

Restoration Details

Site Access Routes and Equipment Staging Areas

Access routes and equipment staging areas are identified in **Figures 3** and **4**. To minimize a variety of environmental impacts and facilitate construction operations, the proposed project will be divided up into two phases. One phase will consist of restoration of the eastern side of the bridge. A separate phase will consist of similar restoration work for the western side of the bridge. It is possible that work may be performed on both sides of the river concurrently, but within allowable construction schedule windows as defined by environmental and public user considerations, as well as the allowable load limits of the bridge.

On the eastside, the Contractor will be allowed to set up a staging area for parking, equipment, stockpiles, and site access within a private parking lot near the bridge between University Ave and the levee. This staging area will be fenced and secured by a temporary fence. This staging area will have a dedicated driveway into the parking lot from University Ave, and a gate will be used to restrict public access for safety. An earthen ramp will be built with the staging area from the private parking lot grade to the top of the existing levee in order to provide access for construction equipment. An area immediately adjacent to the bridge on top of the levee will be

used for construction activities. A temporary earthwork ramp will be required from the top of the levee to the grade of the American River Parkway (Sacramento County Parks) in order to provide access to the base of the tower. **Figure 5** includes a photo of a similar earthen ramp developed for a previous levee project within roughly the same location.

On the westside, the Contractor will gain access to the bridge work area from State University Drive East within the California State University Sacramento (CSUS) Campus. The access route will proceed from State University Drive East up an existing paved levee access ramp, back down an existing levee ramp on the waterside, and along a flat area at the toe of the levee within CSUS property. The staging and construction activity work area for parking, equipment, supplies will be near the existing bridge tower. This staging area will be fenced and protected from public access.

Construction Activity Areas

Most of the restoration work will be performed from the bridge itself, above the ground (see Figure 5). Work occurring on the deck level will include work on the bridge deck, main cables, suspender cables, and handrail system. Work occurring below the deck level, within the truss structure of the bridge, will include work on the truss, bearing, and the utility conduit. The vast majority of paint removal and restoration work (which accounts for over 90% of the total restoration effort) will occur at the bridge truss level, below the bridge deck. While the proposed project is located within the American River Parkway, restoration activities (including construction access routes and staging areas) do not include in-water work or would not involve ground disturbing activities.

Minor work will be performed at both abutments on the bearing system and minor paint work will be performed at all cable anchorage locations. In order to access and build paint containment systems around each tower, construction of temporary scaffolding will be required around each tower. Scaffolding will be the full height of each tower, braced off each tower, and will be supported on temporary pads at the base of each tower. The contractor may elect to design a containment structure that will provide a protected opening for bikes and pedestrians crossing underneath the towers during this work activity.

Required Equipment and Workers

Equipment used for the project will include typical pieces of general construction equipment and also specialized painting equipment. Specialized paint equipment will include a paint blaster/recycling machine, dust collector, and air compressors. The recycling machine stores, sorts and transports inbound and outbound blasting material streams. The dust collector filters and controls atmosphere within the paint containment tent. Air compressors provide air pressure to drive the recycling and collecting machines. A water containment system will be established to ensure that contaminated water used to wash and clean paint surfaces is fully captured without affecting the environment. All these machines come on wheeled trailers or carriages that spread out load below legal limits for operating on local streets and access ramps, and would be parked as close to the bridge as possible.

LEGEND:

TFESA — TEMPORARY FENCE ENVIRONMENTALLY SENSITIVE AREA (ESA)

TEMPORARY CONSTRUCTION FENCE CHAIN LINK

#X ELDERBERRY SHRUB

NOTES:

1. FOR SECTION "A–A", SECTION B–B AND SECTION "C–C", SEE "ACCESS DETAILS" SHEET.
2. FOR UTILITY INFORMATION, SEE "UTILITY PLAN".

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
3	SAC	N/A	N/A	3	X

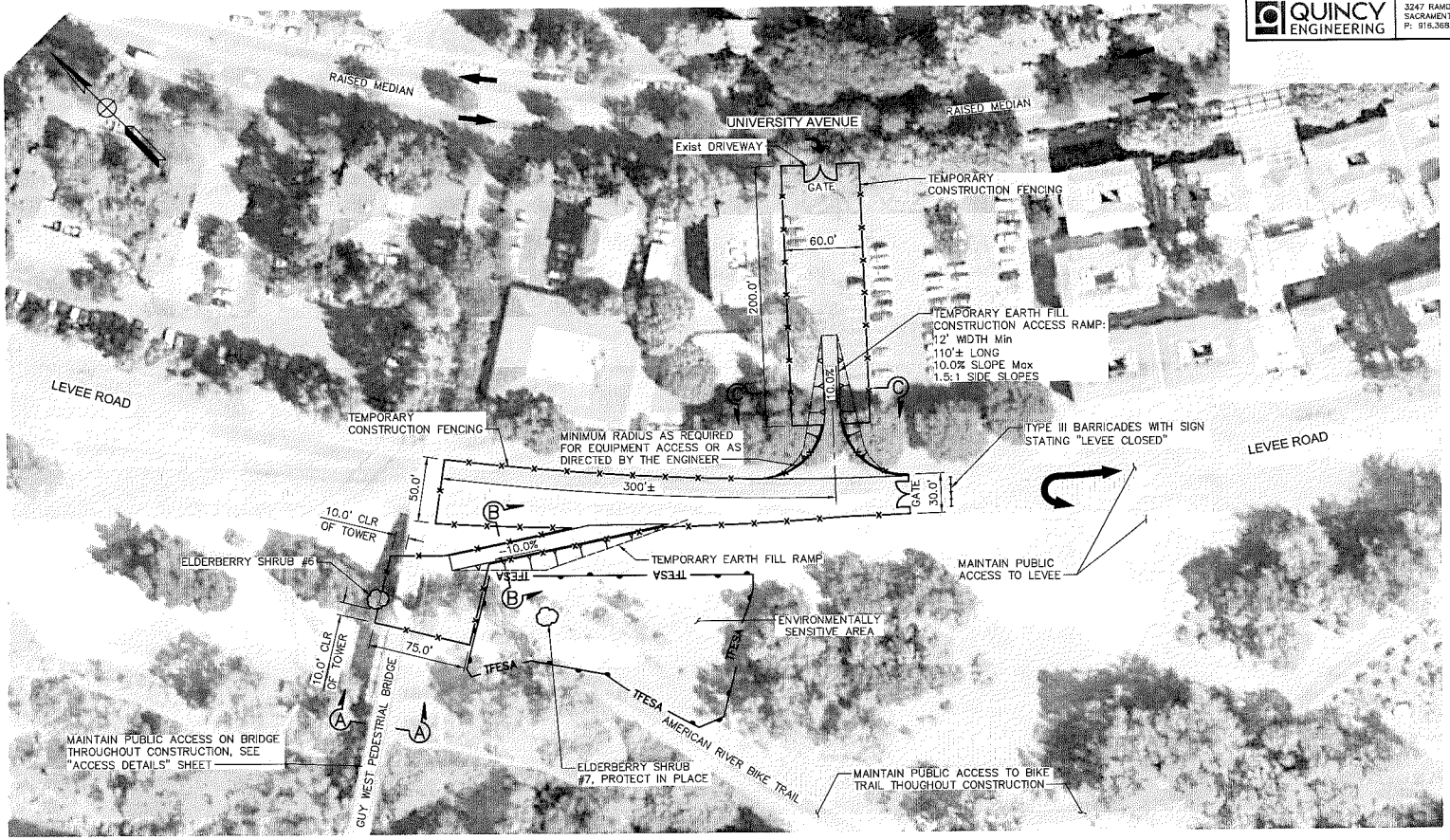
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — XXX X. XXXXXXX — No. C12345 — Exp. XX/XX/XX — CIVIL — STATE OF CALIFORNIA

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

QUINCY ENGINEERING — 3247 RAMOS CIRCLE, SACRAMENTO, CA 95827–2501, P: 916.368.9181



SOURCE: Quincy Engineering, Inc., 2010

Guy West Bridge Rehabilitation Project . 120851

Figure 3

Eastern Side – Staging and Access Layout

LEGEND:

TFESA — TEMPORARY FENCE ENVIRONMENTALLY SENSITIVE AREA (ESA)

TEMPORARY CONSTRUCTION FENCE CHAIN LINK

#X ELDERBERRY SHRUB

NOTES:

1. FOR SECTION "A–A" AND SECTION "D–D", SEE "ACCESS DETAILS" SHEET.
2. FOR UTILITY INFORMATION, SEE "UTILITY PLAN" SHEET.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
3	SAC	N/A	N/A	4	X

REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER — XXX X. XXXXXXX — No. C12345 — Exp. XX/XX/XX — CIVIL — STATE OF CALIFORNIA

PLANS APPROVAL DATE

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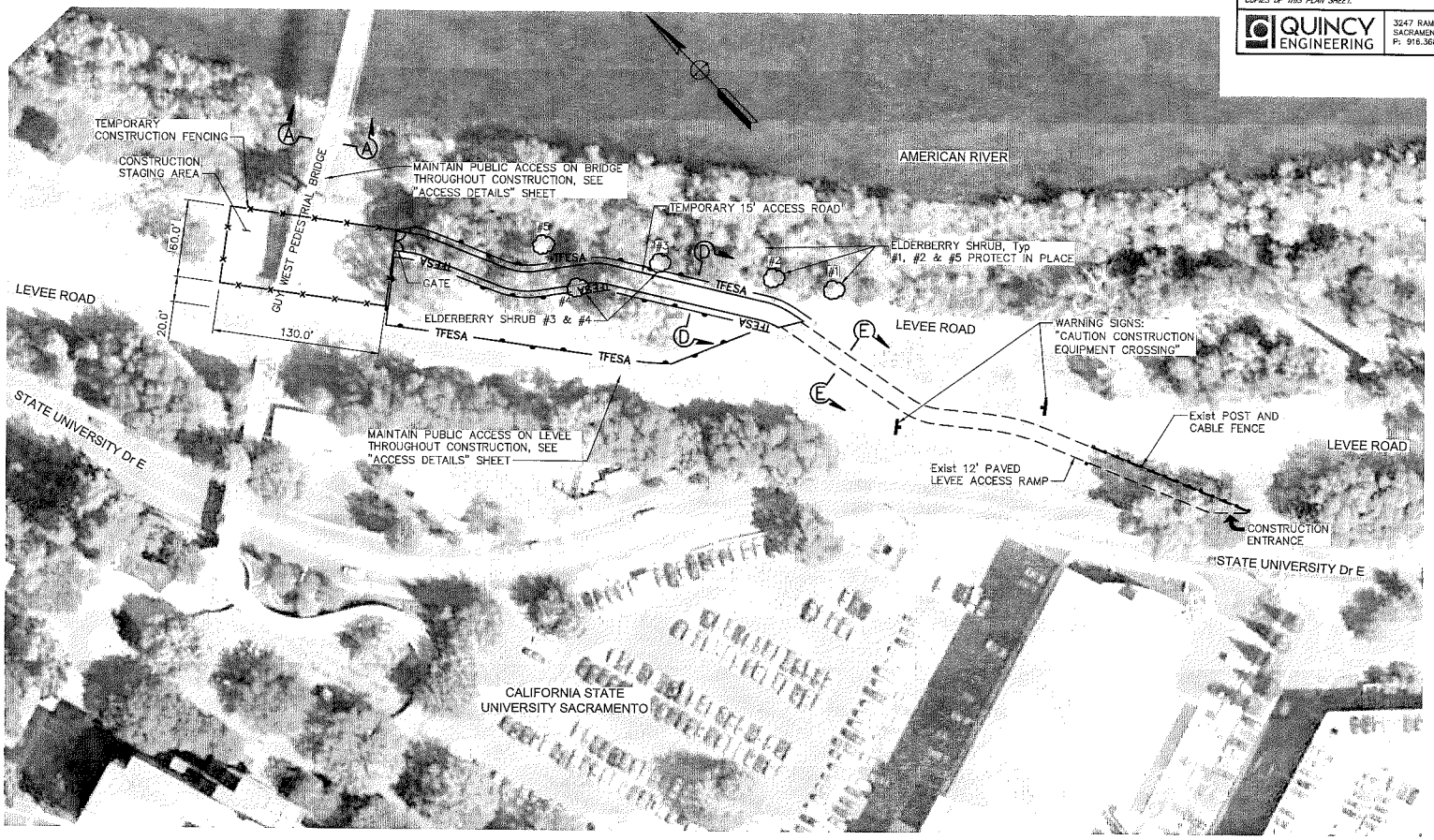
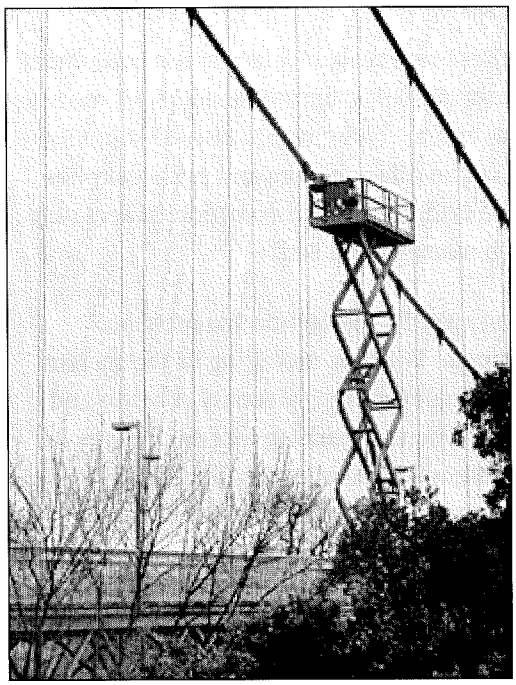


SOURCE: Quincy Engineering, Inc., 2010

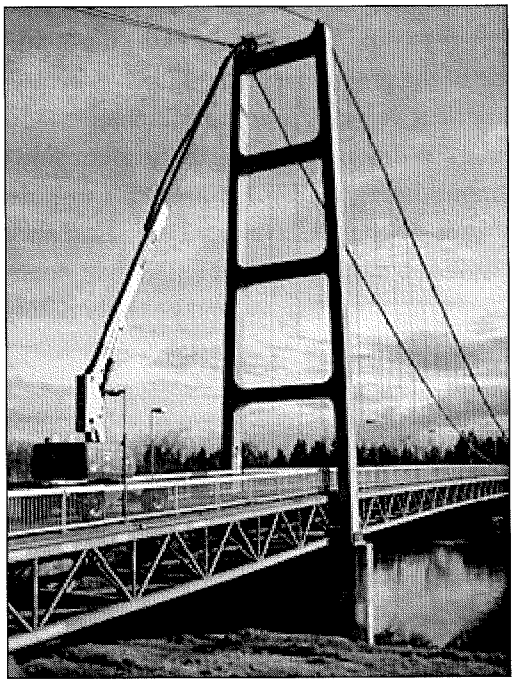
Guy West Bridge Rehabilitation Project . 120851

Figure 4

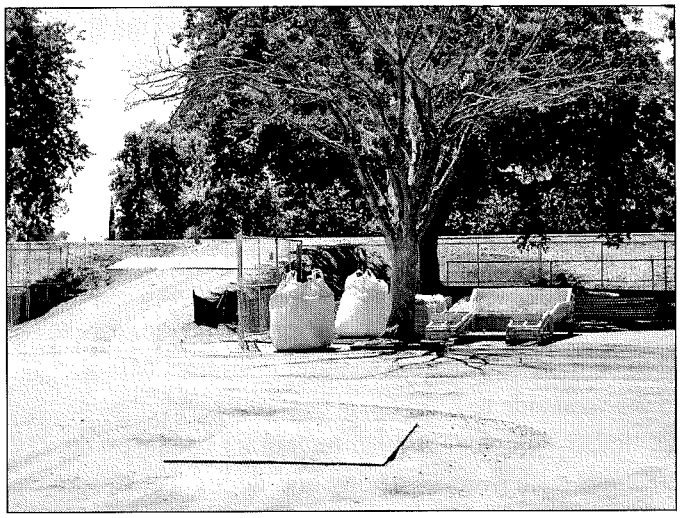
Western Side – Staging and Access Layout



PHOTOGRAPH 1. Access to upper portions of most vertical suspender ropes using a manlift.



PHOTOGRAPH 2. Access to towers and upper portions of the suspension cables and vertical suspender ropes gained using an 86-foot aerial boom lift.



PHOTOGRAPH 3. Example of temporary earthwork ramp from previous project.

SOURCE: Quincy Engineering, Inc., 2011; EAS, 2013

Guy West Bridge Rehabilitation Project . 120851

Figure 5

Bridge and Project Site Access

In addition to these pieces of specialized equipment, smaller more typical construction equipment will also be utilized. This includes equipment such as heavy duty pick-ups and loaders for moving materials, forklifts, and manlifts for accessing areas of the bridge. There would also be some light trailers for decontamination showers as well as stockpiles of ancillary hosing and grit stockpiles that could be staged further from the immediate area of the bridge. One or two office trailers may also be required for the Contractor and City's construction management staff.

An estimated 10 to 20 workers, which could vary based on specific restoration/maintenance activity, would be onsite each day during restoration activities. Workers travelling to the eastern side of the project site would likely travel along Fair Oaks Boulevard to University Avenue and park their vehicles near the equipment staging area within the private parking lot (see Figures 3 and 4). Workers accessing the western side of the project site would likely enter the CSUS campus through either Hornet Drive or Folsom Boulevard and proceed to the levee access location on State University Drive East and the western staging area. Restoration/maintenance activities would be limited to daylight hours, typically the hours from 7:00 a.m. to 6:00 p.m., Monday through Friday, and possibly Saturday and Sunday.

Restoration Schedule

One of the primary objectives of the proposed project is to minimize access and circulation impacts to the Sacramento State University Campus and for users of the Jedediah Smith Recreation Trail. Impacts will be minimized as part of the proposed project schedule during the April to November 2014 construction season. Additionally, implementation of the project in two stages will also minimize impacts to participants of the Eppies Great Race (occurring in mid to late July). The contractor will select which side of the bridge to restore first and will complete construction in a timely matter so as to not interfere with the Eppies Great Race. Therefore, one phase will occur during the April through June timeframe. Completion of this phase will coincide to ensure that adequate time is made available for removal of equipment and restoration of staging areas located along the eastern side of the bridge, which is an important part of the Eppies Great Race. Following the completion of work on this phase, work will commence on the remaining side.

Site Preparation

Preparation of the site will include setting up the staging areas and securing them with construction fencing to limit public access for safety. Additional measures such as silt fencing, fiber rolls, and signage may also be installed within the staging and construction areas. Temporary earthen construction ramps will be constructed adjacent to the levee on the east side for access. A chain link fence will also need to be removed in order to build this ramp. Minor temporary earth fill may also be required on the west side to level the access route near the adjacent levee ramp. Minor fill, steel plating, timber blocking, or other temporary pads may be placed under equipment to protect existing features such as levee paving and slopes. Temporary pad foundations will also be required below the access and containment scaffolding required for paint activities at each existing tower. Vegetation trimming will be required both for restoration/maintenance access and to trim vegetation growing into the bridge that interferes with painting activities.

Site Restoration and Cleanup

The project will require the contractor to preserve and restore property upon completion of the project. All restoration/maintenance materials will be required to be removed and all surfaces restored to their pre-project condition including replacing fences, repairing AC surfaces, restoring existing slopes and grades, and restoring vegetated surfaces through means such as hydroseeding. All hard surfaces, such as the private parking lot, will be cleaned of dirt, dust, or other construction materials. Resurfacing and re-striping may be performed, if required, to restore the hard surfaces back to their original condition.

Utilities

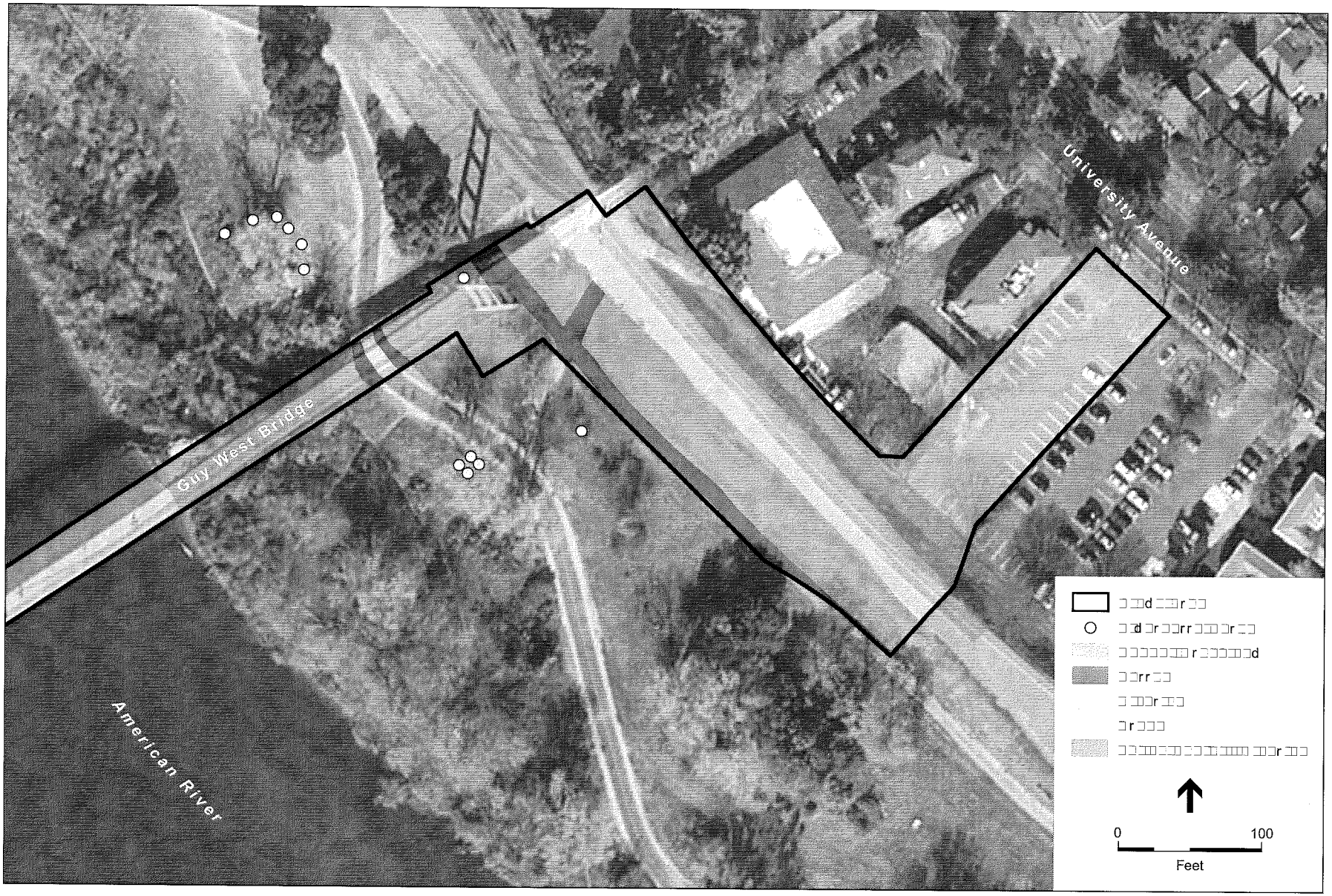
Although relocation of utilities is not anticipated for this project, the limits of the project will contain various easements and underground utilities. Some of the utility companies may elect to rehabilitate some of their lines or connections to the bridge during this project. Utility companies would temporarily disconnect affected utility lines to the bridge for repairs, and then would reconnect them during the painting operations. On the eastside, the temporary ramp will be built over a SMUD easement and electrical line (see **Figure 3**). Portions of the work on the eastside will also be performed over an easement for the Sacramento Regional County Sanitation District which contains a sanitary sewer. On the eastside, a portion of the construction area will be over a series of drainage culverts serving the CSUS campus. Work on the bridge will include restoration of a utility conduit carrying SMUD electrical lines. Utility coordination will be performed with all utility owners.

Site Description

Environmental Setting

The project site is located in the Sacramento Valley floristic province of the Great Central Valley. Historically, this region supported extensive marshes, riparian woodlands intermixed with oak woodland, vernal pools, and grasslands. Intensive agricultural and urban development has resulted in substantial changes and conversions of these habitats. The project site is located within the American River Parkway, which is a greenbelt that extends from Folsom Dam southwest to the confluence of the American and Sacramento Rivers. The study area encompasses both sides (eastern and western side) of the Guy West Bridge which spans the American River, access routes along the levees of the American River, and associated staging areas. Habitats present in and adjacent to the study area include annual grassland, Valley foothill riparian, riverine, barren, and urban or developed areas (**Figures 6** and **7**).

The east side of the study area is characterized by open space along the levee consisting of paved and compacted trails and roadways with annual grassland growing along the levee slopes and benches. The Campus Commons (residential complexes) is located east of the levee. Dense riparian habitat occurs along the riverside of the levee; this area is dominated by large cottonwoods (*Populus fremontii*), valley oaks (*Quercus lobata*), and dense shrubs. The west side of the study area is characterized by dense riparian habitat below the levee on the riverside and

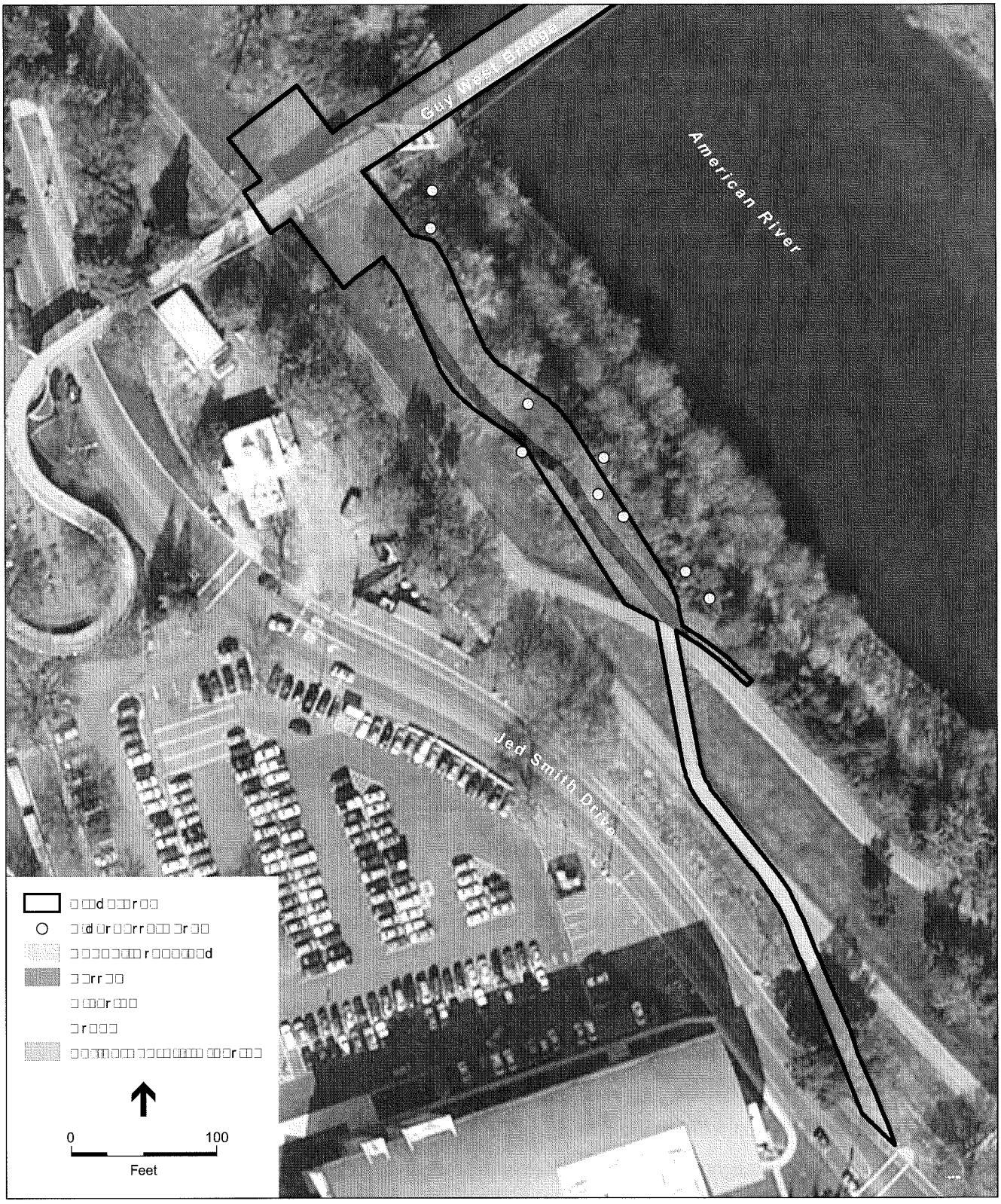


SOURCE: Microsoft, 2012; Quincy Engineering 2013; ESA, 2013

Guy West Bridge Rehabilitation Project . 120851

Figure 6

Eastern Side – Habitats within the Project Site



Guy West Bridge Rehabilitation Project . 120851

SOURCE: Microsoft, 2012; Quincy Engineering, 2013; ESA, 2013

Figure 7

Western Side – Habitats within the Project Site

open space between the CSUS campus and the riparian habitat. Annual grassland, mature cottonwoods, and black locust (*Robinia pseudoacacia*) trees occur in association with paved trails.

Plant Communities and Wildlife Habitats

Plant communities are assemblages of plant species that occur together in the same area. They are defined by species composition and relative abundance. The plant community and wildlife habitat descriptions and nomenclature used in this section generally follows the classification system of A Guide to Wildlife Habitats of California or CWHR (CDFG, 1988). The CWHR habitat classification scheme has been developed to support the CWHR System, a wildlife information system and predictive model for California's regularly occurring birds, mammals, reptiles and amphibians. **Table 2** provides a summary of the habitat acreage within the project site as shown in **Figures 6** (eastern side) and **7** (western side).

TABLE 2
HABITAT TYPES WITHIN THE STUDY AREA

Habitat Type	Area (acres)
Annual Grassland	0.90
Valley Foothill Riparian	0.34
Riverine*	0.22
Urban	0.76
Barren	0.20
Total	**2.42**

*Wetlands and other waters of the U.S. have not been formally delineated and the jurisdictional status of features has not been verified by the U.S. Army Corps of Engineers.

SOURCE: ESA, 2013

Wetlands and Other Waters of the U.S.

The American River is the only potentially jurisdictional Waters of the U.S. identified during preliminary biological surveys of the study area. No potential wetlands or other waters of the U.S. were observed directly adjacent to or within construction access ramps, pathways, or staging areas. Wetlands and other waters of the U.S. have not been formally delineation within the project site. The jurisdictional status of features has not been verified by the U.S. Army Corps of Engineers.

Special-Status Wildlife

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle is completely dependent on its host plant, elderberry (*Sambucus* sp.), which is a common component of the riparian forests and adjacent upland habitats of California's Central Valley and foothills (USFWS, 1999a). Females lay eggs within the bark, where larvae hatch and bore into the stems. Larvae remain within the stems for one to two years and emerge as adults in early spring (March). Mating usually occurs in June. Often the

only indicators of their presence are the distinctive small oval openings that are left after larvae pupate and emerge (UC Berkeley, 2005). For this reason, suitable habitat for the valley elderberry longhorn beetle is typically defined as live elderberry stems measuring at least one inch in diameter at ground level in habitats below 3,000 feet in elevation. They are generally found along waterways and in floodplains that support remnant stands of riparian vegetation. Elderberry shrubs with valley elderberry longhorn beetle populations occur in a variety of habitats and plant communities, but most often are found in riparian areas.

Suitable elderberry shrubs are present within the project sites in several locations (see Figures 6 and 7) and species occurrences have been recorded in the CNDDB along the American River Parkway within five miles of the project site (CDFW, 2013a). Additionally, critical habitat has been designated for valley elderberry longhorn beetle adjacent to or along the American River four miles northwest and five miles northeast of the project site (USFWS, 2013b).

Cooper's Hawk

Cooper's hawk is a breeding resident raptor species throughout most of the wooded portion of California from sea level to above 9,000 feet. It generally breeds in southern Sierra Nevada foothills, New York Mountains, Owens Valley, and other local areas in southern California. The most frequently used habitats include dense stands of live oak, riparian deciduous or other forest habitats near water. Cooper's hawk hunts in broken woodland and habitat edges; thus, the species is seldom found in areas without dense tree stands or patchy woodland habitat. Nests are often found in deciduous riparian trees, but it also nests in second-growth conifer stands near streams (Zeiner et al., 1988).

Suitable habitat for Cooper's hawk is present in the vicinity of the project sites. The nearest CNDDB record of Cooper's hawk is located approximately three miles northwest of the project site (CDFW, 2013a).

Swainson's Hawk

Swainson's hawks were historically found throughout California except in the mountainous regions of the state, including the Central Valley, all of the Coast Ranges south of Marin County, the Tehachapi Range, the Colorado River area, the Mojave Desert, the Great Basin, and the Modoc Plateau. Today, Swainson's hawk occurrences are mainly limited to a few areas of the Central Valley and the Great Basin. Migrating individuals move south through the southern and central interior of California in September and October and north in March through May. Breeding occurs late March to late August, with peak activity late May through July (Zeiner et al., 1988).

The Swainson's hawk preferred habitat is concentrated along permanent waterways with a more or less continuous canopy of trees, with grassland, irrigated pasture, alfalfa or grain fields nearby to forage. Vineyards, orchards, rice and cotton crops are unsuitable foraging habitat for this species. Nests are composed of sticks, bark, and fresh leaves and are placed in tall trees or on utility poles. Swainson's hawks typically nest in open riparian habitat, in scattered trees or small groves in sparsely vegetated flatlands (Zeiner et al., 1988).

Suitable Swainson's hawk nesting and foraging habitat is present in the vicinity of the project site. Additionally, Swainson's hawk nests have been observed within five miles of the project site, primarily to the northwest of the study area. An occurrence was noted approximately one mile east of the project site along the American River Parkway (CDFW, 2013a).

White-tailed Kite

White-tailed kites are a yearlong resident in coastal and valley lowlands of California; they are rarely found away from agricultural areas. The species generally inhabit low-elevation grassland, savannah, oak woodland, wetland, agricultural, and riparian habitats. White-tailed kites forage in undisturbed, open grasslands, meadows, farmlands, and emergent wetlands. Some large shrubs or trees are required for nesting and for communal roosting sites. Nest trees range from small, isolated shrubs and trees to trees in relatively large stands. The breeding season lasts from February to October, with peak from May to August (Zeiner et al., 1988).

Suitable foraging and nesting habitat is present in the vicinity of the project site. Additionally, several white-tailed kite nests have been observed along the American River Parkway ranging from one to four miles away from the project site (CDFW, 2013a).

Central Valley Steelhead

Information on migration and spawning tendencies of Central Valley steelhead is difficult to determine due to the low abundance of spawners and the high flows and turbid waters occurring during winter spawning periods. Central Valley steelhead are reported to begin upstream migration into the American, Feather, Yuba, and Mokelumne rivers in August through October depending upon water temperature, weather conditions, and flow. Peak migration occurs in November through December (CALFED, 2001) with spawning peaks occurring from January through February. Emergence occurs from January through May. Juvenile steelhead may rear in their natal streams for one to two years prior to emigrating from the river, with emigration of one- to two-year-old fish primarily occurring from April to June.

Adult steelhead migration within the Sacramento and American Rivers begins in November through January, and spawning begins December through April (Hanson, 2002). Fry emergence from the gravel generally occurs in March and may extend through June (Hanson, 2002).

Naturally spawning stocks of Central Valley steelhead are known to occur in the Sacramento River, the American River, and tributaries. Additionally, the American River is designated as critical habitat for steelhead salmon (USFWS, 2013b).

Central Valley Spring-Run Chinook and Sacramento River Winter-Run Chinook

Chinook salmon runs (spring-run and winter-run) are named for the time of season that upstream spawning migration occurs, and are defined by the combined timing of adult migration, the amount of time juveniles reside in a stream, and the time of year the smolts migrate out to sea. Timing of adult upstream migration varies within individual runs depending upon the region (Yoshiyama, 1998). Central Valley spring-run Chinook enter the Sacramento River system from March to July, and spawning occurs from late August through early October (Yoshiyama, 1998).

Due to the longer period of time between upstream migration and spawning, spring-run Chinook must hold out in the cold temperatures of mountain headwaters to avoid excessive summertime temperatures of the valley and foothills. Spring-run ascent to mountain elevations can only be accomplished if there are no obstructions within the drainage system preventing passage. Winter-run Chinook generally begin migrating upstream from December through February and hold-over in the river system (Sacramento River) for a couple of months before peak spawning occurs between May and July (Healey, 1998). Temperatures must be suitable for the winter-run to hold over.

Life histories (migration, holding, spawning, rearing, and juvenile emigration) of Chinook salmon varies within the separate runs, but essential habitat requirements including substrate, temperature, dissolved oxygen, stream flow, and water quality are consistent throughout the runs. Chinook salmon require a water temperature from 43 to 56 degrees F to successfully spawn (Boles, 1988). Spawning can occur in habitats ranging from small tributaries to large river beds, and generally requires coarse gravel riffles. Chinook salmon eggs incubate in the gravel for approximately 35 to 50 days, depending on the temperature. The newly emerged fry remain in the gravel until most of the yolk sac is absorbed (CALFED, 2001). Successful rearing of juvenile Chinook requires cool streams/rivers with significant vegetative cover providing shade for protection from predation.

The American River supports a mixed run of hatchery and naturally produced winter-run Chinook salmon and smaller numbers of Central Valley spring-run Chinook salmon. The American River is also designated as critical habitat for Chinook salmon by the USFWS (2013b).

Project Impacts (FG2023 Section 11.A – D)

Permanent and Temporary Loss of Habitat

Implementation of the proposed project will cause temporary effects on annual grassland and barren habitats. **Table 3** summarizes these effects.

TABLE 3
TEMPORARY IMPACTS TO STUDY AREA VEGETATION COMMUNITIES

Vegetation Community	Impacted Area
Annual Grassland	0.90 ac
Barren	0.20 ac

SOURCE: ESA, 2013.

As described in the previous section, the study area contains a variety of habitats for terrestrial and aquatic wildlife, including habitats of a rare or sensitive nature, such as elderberry shrubs, valley foothill riparian, and riverine. The majority of these habitats would not be directly affected by the proposed project. Temporary impacts to annual grassland and barren habitats are expected during project implementation. These areas will be restored following completion of the

project. There will be no temporary or permanent loss of valley foothill riparian habitat. However, vegetation trimming will be required both for restoration/maintenance access and to trim vegetation growing into the bridge that interferes with painting activities.

Tree Species

A formal arborist survey has not been conducted for the project site. However, based on preliminary engineering plans, project footprint location, and previous biological surveys conducted for the project, no heritage trees are expected to be removed during project implementation. However, tree trimming may be required both for restoration/maintenance access and to trim vegetation growing into the bridge that interferes with painting activities.

Special-Status Species

Valley Elderberry Longhorn Beetle

Complete avoidance of valley elderberry longhorn beetle habitat is assumed when a 100-foot or wider buffer is established and maintained around elderberry plants containing stems measuring 1.0 inch or greater in diameter at ground level (USFWS 1999). If restoration activities are allowed within the 100-foot buffer by the USFWS, a minimum setback of at least 20 feet from the dripline is required for each elderberry plant, where possible.

Elderberry shrubs with suitable stem size (1 inch or greater in diameter at ground level) to support VELB occur within the study area and in proximity to construction access routes and staging areas; the location of elderberry shrubs is illustrated in Appendix A (see figures 2 and 3 and photographs of representative habitat) of this report. The proposed project would not result in the incidental take of VELB because: (1) no elderberry shrubs will be removed as a result of the project, and (2) protective measures will be implemented to further reduce potential ground disturbance and incidental damage to elderberry shrubs during construction.

The following proposed conservation measures (based on the mitigation measures described below under the section "Measures to Protect Fish, Wildlife, and Plant Resources") will be incorporated into the design of the proposed project and stipulated in the proposed project's construction specifications to ensure impacts to elderberry shrubs and VELB would be avoided and minimized:

1) **Environmental Awareness Training:** The City contractor will provide construction worker awareness training. Work crews will be briefed on the status of the VELB, the need to protect its host plant (elderberries), requirements to avoid damaging elderberry shrubs, and possible penalties for not complying with identified avoidance and minimization measures. In addition, construction workers should be made aware of the habitat needs of VELB and the location of environmentally sensitive areas on the site.

2) **Site Access Routes and Equipment Staging Areas:**

    a) All project personnel will access the project via established roadways, trails, or designated pathways.

b) Construction equipment and materials will be stored in designated staging areas outside of environmentally sensitive areas including habitat for special-status species.

c) The construction contractor will erect a temporary fence to exclude access routes and equipment staging areas from sensitive biological resources within the study area. No construction activities will occur beyond the temporary fence.

3) **Site Preparation:**

a) Containment scaffolding (required for paint activities at each existing tower) will be installed carefully in the vicinity of the east tower to avoid damage to a nearby elderberry shrub (ELD#6). If necessary, the construction crew may carefully pull the shrub away from the tower and temporarily secure it with a rope to ensure scaffolding installation does not impact stems measuring 1" or greater in diameter. No stems measuring 1" or greater in diameter will be trimmed.

b) Elderberry shrubs extending into the access route on the west side of the bridge will be pulled back gently and temporarily tied back with rope to prevent breakage. No stems measuring 1" or greater in diameter will be trimmed.

4) **Avoidance of Impacts and Establishment of a Buffer Zone:**

a) Where feasible, the construction contractor will maintain a setback of 100 feet from all elderberry shrubs to avoid impacts to VELB. If the 100 foot setback is not feasible, the construction contractor will create a 20-foot buffer around each potentially affected shrub and install high-visibility protective fencing around elderberry shrubs. Due to space limitations and site-specific physical features, it may not be feasible for the construction contractor to establish the 20-foot buffer in some locations. In such areas, a biological monitor will be on-site to monitor construction work as described below (Conservation Measure #5).

b) Erect signs every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction.

5) **Biological Monitor:** A biological monitor will be on-site to monitor site preparation activities that occur in the vicinity of elderberry shrubs. The biological monitor will be present during activities which involve the installation of scaffolding adjacent to the east tower and installation of protective fencing for elderberry shrubs and environmentally sensitive areas on the east and west sides of the bridge. During active construction in the vicinity of elderberry shrubs, the biological monitor will conduct weekly site visits to inspect the condition of protective fencing around each elderberry shrub. The health condition of the retained shrubs will be assessed weekly and photographs will be taken to record site activities. The biological monitor will provide recommendations to the construction contractor if protective fencing requires maintenance or repair.

6) **Restoration:** All areas within the 100-foot buffer of an elderberry shrub will be restored to the previous condition. Provide erosion control and re-vegetate with appropriate native plants (if applicable).

7) **Chemicals:** No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant will be used in the buffer areas or within 100 feet of any elderberry plant with one or more stems measuring 1 inch or greater in diameter at ground level.

8) **Mowing:** No mowing will occur within five feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (an example of damaging activity includes striping away bark through careless use of mowing/trimming equipment).

9) **Water Quality:** A Storm Water Pollution Prevention Plan (SWPPP) will be prepared for the proposed project that will address water quality impacts associated with development of the project. Water quality control measures that will be implemented in the SWPPP will include but are not limited to the following:

   a) Temporary erosion control measures (such as silt fences, staked wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation) will be employed for disturbed areas, stockpiled soil, and along drainages.

   b) Dirt and debris will be swept from paved areas in the construction zone on a daily basis as necessary to remove excessive accumulations of silt, mud or other debris.

   c) Existing vegetation will be retained where possible. To the extent feasible, grading activities will be limited to the immediate area required for construction. Grass or other vegetative cover will be established on bare soils within the construction site as soon as possible after disturbance.

   d) No disturbed surfaces will be left without erosion control measures in place during the winter and spring months (October 1st to April 30th).

   e) A spill prevention and countermeasure plan will be developed, if necessary, which will identify proper storage, collection, and disposal measures for potential pollutants used on-site.

10) **Best Management Practices:** In addition to the measures included in the SWPPP, a number of mitigation measures and Best Management Practices (BMPs) have been incorporated into the proposed project:

   a) Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on haul roads, construction areas, and stockpiles.

   b) Properly dispose of oil or other liquids.

   c) Fuel and maintain vehicles in a specified area that is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to the American River.

   d) Fuels and hazardous materials will not be stored on site.

   e) Inspect and maintain vehicles and equipment to prevent the dripping of oil or other fluids.

f) Schedule construction to avoid the rainy season as much as possible. If rains are forecasted during construction, additional erosion and sedimentation control measures would be implemented.

g) Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.

h) Train construction workers in storm water pollution prevention practices.

i) Revegetate disturbed areas in a timely manner to control erosion.

Raptors and Migratory Birds

Most bird species, especially those that are breeding, migrating, or of limited distribution, are protected under federal and state regulations. Under the Migratory Bird Treaty Act (MBTA), migratory bird species and their nests and eggs are protected from injury or death. Proposed project related disturbances must be reduced or eliminated during the nesting cycle. California Fish and Game Code Subsections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Section 3511 lists birds that are "fully protected" (those species that may not be taken or possessed except under specific permit).

Birds that may forage in the vicinity of the study area include Cooper's hawk, tricolored blackbird, great egret, great blue heron, burrowing owl, Swainson's hawk, white-tailed kite, merlin, double-crested cormorant, purple martin and bank swallow. Suitable nest trees occur along the American River and the species with the greatest potential for nesting in the vicinity of the proposed project include Cooper's hawk, Swainson's hawk, and white-tailed kite. Implementation of pre-construction surveys consistent with Mitigation Measure BR-3 will mitigate potential impacts to species protected by the MBTA and other raptors (including Swainson's hawk).

Special-Status Fish

The American River is considered critical habitat and essential fish habitat for the Central Valley steelhead, Central Valley spring-run Chinook, and Sacramento River winter-run Chinook. Restoration activities associated with the bridge and the use of construction access routes and staging areas do not include in-water work or would involve ground disturbing activities (i.e., generate erosion, etc.) that would directly impact fish species within the American River. Although no in-water work is proposed, there is potential for fugitive dust and construction runoff to enter the American River. As more fully described in the Initial Study/Mitigated Negative Declaration prepared for this project, a variety of water quality, sediment/erosion control, and dust abatement measures are proposed as part of Mitigation Measure AQ-1 "Implement Construction-related Emission Control Practices" and Mitigation Measure HWQ-1 "Implement Water Quality Best Management Practices" that would also serve to minimize impacts to fish species and the water quality of the American River.

Measures to Protect Fish, Wildlife, and Plant Resources (FG2023 Section 12.A – C)

Based on the nature of the proposed project, which would not fundamentally alter the nature of the environment within the study area, potential impacts to sensitive habitats will be minimized. Furthermore, as detailed in the Project Description, the proposed project has been designed so as to avoid potential impacts to biological resources to the greatest extent practical. Nevertheless, additional environmental protection and avoidance measures, as set forth in the City's Initial Study/Mitigated Negative Declaration (see Appendix B of this report) prepared for the project, will be implemented to further reduce or avoid potential impacts to fish, wildlife, and plant resources. These measures are described below:

Mitigation Measure BR-2 Implement Avoidance Measures for Valley Elderberry Shrubs. The construction contractor shall maintain a setback of 100 feet from all elderberry shrubs to avoid impacts to valley elderberry longhorn beetle. If the 100 foot setback is not feasible, the construction contractor shall implement a number of avoidance measures (in consultation and approval by the City and the USFWS). Such measures may include installing fencing around the shrubs, providing construction worker awareness training, transplanting of shrubs, and requiring biological monitoring during construction. The 1999 *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS, 1999) provides applicable avoidance and minimization measures. No construction shall occur within 100 feet of all elderberry shrubs identified onsite until final approvals are received from the USFWS (Biological Opinion or concurrence letter). Upon City and USFWS approvals, the construction contractor shall create a 20-foot buffer around each potentially affected shrub. Work crews shall be briefed on the status of the beetle, the need to protect its host plant (elderberries), requirements to avoid damaging elderberry shrubs, and possible penalties for not complying with identified avoidance and minimization measures. In addition, construction workers should be made aware of the habitat needs of VELB and the location of protection areas on the site.

Mitigation Measure BR-3 Conduct Pre-Construction Nesting Surveys. For construction activities expected to occur during the nesting season (February-August), a pre-construction survey shall be conducted to determine if active nests are present on or within 500 feet of the project site. The survey should be conducted by a qualified biologist no more than 30 days prior to the onset of construction. If active nests are found on or within 500 feet of the project site during pre-construction surveys, then CDFW should be consulted for additional mitigation measures that may be required. Typically CDFW will recommend that no construction activities occur within 500 feet of the nests, until the young have fledged or until the biologist determines that the nest is no longer active. Additionally, depending on the conditions specific to each nest, and the relative location and rate of construction activities, it may be feasible for construction to occur as planned within the buffer without impacting the breeding effort. In this case (to be determined on an individual basis by a qualified biologist in consultation with CDFW), the nest(s) shall be monitored by a qualified biologist during construction within the buffer. Construction activities may be halted at any time if, in the professional opinion of the biological monitor, construction activities are negatively impacting the breeding effort. Implementation of

the pre-construction surveys should also be consistent with the protocol standards devised by the Swainson's Hawk Technical Advisory Committee (TAC) and endorsed by the CDFW (Swainson's Hawk TAC, 2000).

If no active nests are identified during the pre-construction survey, no further mitigation is necessary. If construction activities are proposed to occur during the non-breeding season (September-January), a pre-construction survey is not required and no further studies are necessary.

Mitigation Measure AQ-1 Implement Construction-related Emission Control Practices. The project applicant shall implement all SMAQMD basic construction emission control practices and requirements of SMAQMD Rule 403 during bridge maintenance activities, including the following:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.
- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.
- Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.
- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).
- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

Mitigation Measure HWQ-1 Implement Water Quality Best Management Practices. The project contractor would be required to obtain a National Pollution Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board (RWQCB), Central Valley Region. As part of the permit, the contractor would be required to prepare and implement a SWPPP into their construction plans, prior to initiating construction activities, identifying BMPs to be used to avoid or minimize any adverse effects before, during, and after construction to surface waters. The following BMPs will be incorporated into the project as part of the construction specifications:

- Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on applicable access roads, construction areas, and stockpiles.
- Properly dispose of oil or other liquids.
- Fuel and maintain vehicles in a specified area that is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.
- Fuels and hazardous materials would not be stored on site.
- Inspect and maintain vehicles and equipment to prevent the dripping of oil or other fluids.
- Schedule construction to avoid the rainy season as much as possible. Ground disturbance activities are expected to begin in the spring/summer of 2014. If rains are forecasted during construction, additional erosion and sedimentation control measures would be implemented.
- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.
- Train construction workers in storm water pollution prevention practices.
- Revegetate disturbed areas in a timely manner to control erosion.

Project Permits (FG2023 Section 13)

Given the nature of the bridge restoration project and the mitigation measures identified above, no additional environmental resource permits are required.

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Appendix A
Elderberry Shrub Protective Measures

ESA Biological Resources

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February 26, 2014

Mike Thomas
Chief, Conservation Planning Branch
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

Subject: Request for Technical Assistance for the Guy West Bridge Restoration Project: Elderberry Shrub Protective Measures

Dear Mike:

This letter was prepared on behalf of the City of Sacramento (City) for the proposed Guy West Bridge Restoration Project (project), located along the American River Parkway within the City of Sacramento (**Figure 1**). This location corresponds to Township 8N, Range 5E, Section 10 of the Sacramento East, CA U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map (USGS, 1980). The existing Guy West Bridge is a suspension bridge that provides a primary access route for pedestrians and bicyclists travelling from the Campus Commons residential area (east of the existing bridge) to the California State University Sacramento (CSUS) Campus (west of the bridge).The City proposes to implement a restoration plan for the Guy West Bridge to ensure the continued safe performance of the bridge. The proposed restoration plan would restore two suspender rope connections; repair one truss strut member, replace all deck seals and repair deck spalls; fully remove and replace the paint system; replace handrail hardware; repair loose utility conduit; and replace approach truss bearing pads. The City intends to complete the restoration work in a manner that minimizes environmental impacts to the American Parkway and existing biological resources within and adjacent to the project area while maintaining access across the bridge. The City plans to implement the proposed project during the May-November 2014 construction season in two stages (the contractor will select the east or west side of the bridge to restore first in order to avoid impacts to the Eppies Great Race that occurs in mid- to late-July).

The proposed project area encompasses the Guy West Bridge, which spans across the American River, and adjacent riparian habitat (**Figures 2 and 3**). The project area has the potential to support several federally listed special-status species, including: Central valley steelhead (*Oncorhynchus mykiss*), Central Valley fall-/late-fall-run Chinook (*Oncorhynchus tshawytscha*), and Valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*). The proposed project would have no effect on fish species because construction activities associated with the bridge and the use of construction access routes and staging areas do not include in-water work or would involve ground disturbing activities that would directly or indirectly affect fish species within the American River. Additionally, the project includes a requirement for the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that would avoid and/or minimize any potential effects to fish species and the water quality of the American River that could occur through construction activities on the bridge.

Elderberry shrubs with suitable stem size (1 inch or greater in diameter at ground level) to support VELB occur within the project area and in proximity to construction access routes and staging areas; the location of elderberry shrubs is illustrated in Figures 2 and 3 and photographs of representative habitat are located in **Appendix A**. The proposed project would not result in the incidental take of VELB because: (1) no elderberry

shrubs will be removed as a result of the project, and (2) protective measures will be implemented to further reduce potential ground disturbance and incidental damage to elderberry shrubs during construction. The following proposed conservation measures will be incorporated into the design of the proposed project and stipulated in the Project Specifications to ensure impacts to elderberry shrubs and VELB would be avoided and minimized.

Proposed Conservation Measures

1) **Environmental Awareness Training:** The City contractor will provide construction worker awareness training. Work crews will be briefed on the status of the VELB, the need to protect its host plant (elderberries), requirements to avoid damaging elderberry shrubs, and possible penalties for not complying with identified avoidance and minimization measures. In addition, construction workers should be made aware of the habitat needs of VELB and the location of environmentally sensitive areas on the site.

2) **Site Access Routes and Equipment Staging Areas:**

   a) All project personnel will access the project via established roadways, trails, or designated pathways.

   b) Construction equipment and materials will be stored in designated staging areas outside of environmentally sensitive areas including habitat for special-status species.

   c) The construction contractor will erect a temporary fence to exclude access routes and equipment staging areas from sensitive biological resources within the project area. No construction activities will occur beyond the temporary fence.

3) **Site Preparation:**

   a) Containment scaffolding (required for paint activities at each existing tower) will be installed carefully in the vicinity of the east tower to avoid damage to a nearby elderberry shrub (ELD#6). If necessary, the construction crew may carefully pull the shrub away from the tower and temporarily secure it with a rope to ensure scaffolding installation does not impact stems measuring 1" or greater in diameter. No stems measuring 1" or greater in diameter will be trimmed.

   b) Elderberry shrubs extending into the access route on the west side of the bridge will be pulled back gently and temporarily tied back with rope to prevent breakage. No stems measuring 1" or greater in diameter will be trimmed.

4) **Avoidance of Impacts and Establishment of a Buffer Zone:**

   a) Where feasible, the construction contractor will maintain a setback of 100 feet from all elderberry shrubs to avoid impacts to VELB. If the 100 foot setback is not feasible, the construction contractor will create a 20-foot buffer around each potentially affected shrub and install high-visibility protective fencing around elderberry shrubs. Due to space limitations and site-specific physical features, it may not be feasible for the construction contractor to establish the 20-foot buffer in some locations. In such areas, a biological monitor will be on-site to monitor construction work as described below (Conservation Measure #5).

   b) Erect signs every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This

species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction.

5) **Biological Monitor:** A biological monitor will be on-site to monitor site preparation activities that occur in the vicinity of elderberry shrubs. The biological monitor will be present during activities which involve the installation of scaffolding adjacent to the east tower and installation of protective fencing for elderberry shrubs and environmentally sensitive areas on the east and west sides of the bridge. During active construction in the vicinity of elderberry shrubs, the biological monitor will conduct weekly site visits to inspect the condition of protective fencing around each elderberry shrub. The health condition of the retained shrubs will be assessed weekly and photographs will be taken to record site activities. The biological monitor will provide recommendations to the construction contractor if protective fencing requires maintenance or repair.

6) **Restoration:** All areas within the 100-foot buffer of an elderberry shrub will be restored to the previous condition. Provide erosion control and re-vegetate with appropriate native plants (if applicable).

7) **Chemicals:** No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant will be used in the buffer areas or within 100 feet of any elderberry plant with one or more stems measuring 1 inch or greater in diameter at ground level.

8) **Mowing:** No mowing will occur within five feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (an example of damaging activity includes striping away bark through careless use of mowing/trimming equipment).

9) **Water Quality:** A Storm Water Pollution Prevention Plan (SWPPP) will be prepared for the proposed project that will address water quality impacts associated with development of the project. Water quality control measures that will be implemented in the SWPPP will include but are not limited to the following:

   a) Temporary erosion control measures (such as silt fences, staked wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation) will be employed for disturbed areas, stockpiled soil, and along drainages.

   b) Dirt and debris will be swept from paved areas in the construction zone on a daily basis as necessary to remove excessive accumulations of silt, mud or other debris.

   c) Existing vegetation will be retained where possible. To the extent feasible, grading activities will be limited to the immediate area required for construction. Grass or other vegetative cover will be established on bare soils within the construction site as soon as possible after disturbance.

   d) No disturbed surfaces will be left without erosion control measures in place during the winter and spring months (October 1st to April 30th).

   e) A spill prevention and countermeasure plan will be developed, if necessary, which will identify proper storage, collection, and disposal measures for potential pollutants used on-site.

10) **Best Management Practices:** In addition to the measures included in the SWPPP, a number of mitigation measures and Best Management Practices (BMPs) have been incorporated into the proposed project:

a) Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on haul roads, construction areas, and stockpiles.

b) Properly dispose of oil or other liquids.

c) Fuel and maintain vehicles in a specified area that is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to the American River.

d) Fuels and hazardous materials will not be stored on site.

e) Inspect and maintain vehicles and equipment to prevent the dripping of oil or other fluids.

f) Schedule construction to avoid the rainy season as much as possible. If rains are forecasted during construction, additional erosion and sedimentation control measures would be implemented.

g) Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.

h) Train construction workers in storm water pollution prevention practices.

i) Revegetate disturbed areas in a timely manner to control erosion.

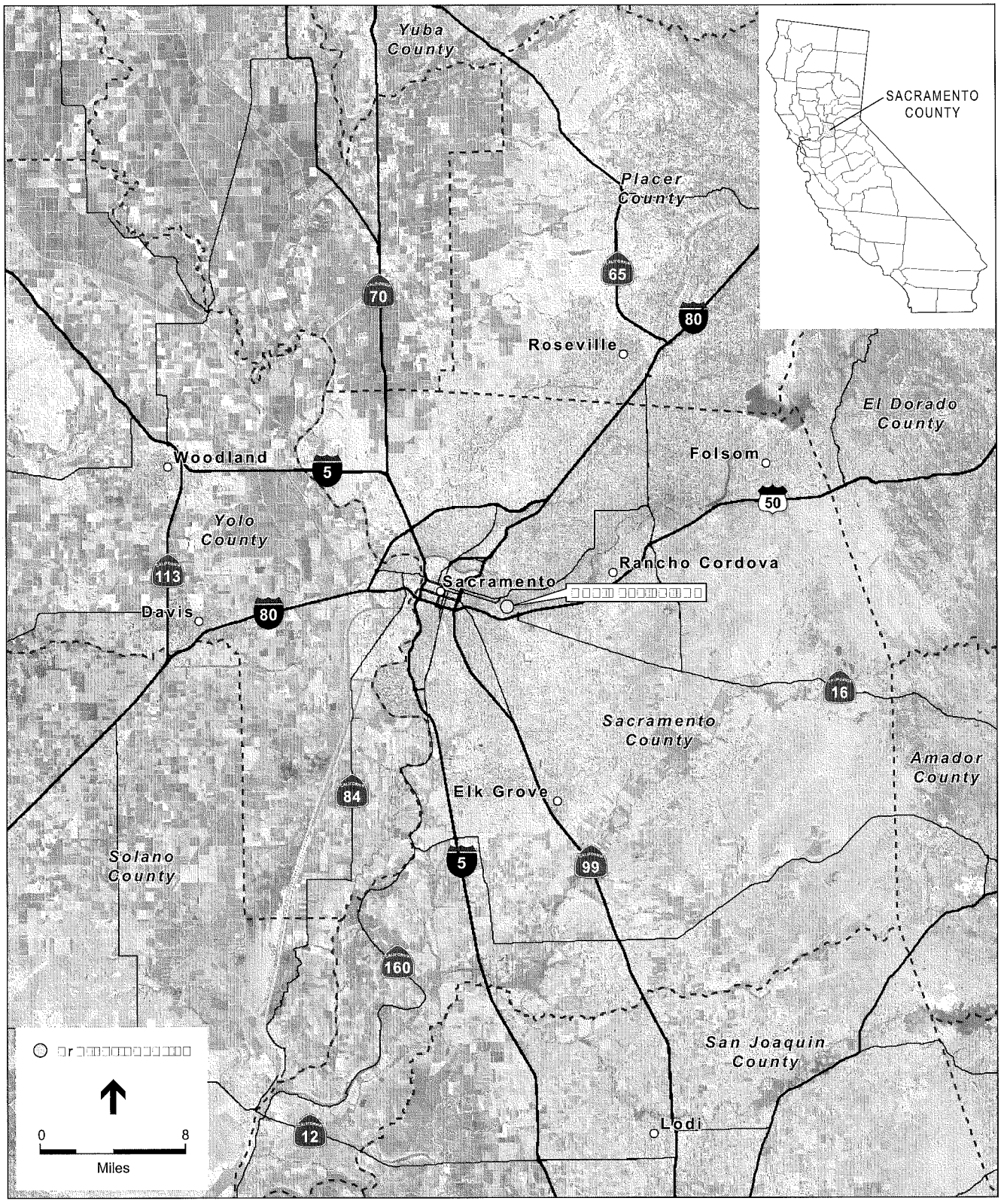
With the above conservation measures incorporated into the proposed project, it is anticipated that project activities would not result in direct impacts to elderberry shrubs and the VELB. Additionally, implementation of best management practices will further reduce potential indirect impacts to elderberry shrubs and the VELB.

In addition to providing notification to the Service, we seek additional input on conservation measures (if any) which may enhance the protection of suitable elderberry shrubs and the VELB during project implementation. Please provide your comments no later than April 10, 2014 and let me know if you need additional information.

Sincerely,

LeChi Huynh

LeChi Huynh
Associate Biologist
Environmental Science Associates
2600 Capitol Avenue, Suite 200
Sacramento, CA 95816
(916) 564-4500



SOURCE: USDA, 2012; ESRI, 2012; ESA, 2013

Guy West Bridge Rehabilitation Project . 120851

Figure 1
Regional Locator

LEGEND:

TFESA — TEMPORARY FENCE ENVIRONMENTALLY SENSITIVE AREA (ESA)

TEMPORARY CONSTRUCTION FENCE CHAIN LINK

#X ELDERBERRY SHRUB

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
3	SAC	N/A	N/A	3	X

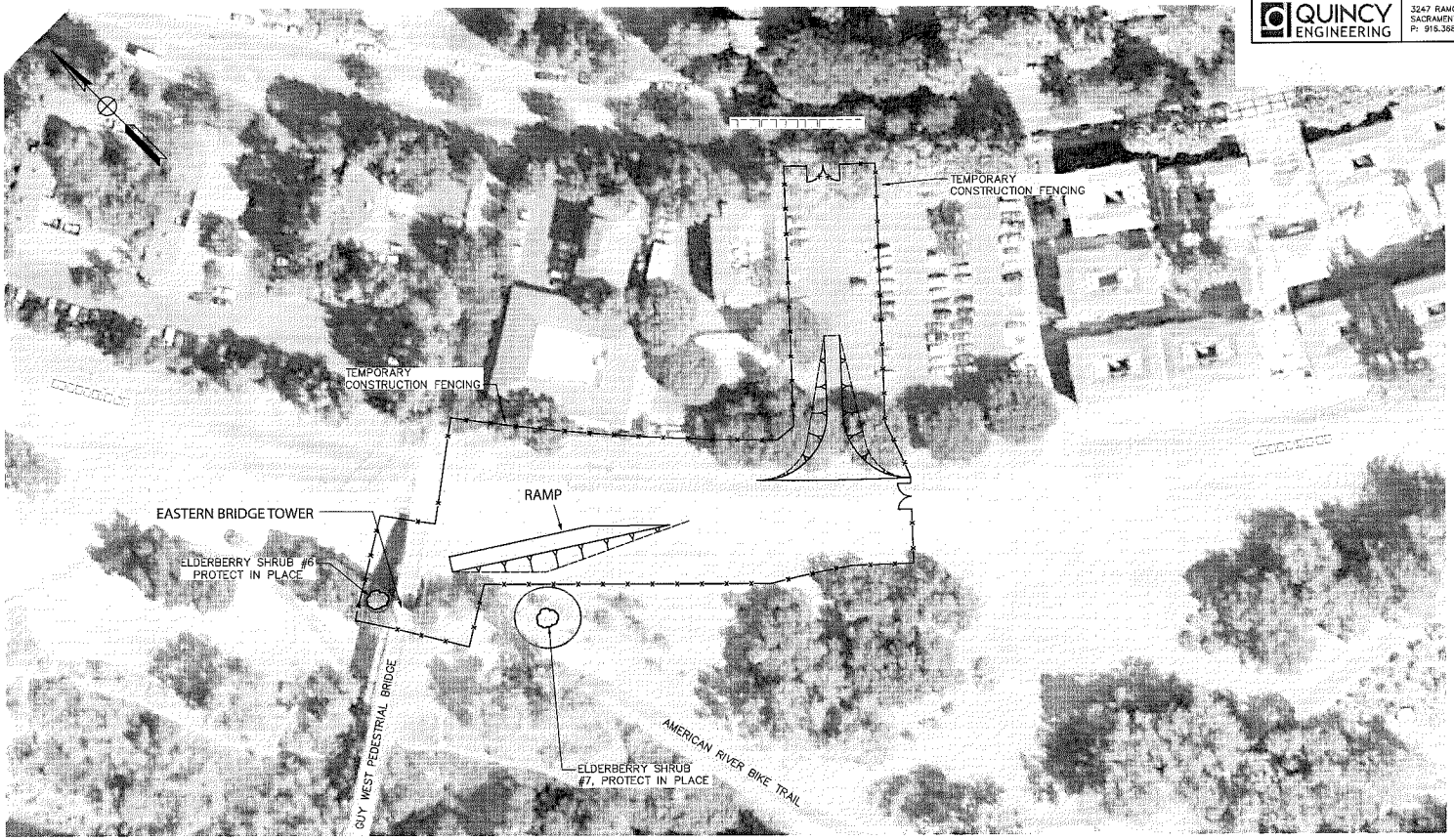
REGISTERED CIVIL ENGINEER DATE

REGISTERED PROFESSIONAL ENGINEER — XXX X. XXXXXXX — No. C12345 — Exp. XX/XX/XX — CIVIL — STATE OF CALIFORNIA

PLANS APPROVAL DATE

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

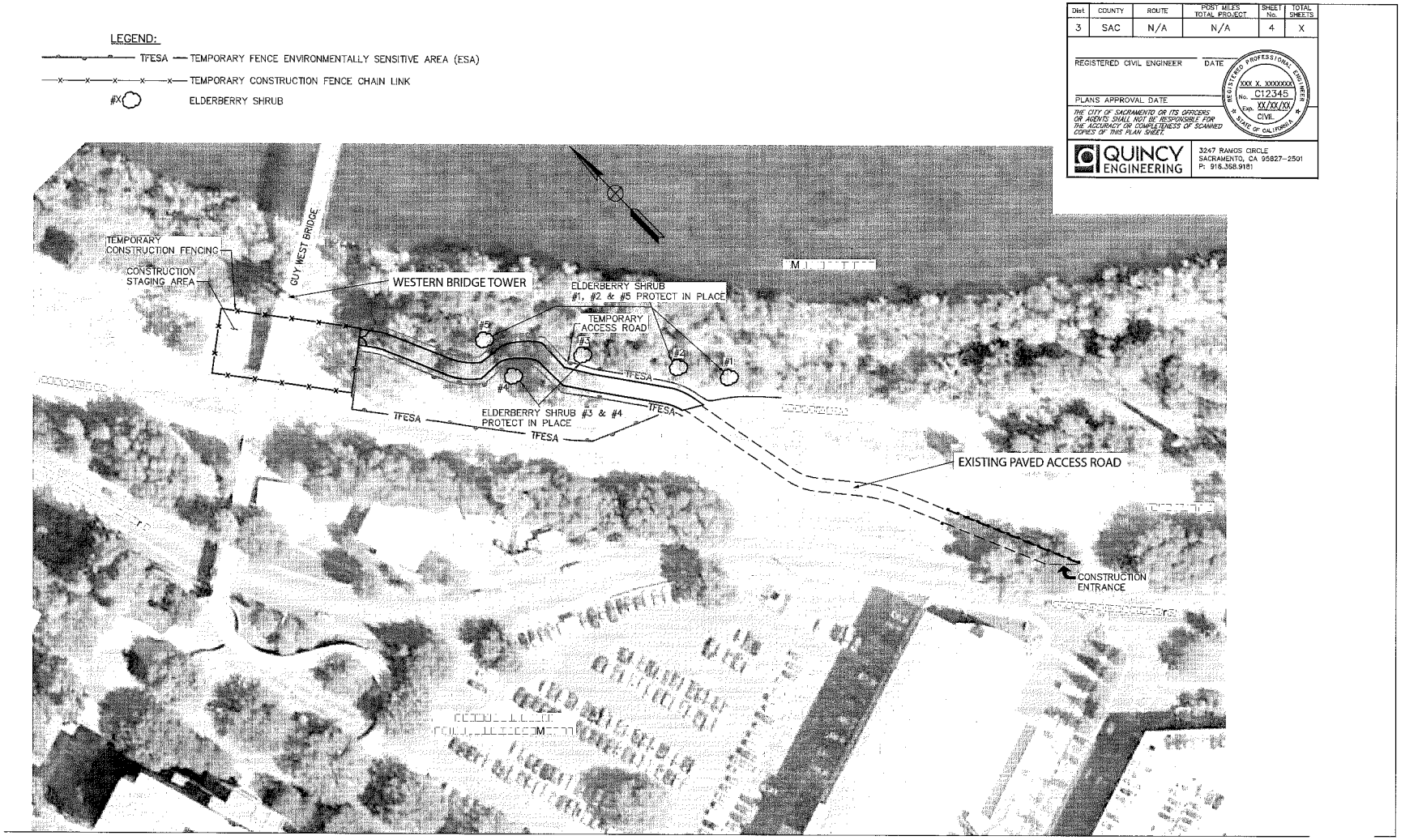
QUINCY ENGINEERING
3247 RAMOS CIRCLE
SACRAMENTO, CA 95827-2501
P: 916.368.9181



SOURCE: Quincy Engineering, Inc., 2010; ESA, 2014

Guy West Bridge Rehabilitation Project . 120851

Figure 2
Eastern Side



SOURCE: Quincy Engineering, Inc., 2010; ESA, 2014

Guy West Bridge Rehabilitation Project . 120851

Figure 3
Western Side

APPENDIX A – SITE PHOTOS

Photo 1. Elderberry shrub #6, located adjacent to the Eastern Bridge Tower.

Photo 2. Elderberry shrub # 4 and general location of elderberry shrubs #1, 2, 3, and 5. View from western bridge tower toward southeast.

Photo 3. View of general habitat in vicinity of elderberry shrub # 7 (view from top of levee to the south).

Appendix B
Final Initial Study/Mitigated Negative Declaration

ENDORSED
SACRAMENTO COUNTY

DEC 11 2013

CRAIG A. KRAMER, CLERK RECORDER
BY _____ DEPUTY

NOTICE OF DETERMINATION

To: X Office of Planning and Research
1400 10th Street, Room 222
Sacramento, CA 95814

X County Clerk
County of Sacramento

From: City of Sacramento
Community Development Dept.
Planning Division
300 Richards Boulevard, 3rd Floor
Sacramento CA 95811

Subject: Filing of Notice of Determination in compliance with Section 21152 of the Public Resources Code.

Project Title: **Guy West Bridge Restoration Project (K15105000)**

2013102021	City of Sacramento	Scott Johnson	(916) 808-5842
State Clearinghouse #	**Lead Agency**	**Contact Person**	**Telephone**

City of Sacramento Dept. of Transportation – Ricky Chuck, Senior Engineer	915 I Street, 2nd Flr., Sacramento, CA 95814	(916) 808-5050
Applicant Name	**Address**	**Telephone**

Project Location (include county): The Guy West Bridge Restoration Project spans and is located on both the western and eastern sides of the American River Parkway within the City of Sacramento, Sacramento County. The existing Guy West Bridge is a suspension bridge that provides a primary access route for pedestrians and bicyclists travelling from the Campus Commons residential area (east of the existing bridge) to the Sacramento State University Campus (west of the bridge). The bridge is near the 8 mile marker of the Jedediah Smith Memorial Trail in the American River Parkway, between the H Street Bridge and the Howe Avenue Bridge.

Project Description: The project consists of restoring the Guy West Bridge. The purpose of the proposed project is to restore two suspender rope connections; repair one truss strut member; replace all deck seals and repair dell spalls; full removal and replacement of paint system; replace handrail hardware; repair loose utility conduit; and replace approach truss bearing pads to ensure the continued safe performance of this suspension bridge.

This is to advise that the City of Sacramento, City Council ☒ has approved the above described project on December 10, 2013 and has made the following determination regarding the above described project:

1. The project will ☒ will not ☐) have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation Measures were ☒/were not ☐) made a condition of the approval of the project.
4. ☐ A statement of Overriding Considerations was adopted for this project.
5. ☒ Findings were made pursuant to the provisions of CEQA

This is to certify that the final EIR with comments and responses or Negative Declaration and the record of project approval is available to the General Public at:

City of Sacramento, Development Services Department, Planning Division
300 Richards Boulevard, Third Floor, Sacramento, California 95811

Scott Johnson — Associate Planner — 12/11/13
Signature (Lead Agency Contact) — Title — Date

RECEIVED
DEC 11 2013
STATE CLEARING HOUSE

Date received for filing at OPR — Date received for filing at Clerk

RECEIPT # 0008047214
December 11, 2013 ----- 3:10:15 PM

Sacramento County Recorder
Craig A. Kramer, Clerk/Recorder

Check Number 1561
RECD BY

	$2,156.25
State Fees	$26.00
CLERKS	
	$2,182.25
Total fee	$2,182.25
Amount Tendered...	
	$0.00

Change .....
ARR:26/1/0

SECTION V - DETERMINATION

On the basis of the initial study:

X I find that (a) the proposed project is an anticipated subsequent project identified and described in the 2030 General Plan Master EIR; (b) the proposed project is consistent with the 2030 General Plan land use designation and the permissible densities and intensities of use for the project site; (c) that the discussions of cumulative impacts, growth inducing impacts, and irreversible significant effects in the Master EIR are adequate for the proposed project; and (d) the proposed project will have additional significant environmental effects not previously examined in the Master EIR. A Mitigated Negative Declaration will be prepared. Mitigation measures from the Master EIR will be applied to the project as appropriate, and additional feasible mitigation measures and alternatives will be incorporated to revise the proposed project before the negative declaration is circulated for public review, to avoid or mitigate the identified effects to a level of insignificance. (CEQA Guidelines Section 15178(b))

Scott Johnson — Signature

Oct. 9, 2013 — Date

Scott Johnson
Printed Name

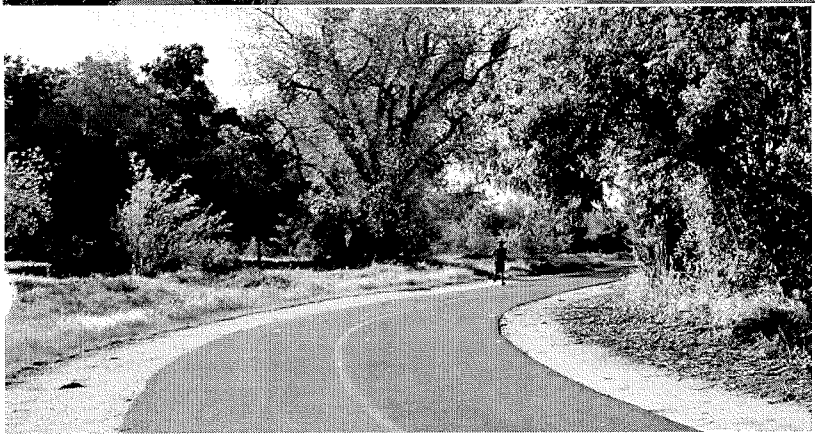
GUY WEST BRIDGE RESTORATION PROJECT

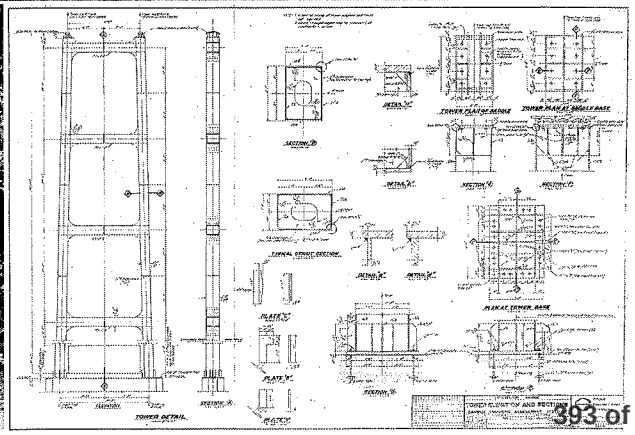
Initial Study/Mitigated Negative Declaration for Anticipated Subsequent Projects Under the 2030 General Plan Master EIR

Prepared for
City of Sacramento

November 2013

Prepared by ESA





GUY WEST BRIDGE RESTORATION PROJECT

Initial Study/Mitigated Negative Declaration for Anticipated Subsequent Projects Under the 2030 General Plan Master EIR

Prepared for
City of Sacramento

November 2013

Prepared by ESA

2600 Capitol Avenue
Suite 200
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916.564.4500
www.esassoc.com

Los Angeles

Oakland

Orlando

Palm Springs

Petaluma

Portland

San Diego

San Francisco

Santa Cruz

Seattle

Tampa

Woodland Hills

120851

CITY OF SACRAMENTO
GUY WEST BRIDGE RESTORATION PROJECT
(PROJECT NUMBER: K15105000)
INITIAL STUDY/ MITIGATED NEGATIVE DECLARATION FOR ANTICIPATED SUBSEQUENT PROJECTS UNDER THE 2030 GENERAL PLAN MASTER EIR

This Initial Study has been prepared for the City of Sacramento Department of Public Works located at 915 I Street, Room 200, Sacramento CA 95814, pursuant to Title 14, Section 15070 of the California Code of Regulations; the City of Sacramento Local Environmental Regulations (Resolution 91-892) adopted by the City of Sacramento.

ORGANIZATION OF THE INITIAL STUDY

This Initial Study is organized into the following sections:

SECTION I - BACKGROUND: Provides summary background information about the project name, location, sponsor, and the date this Initial Study was completed.

SECTION II - PROJECT DESCRIPTION: Includes a detailed description of the proposed project.

SECTION III - ENVIRONMENTAL CHECKLIST AND DISCUSSION: Reviews proposed project and states whether the project would have additional significant environmental effects (project-specific effects) that were not evaluated in the Master EIR for the 2030 General Plan.

SECTION IV - ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: Identifies which environmental factors were determined to have additional significant environmental effects.

SECTION V - DETERMINATION: States whether environmental effects associated with development of the proposed project are significant, and what, if any, added environmental documentation may be required.

REFERENCES CITED: Identifies source materials that have been consulted in the preparation of the Initial Study.

APPENDIX A – COMMENT LETTERS AND RESPONSES: Identifies the comment letters received during the review period and responses prepared.

SECTION I - BACKGROUND

Project Name and File Number:	Guy West Bridge Restoration Project (CIP-K15105000)
Project Location:	Located east of the California State University, Sacramento campus, the Guy West Bridge Restoration Project spans and is located on both the western and eastern sides of the American River Parkway within the City of Sacramento.
Project Manager:	Ricky Chuck, Project Manager City of Sacramento Department of Public Works 915 I Street, Room 200 Sacramento CA 95814
Environmental Planner:	Scott Johnson, Associate Planner Community Development Department Environmental Planning Services 300 Richards Blvd., 3rd Floor Sacramento, CA 95835
Date Initial Study Completed:	October 9, 2013

This Initial Study was prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000 *et seq.*). The Lead Agency is the City of Sacramento.

The City of Sacramento, Community Development Department, has reviewed the proposed project and, on the basis of the whole record before it, has determined that the proposed project is an anticipated subsequent project identified and described in the 2030 General Plan Master EIR and is consistent with the land use designation and the permissible densities and intensities of use for the project site as set forth in the 2030 General Plan. See CEQA Guidelines Section 15176(b) and (d).

The City has prepared the attached Initial Study to (a) review the discussions of cumulative impacts, growth inducing impacts, and irreversible significant effects in the 2030 General Plan Master EIR to determine their adequacy for the project (see CEQA Guidelines Section 15178(b),(c)) and (b) identify any potential new or additional project-specific significant environmental effects that were not analyzed in the Master EIR and any mitigation measures or alternatives that may avoid or mitigate the identified effects to a level of insignificance, if any.

As part of the Master EIR process, the City is required to incorporate all feasible mitigation measures or feasible alternatives appropriate to the project as set forth in the Master EIR (CEQA Guidelines Section 15177(d)). The Master EIR mitigation measures that are identified as appropriate are set forth in the applicable technical sections below.

This analysis incorporates by reference the general discussion portions of the 2030 General Plan Master EIR. (CEQA Guidelines Section 15150(a)). The Master EIR is available for public review at the City of Sacramento, Community Development Department, 300 Richards Boulevard, Third Floor, Sacramento, CA 95811, and on the City's web site at:

http://portal.cityofsacramento.org/Community-Development/Planning/Environmental/Impact-Reports.aspx

The City is soliciting views of interested persons and agencies on the content of the environmental information presented in this document. Due to the time limits mandated by state law, your response must be sent at the earliest possible date, but no later than the 30-day review period ending November 13, 2013.

Please send written responses to:

Scott Johnson
Community Development Department
City of Sacramento
300 Richards Blvd, 3rd Floor
Sacramento, CA 95811
Direct Line: (916) 808-5842
FAX (916) 808-5786
SRJohnson@cityofsacramento.org

SECTION II - PROJECT DESCRIPTION

Project Location

The Guy West Bridge Restoration Project (proposed project) spans and is located on both the western and eastern sides of the American River Parkway within the City of Sacramento (City). The existing Guy West Bridge is a suspension bridge that provides a primary access route for pedestrians and bicyclists travelling from the Campus Commons residential area (east of the existing bridge) to the Sacramento State University Campus (west of the bridge). The bridge also provides an important connection point for a variety of recreation users along American River Parkway (in particular both the southern and northern segments of the Jedediah Smith Recreation Trail). **Figure 1** shows the project site and surrounding vicinity.

Project Background

Description of Existing Bridge

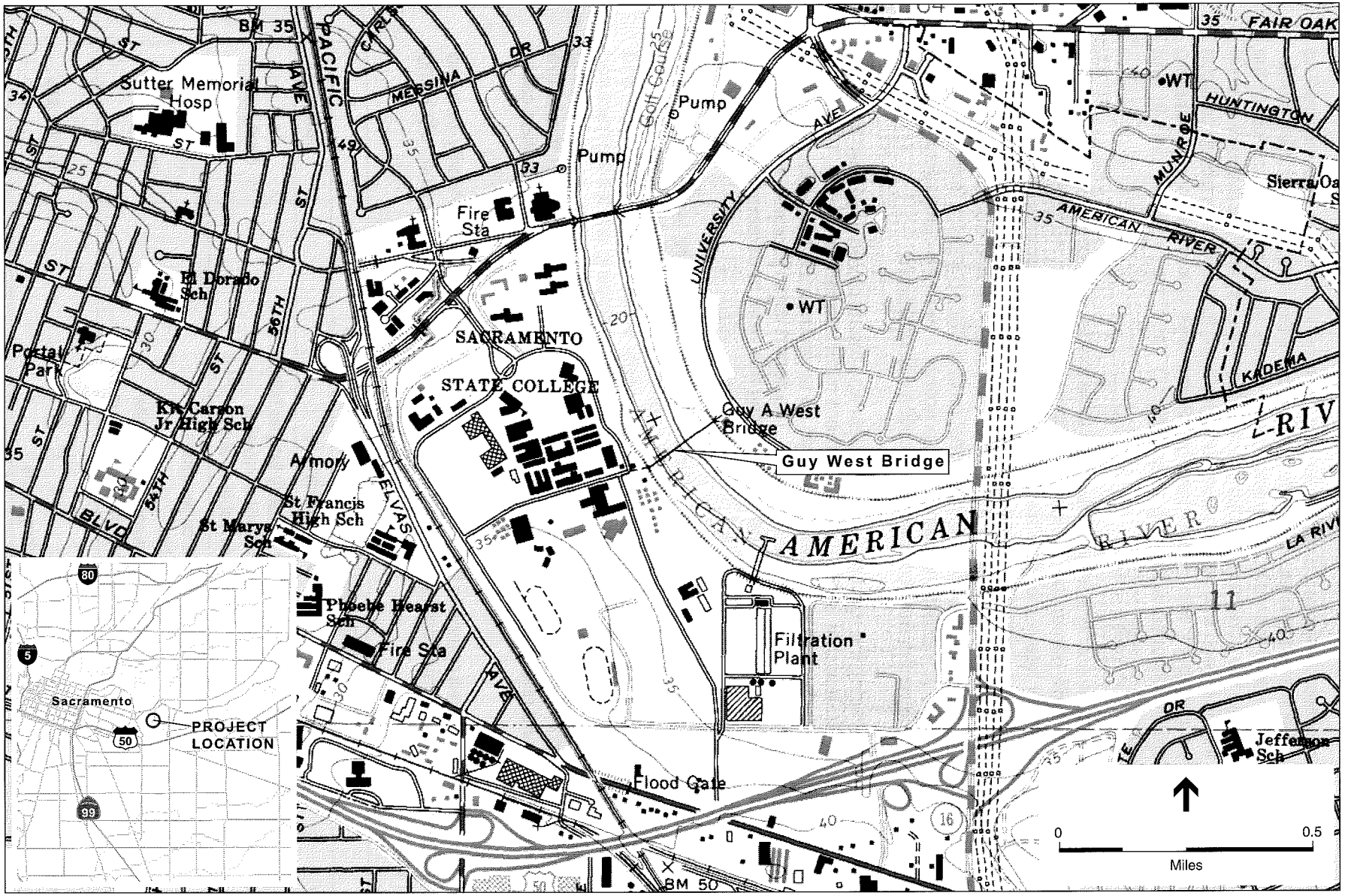
The Guy West Bridge was constructed in 1966 and has been in service since then. This structure has a main suspended span of 600 feet, and two simply supported truss approach spans of 72 feet each. The pedestrian walkway is approximately 15 feet wide over the full length of the bridge. The suspension structure consists of two steel box frame towers approximately 87 feet in height, a pair of suspension cables each consisting of four 2 1/16 inch diameter galvanized steel bridge strands, a steel truss stiffening system suspended by ninety-eight 3/4 inch diameter galvanized steel bridge rope suspenders, and a 6 inch thick lightweight reinforced concrete walkway slab. Deck joints in the walkway slab are positioned to provide slab sections that are three-span continuous over the floor beams. An aluminum handrail system is used to protect pedestrians at both edges of the deck. A lighting system is integrated with the handrail. Additional design details regarding the existing bridge can be found in the Guy West Bridge Condition Assessment Report (Quincy Engineering Inc., 2011).

Previous Bridge Inspections and Maintenance

The Guy West Bridge is a pedestrian/bicycle bridge over the American River, and as such is not listed in the National Bridge Inventory (NBI). This means that bridge inspections and maintenance are undertaken by the City for the Guy West Bridge as necessary. Studies were commissioned by the City between 2000 and 2001, which recommended replacement of vertical suspender cotter pins, repainting of main suspension cable end anchorage plates, improving western anchorage area drainage, repairing concrete deck spalls, and replacing missing railing hardware. This work was completed shortly thereafter. During that same time period, a paint condition assessment report (July 2001) determined that repainting the entire bridge could be deferred five to ten years without further deterioration.

Current (2011) Bridge Inspection Report and Recommendations

During the spring of 2011, the City of Sacramento engaged a consultant whom conducted a hands-on visual inspection of the Guy West Bridge and performed non-destructive tests (NDT) to assess the condition of the bridge. Detailed results of this inspection are identified in the Guy West Bridge Condition Assessment Report (Quincy Engineering Inc., 2011) and are summarized in the following paragraphs.



SOURCE: USGS Topographic Quadrangle (Sacramento East, 1967; Photorevised, 1980); DeLorme Street Atlas, 2000; ESA, 2013

Guy West Bridge Rehabilitation Project . 120851

Figure 1
Project Site and Surrounding Vicinity

Overall, many of the inspected components were found to be in good condition and required no restoration work including the steel towers, concrete piers, concrete abutments, embankments, suspender ropes and sockets, and the main cable anchorage plates and pins. The majority of the bridge deck was found to be in fair condition, requiring only minor repairs, and the majority of steel truss members, in both the approach and suspension portions, were found to be in good condition with the exception of two members with minor damage. Some less critical elements requiring maintenance or replacement included a bulging truss bearing pads, loose utility conduit, and corroded handrail hardware.

The 2011 report found that the existing paint is considered to be in very poor condition. The exterior is comprised of a red lead-type primer that typically contains greater than 40% lead with alkyd topcoat that also contains other heavy metals. This type of paint coating becomes brittle over time and there is widespread fading, cracking, chipping throughout the paint surfaces. The report determined that the exterior paint has reached the end of its useful life and no longer provides protection to the steel surfaces. This has allowed the formation of surface corrosion in many places. Partial removal or overcoating of the existing paint is not practical; it must be completely removed and replaced in order to provide the best corrosion protection going forward.

The most important finding during the most recent inspection was the discovery of eleven fractured wires in three of the four strands that make up the southern main suspension cable. The report recommended, as a high priority, that wire samples should be taken from the bridge for laboratory examination to verify the fatigue nature of the fractures. The report also recommended that the number and position of fractured wires should be noted during this work to determine if continued fracturing is occurring.

Based on the findings of the Guy West Bridge Condition Assessment Report, a restoration work plan was developed, summarized below in **Table 1**, to prioritize repair work into three primary categories, with Priority One work representing the highest priority tasks. Between February and October of 2012, the Priority One work was completed and included: sampling and testing fractured wire samples, applying banding to the cables to prevent further strand unraveling, and relocating the out of position back stay cable clamp. Metallurgical analysis confirmed fatigue as the failure mode of the wire strands and relocation of the back stay cable clamp eliminated observation cable oscillations.

The current proposed project will complete the recommended repair work including Priority Two and Priority Three items. These items represent the vast majority of recommended and remaining restoration work for the bridge.

Table 1. Proposed Restoration Work Plan

Priority	Description	Status
One (highest)	• Sample broken wires & test to verify fatigue failure • Wrap damaged cables to prevent unraveling • Relocate out of position main cable spacer	Complete
Two (moderate)	• Restore two suspender rope connections • Repair one truss strut member • Replace all deck seals and repair deck spalls • Full removal and replacement of paint system	In Process
Three (lowest)	• Replace handrail hardware • Repair loose utility conduit • Replace approach truss bearing pads	In Process

Project Purpose and Objectives

The purpose of the proposed project is to implement a restoration work plan that completes the Priority Task Two and Three recommendations identified in the Guy West Bridge Condition Assessment Report (as summarized in Table 1, above) to ensure the continued safe performance of this suspension bridge. Additional objectives include the following:

- Given the bridge's location within the environmentally sensitive American River Parkway, the City proposes to complete the restoration work in a manner that minimizes environmental impacts to the American River Parkway;

- Implement restoration/maintenance activities in a manner that maintains pedestrian/recreation access, circulation, and connectivity to the surrounding Campus Commons area, the Sacramento State University Campus, and for users of the Jedediah Smith Recreation Trail as much as possible; and

- Incorporate restoration/maintenance activities (i.e., paint coatings, materials, etc.) that maintain the unique aesthetic and design features of the existing suspension bridge.

Project Description

Project Features

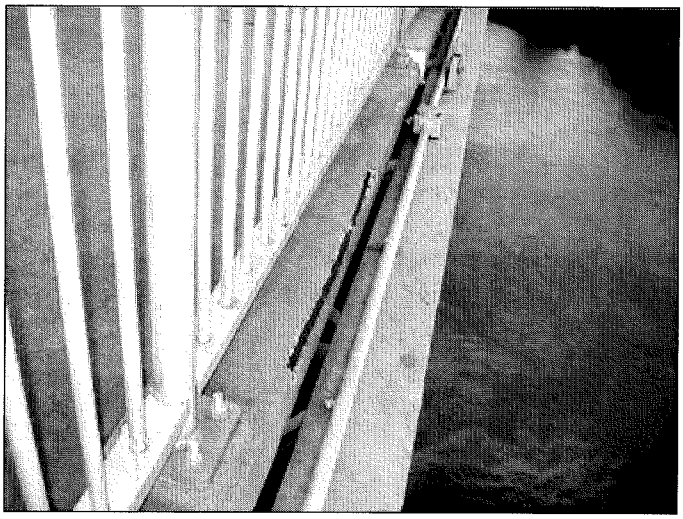
The restoration work plan for the proposed project is comprised of the following features:

Bridge Deck. While the lightweight reinforced concrete deck was observed to be in satisfactory-to-good condition, the inspection conducted as part of the Guy West Bridge Condition Assessment Report identified hairline cracking on the bottom surface and some scattered, minor spalling (<3% total deck area) as shown in **Figure 2a**. The repair of minor concrete spalls and failed joint seals are included as part of the proposed project.

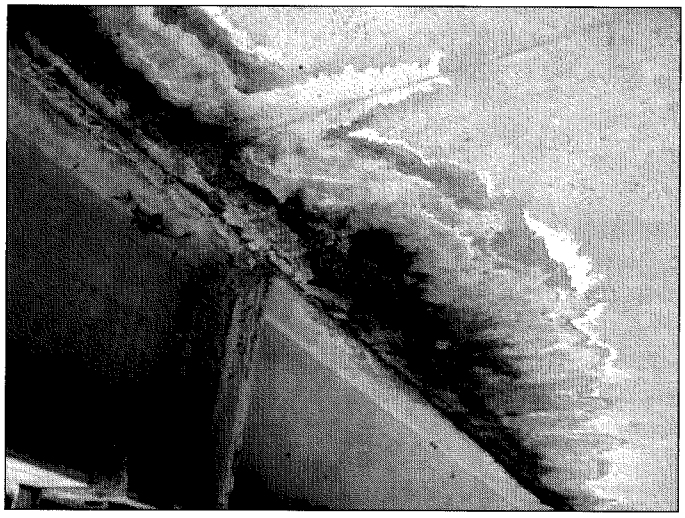
Suspended Span Stiffening Trusses and Floor System. Spotty conditions of paint failure and light surface corrosion along with a few areas exhibiting larger areas of paint failure were observed as part of the last inspection. One indication of damage to the structure that is unrelated to normal use was located on the lower strut at L53´ (on the north tower) shown in **Figure 2a** and **2b**. The flanges of this strut have been cut through and the strut section has been greatly reduced. This structural steel member will be repaired with field drilled bolts and cover plates to restore the steel section to its original area and stiffness as part of the proposed project.

Bearings. The approach span trusses each have a fixed end bearing at the towers and a free end bearing at the abutments. The free end (expansion) bearings were observed to be in satisfactory-to-good condition. However, the elastomeric bearing pad at each of the four fixed bearing locations was observed to have failed and is bulging out around the lower chord bottom flange as shown in Figure 2a and 2b. Replacement of these fixed bearing pads is included as part of the proposed project.

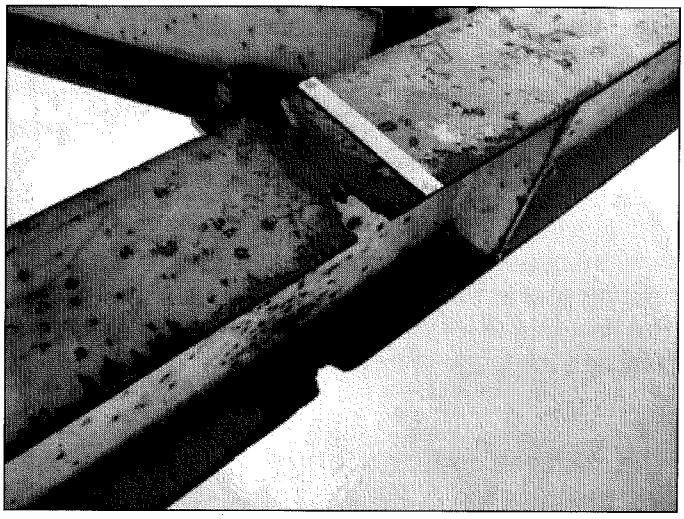
Vertical Suspender Ropes and Sockets. The main vertical load carrying elements of the bridge were found to be in fair condition due to noted deterioration of the galvanized coating and some minor surface corrosion. The wire suspender ropes were observed to exhibit varying degrees of galvanized coating failure and surface corrosion at the point of entry into the sockets at locations throughout the structure. Additionally, it was noted that a cotter pin was determined to be



PHOTOGRAPH 1 – Spalling of the deck panel edge beyond the handrail. Note the exposed reinforcing bar.



PHOTOGRAPH 2 – Typical staining on the bottom of a deck panel at the location of a joint seal.

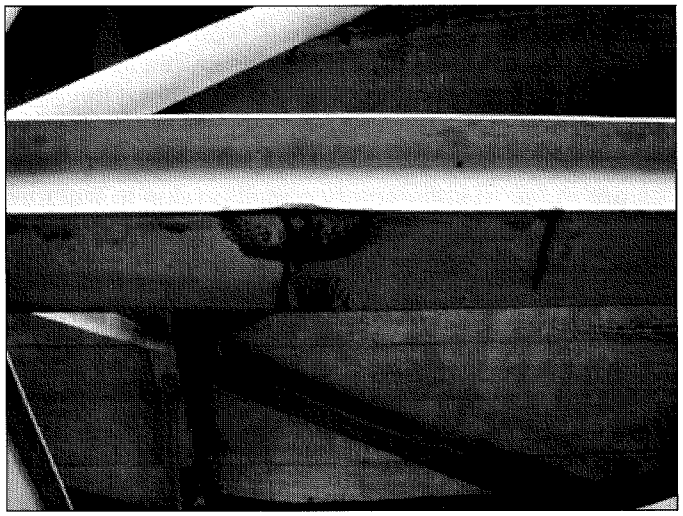


PHOTOGRAPH 3 – Damage to the stiffening truss lower strut at L53'.

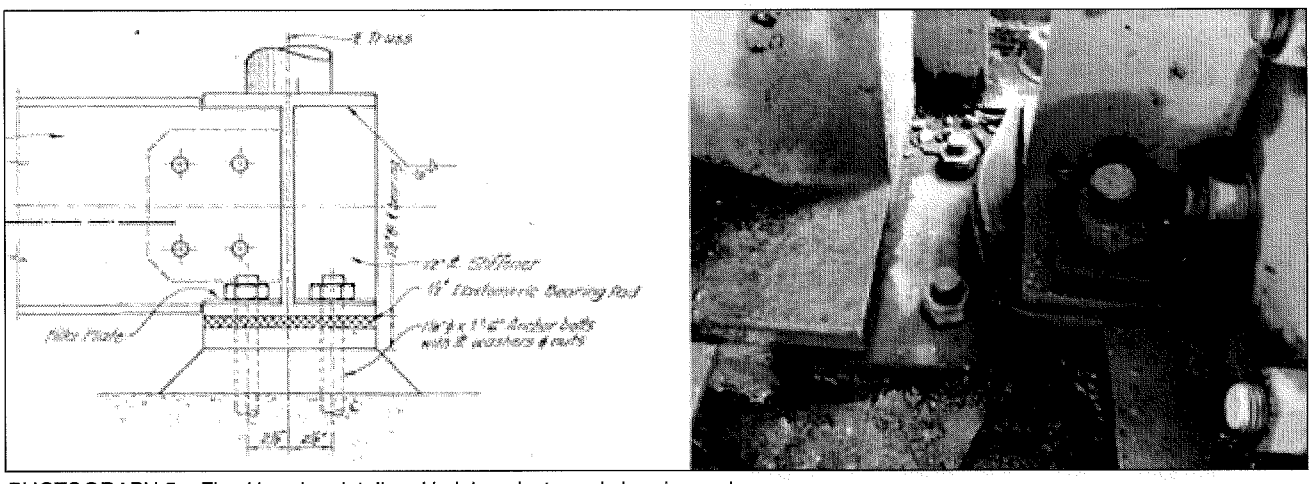
SOURCE: Quincy Engineering, Inc., 2011

Guy West Bridge Rehabilitation Project . 120851

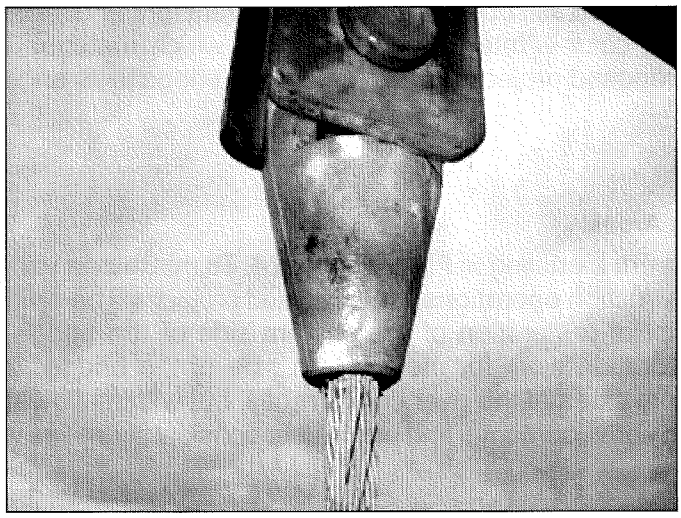
Figure 2a
Bridge Features Requiring Maintenance



PHOTOGRAPH 4 – Impact damage to the north approach truss lower chord bottom flange between L4' and L5'.



PHOTOGRAPH 5 – Fixed bearing detail and bulging elastomeric bearing pad.



PHOTOGRAPH 6 – Wire suspender rope at top socket connection in good condition.

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SOURCE: Quincy Engineering, Inc., 2011

Figure 2b
Bridge Features Requiring Maintenance

missing at some past inspection point and was replaced by a piece of wire in place of the pin joining the vertical suspender rope anchorage to the cable clamp on the north cable. A pin at one of the vertical suspender anchorages on the north truss is moderately corroded, indicating that the pin was not galvanized as specified. Replacement of these items is included as part of the proposed project.

Suspension Cables. The suspension cables are in fair to satisfactory condition due to fracture of several wires in three of the four strands that make up the southern main cable. The fractures were found at the south saddle of the tower on the approach span side (see Figures 2a and 2b). In addition, the galvanized coating has begun to show signs of weathering and is absent or thin in small areas over the full length of the cables. Tree foliage was observed to encroach both the north and south cables at the east anchorage and the north cables at the west anchorage. Restoration of these items through galvanized paint coating is included as part of the proposed project.

Handrail System. In general, the handrail system was observed to be in fair to satisfactory condition. However, several of the anchor nuts (approximately 29) were found to be loose. In addition, 14 anchor nuts were observed not having the correct engagement of the U-bolt, and 3 anchor bolts were observed to be broken off. In addition, many grout pads below the handrail post base plates were observed to be cracked as shown in Figures 2a and 2b. Minor repairs of the handrail system are included as part of the proposed project.

Utilities. Two utility conduits run from abutment to abutment and are hung from the upper strut of each floor beam. These conduits appear to carry electric cables, but they are not marked for contents. The conduits were observed to be separated or broken at their expansion joint in three locations. Restoration of the utility conduit integrity is included as part of the proposed project.

Paint. The existing paint system consists of a red lead-type primer that typically contains greater than 40% lead with alkyd topcoat that contains lead and other heavy metals. This existing system shows signs of widespread failure and is no longer providing adequate protection. Widespread areas of paint flaking and incipient corrosion can be observed throughout the structure. The paint system is extremely brittle and is exhibiting blistering. The top coat shows extensive chalking and color change and is easily separated from the base primer. As part of the proposed project, the existing paint system will be removed and replaced as soon as possible to prevent further corrosion of exposed steel surfaces. The same paint color—"International Orange"; which matches the Golden Gate Bridge—will be used for the proposed project and will restore the bridge to its original color.

Restoration Details

Site Access Routes and Equipment Staging Areas

Access routes and equipment staging areas are identified in **Figures 3** and **4**. To minimize a variety of environmental impacts and facilitate construction operations, the proposed project will be divided up into two phases. One phase will consist of restoration of the eastern side of the bridge. A separate phase will consist of similar restoration work for the western side of the bridge. It is possible that work may be performed on both sides of the river concurrently, but within allowable construction schedule windows as defined by environmental and public user considerations, as well as the allowable load limits of the bridge.

On the eastside, the Contractor will be allowed to set up a staging area for parking, equipment, stockpiles, and site access within a private parking lot near the bridge between University Ave and the levee. This staging area will be fenced and secured by a temporary fence. This staging

LEGEND:

TFESA — TEMPORARY FENCE ENVIRONMENTALLY SENSITIVE AREA (ESA)

—x—x—x—x—x— TEMPORARY CONSTRUCTION FENCE CHAIN LINK

#X ELDERBERRY SHRUB

NOTES:

1. FOR SECTION "A–A", SECTION B–B AND SECTION "C–C", SEE "ACCESS DETAILS" SHEET.
2. FOR UTILITY INFORMATION, SEE "UTILITY PLAN".

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
3	SAC	N/A	N/A	3	X

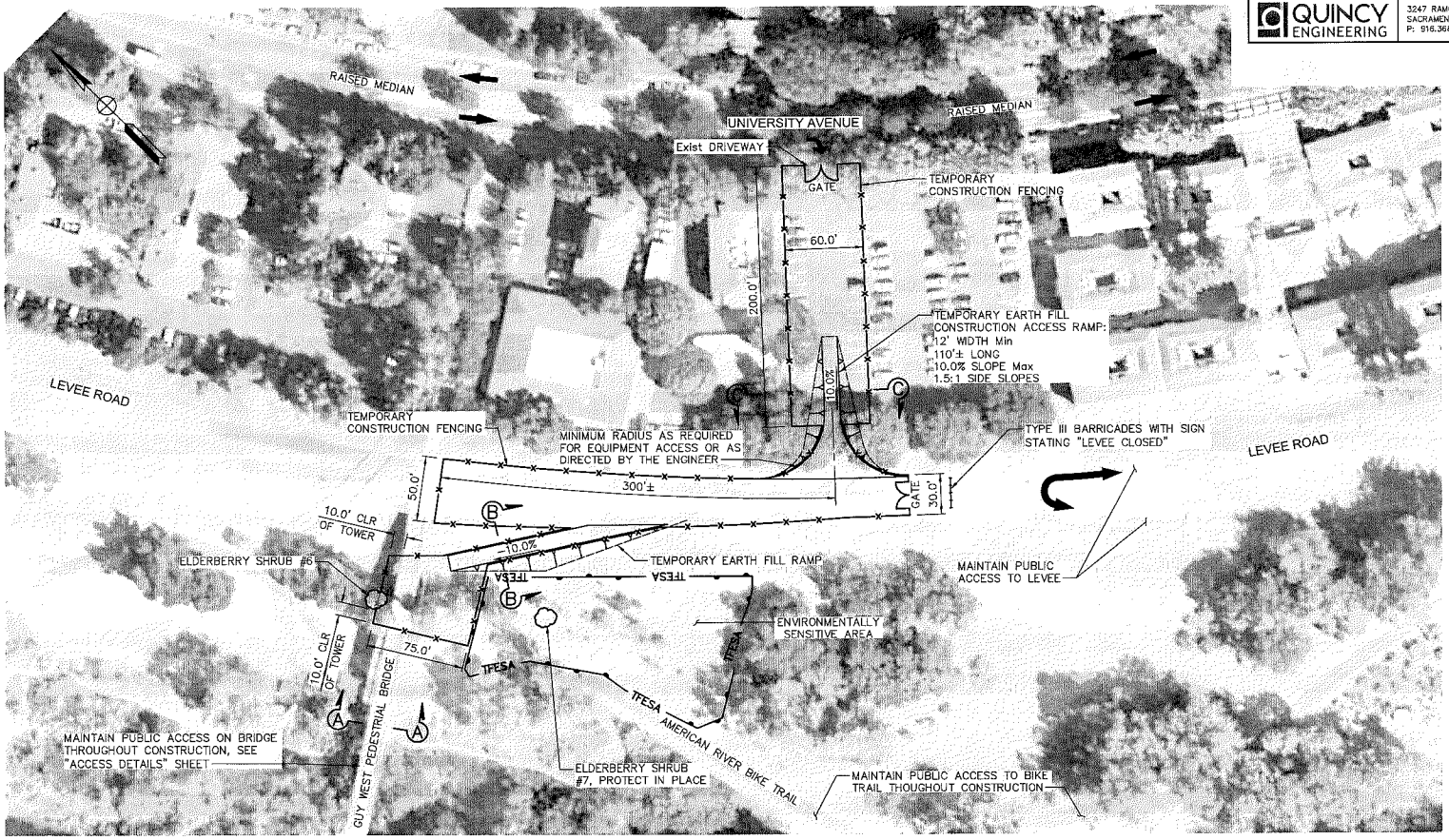
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER — XXX X. XXXXXXX — No. C12345 — Exp. XX/XX/XX — CIVIL — STATE OF CALIFORNIA

QUINCY ENGINEERING — 3247 RAMOS CIRCLE SACRAMENTO, CA 95827-2501 P: 916.368.9181



SOURCE: Quincy Engineering, Inc., 2010

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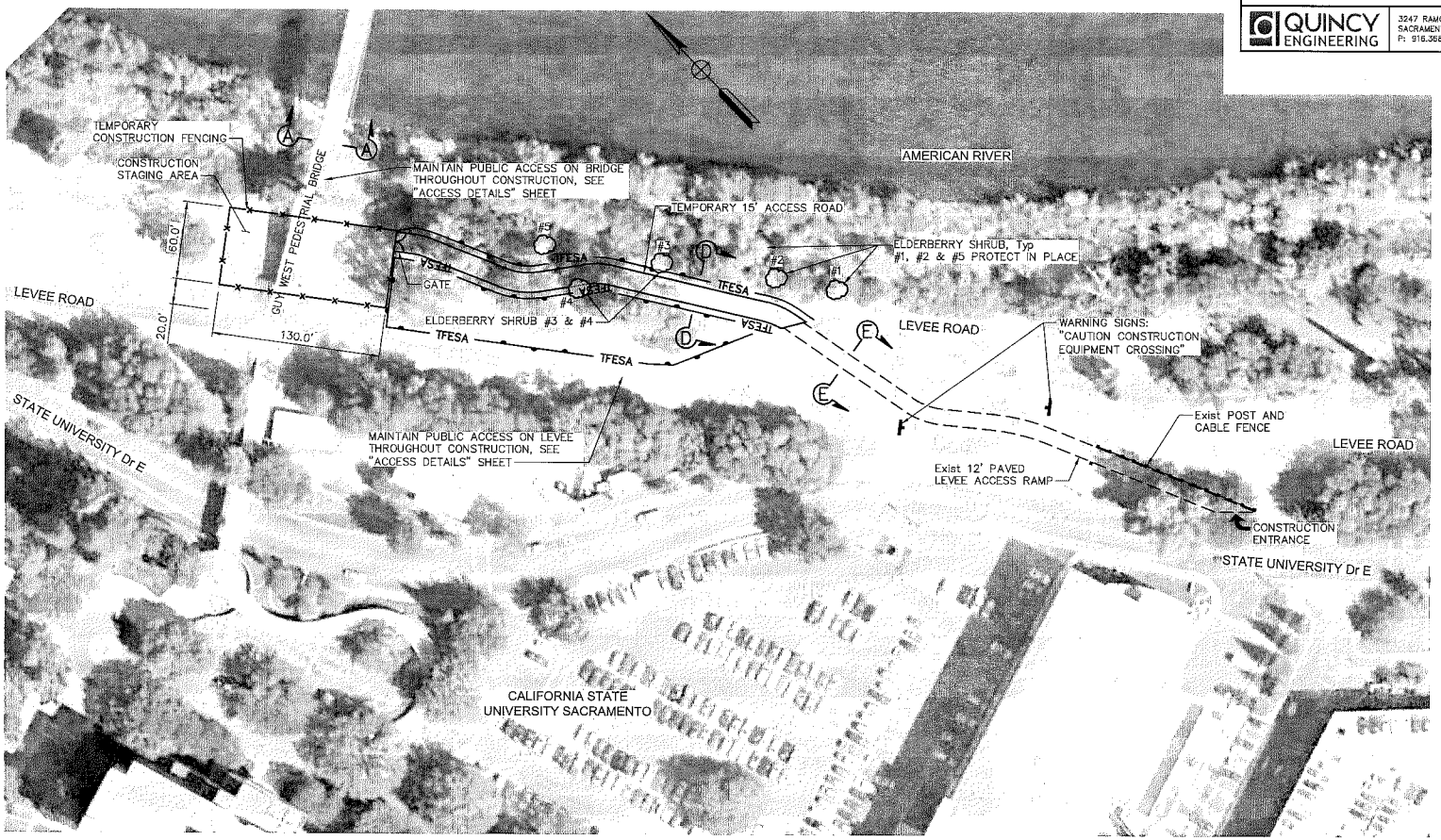
Figure 3

Eastern Side – Staging and Access Layout



SOURCE: Quincy Engineering, Inc., 2010

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Figure 4

Western Side – Staging and Access Layout

area will have a dedicated driveway into the parking lot from University Ave, and a gate will be used to restrict public access for safety. An earthen ramp will be built with the staging area from the private parking lot grade to the top of the existing levee in order to provide access for construction equipment. An area immediately adjacent to the bridge on top of the levee will be used for construction activities. A temporary earthwork ramp will be required from the top of the levee to the grade of the American River Parkway (Sacramento County Parks) in order to provide access to the base of the tower. **Figure 5** includes a photo of a similar earthen ramp developed for a previous levee project within roughly the same location.

On the westside, the Contractor will gain access to the bridge work area from State University Drive East within the California State University Sacramento (CSUS) Campus. The access route will proceed from State University Drive East up an existing paved levee access ramp, back down an existing levee ramp on the waterside, and along a flat area at the toe of the levee within CSUS property. The staging and construction activity work area for parking, equipment, supplies will be near the existing bridge tower. This staging area will be fenced and protected from public access.

Construction Activity Areas

Most of the restoration work will be performed from the bridge itself, above the ground (see Figure 5). Work occurring on the deck level will include work on the bridge deck, main cables, suspender cables, and handrail system. Work occurring below the deck level, within the truss structure of the bridge, will include work on the truss, bearing, and the utility conduit. The vast majority of paint removal and restoration work (which accounts for over 90% of the total restoration effort) will occur at the bridge truss level, below the bridge deck. While the proposed project is located within the American River Parkway, restoration activities (including construction access routes and staging areas) do not include in-water work or would involve ground disturbing activities.

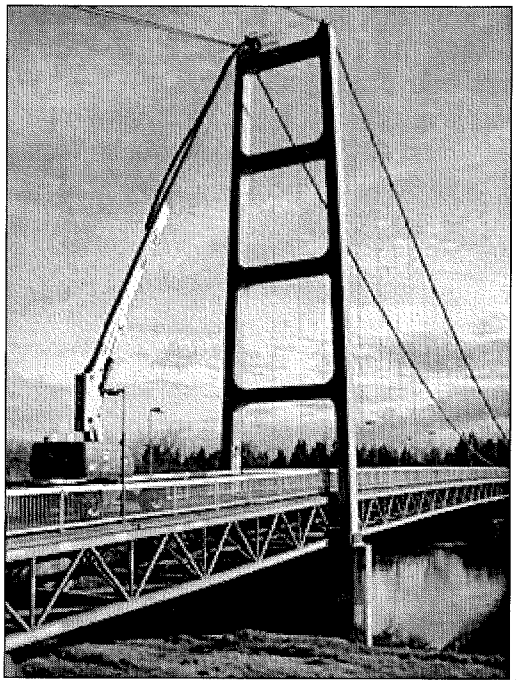
Minor work will be performed at both abutments on the bearing system and minor paint work will be performed at all cable anchorage locations. In order to access and build paint containment systems around each tower, construction of temporary scaffolding will be required around each tower. Scaffolding will be the full height of each tower, braced off each tower, and will be supported on temporary pads at the base of each tower. The contractor may elect to design a containment structure that will provide a protected opening for bikes and pedestrians crossing underneath the towers during this work activity.

Required Equipment and Workers

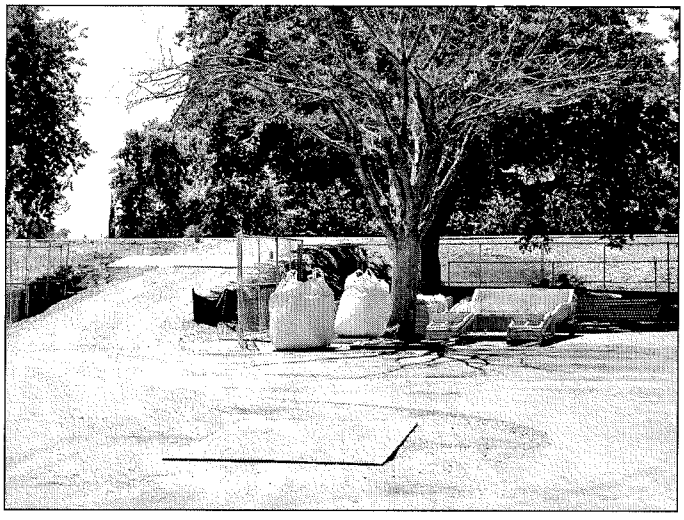
Equipment used for the project will include typical pieces of general construction equipment and also specialized painting equipment. Specialized paint equipment will include a paint blaster/recycling machine, dust collector, and air compressors. The recycling machine stores, sorts and transports inbound and outbound blasting material streams. The dust collector filters and controls atmosphere within the paint containment tent. Air compressors provide air pressure to drive the recycling and collecting machines. A water containment system will be established to ensure that contaminated water used to wash and clean paint surfaces is fully captured without affecting the environment. All these machines come on wheeled trailers or carriages that spread out load below legal limits for operating on local streets, access ramps, and would be parked as close to the bridge as possible.

In addition to these pieces of specialized equipment, smaller more typical construction equipment will also be utilized. This includes equipment such as heavy duty pick-ups and loaders for moving materials, forklifts, and manlifts for accessing areas of the bridge. There would also be some light trailers for decontamination showers as well as stockpiles of ancillary hosing and grit stockpiles that could be staged further from the immediate area of the bridge. One or two office trailers may also be required for the Contractor and City's construction management staff.

PHOTOGRAPH 1. Access to upper portions of most vertical suspender ropes using a manlift.



PHOTOGRAPH 2. Access to towers and upper portions of the suspension cables and vertical suspender ropes gained using an 86-foot aerial boom lift.



PHOTOGRAPH 3. Example of temporary earthwork ramp from previous project.

SOURCE: Quincy Engineering, Inc., 2011; EAS, 2013

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Figure 5

Bridge and Project Site Access

An estimated 10 to 20 workers, which could vary based on specific restoration/maintenance activity, would be onsite each day during restoration activities. Workers travelling to the eastern side of the project site would likely travel along Fair Oaks Boulevard to University Avenue and park their vehicles near the equipment staging area within the private parking lot (see Figures 3 and 4). Workers accessing the western side of the project site would likely enter the CSUS campus through either Hornet Drive or Folsom Boulevard and proceed to the levee access location on State University Drive East and the western staging area. Restoration/maintenance activities would be limited to daylight hours, typically the hours from 7:00 a.m. to 6:00 p.m., Monday through Friday, and possibly Saturday and Sunday.

Restoration Schedule

One of the primary objectives of the proposed project is to minimize access and circulation impacts to the Sacramento State University Campus and for users of the Jedediah Smith Recreation Trail. Impacts will be minimized as part of the proposed project schedule during the April to November 2014 construction season. Additionally, implementation of the project in two stages will also minimize impacts to participants of the Eppies Great Race (occurring in mid to late July). The contractor will select which side of the bridge to restore first and will complete construction in a timely matter so as to not interfere with the Eppies Great Race. Therefore, one phase will occur during the April through June timeframe. Completion of this phase will coincide to ensure that adequate time is made available for removal of equipment and restoration of staging areas located along the eastern side of the bridge, which is an important part of the Eppies Great Race. Following the completion of work on this phase, work will commence on the remaining side.

Site Preparation

Preparation of the site will include setting up the staging areas and securing them with construction fencing to limit public access for safety. Additional measures such as silt fencing, fiber rolls, and signage may also be installed with the staging and construction areas. Temporary earthen construction ramps will be constructed adjacent to the levee on the east side for access. A chain link fence will also need to be removed in order to build this ramp. Minor temporary earth fill may also be required on the west side to level the access route near the adjacent levee ramp. Minor fill, steel plating, timber blocking, or other temporary pads may be placed under equipment to protect existing features such as levee paving and slopes. Temporary pad foundations will also be required below the access and containment scaffolding required for paint activities at each existing tower. Vegetation trimming will be required both for restoration/maintenance access and to trim vegetation growing into the bridge that interferes with painting activities.

Site Restoration and Cleanup

The project will require the contractor to preserve and restore property upon completion of the project. All restoration/maintenance materials will be required to be removed and all surfaces restored to their pre-project condition including replacing fences, repairing AC surfaces, restoring existing slopes and grades, and restoring vegetated surfaces through means such as hydroseeding. All hard surfaces, such as the private parking lot, will be cleaned of dirt, dust, or other construction materials. Resurfacing and re-striping may be performed, if required, to restore the hard surfaces back to their original condition.

Utilities

Although relocation of utilities is not anticipated for this project, the limits of the project will contain various easements and underground utilities. Some of the utility companies may elect to rehabilitate some of their lines or connections to the bridge during this project. Utility companies would temporarily disconnect affected utility lines to the bridge for repairs, and then would reconnect them during the painting operations. On the eastside, the temporary ramp will be built over a SMUD easement and electrical line (see Figure 3). Portions of the work on the eastside will also be

performed over an easement for the Sacramento Regional County Sanitation District which contains a sanitary sewer. On the eastside, a portion of the construction area will be over a series of drainage culverts serving the CSUS campus. Work on the bridge will include restoration of a utility conduit carrying SMUD electrical lines. Utility coordination will be performed with all utility owners.

Public Engagement Process

A public workshop was conducted by the City on September 25, 2013 at the Sierra Oaks Elementary School Multipurpose Room (171 Mills Road, Sacramento, CA 95864) from 5:30 to 7:30 p.m.

Comments raised specific to environmental issues included questions regarding the extent of closures to the Guy West Bridge and the resultant effects to pedestrian circulation to and from the campus. Additional comments were provided regarding the possible effects to recreation use along trails adjacent to the project site and coordination with various planned recreation events in the Parkway.

Project Permits and Approvals

The following agencies (includes responsible agencies) have permitting or approval authority over the proposed project:

- U.S. Coast Guard (USCG) for a Navigability Assessment;
- U.S. Army Corps of Engineers (Corps) for work conducted above a Navigable Water as defined under section 10 of the federal Clean Water (CWA);
- U.S. Fish and Wildlife Service (USFWS) for impacts to elderberry shrubs, the host plant for the federally threatened valley elderberry longhorn beetle (VELB) per section 7 of the federal Endangered Species Act;
- California Department of Fish and Wildlife (CDFW) to address impacts within the banks of the river and associated riparian habitat per Section 1602 of State Fish and Game Code; To Be Determined.
- Regional Water Quality Control Board (RWQCB) to address potential impacts to water quality that may result from discharges from the project site to the river or from diffused sources (e.g., erosion from soil disturbance or waste discharges to land) per Section 401 of the CWA; TO Be Determined.
- Central Valley Flood Protection Board (CVFPB) for work within a designated floodway;
- American River Flood Control District (ARFCD) for an endorsement of the project
- County of Sacramento, Regional Parks, Recreation and Open Space for work conducted on County Park land, or within a County designated Parkway, requires an encroachment permit;
- California State University Sacramento (CSUS) for site access and temporary construction easement approval; and
- State Lands Commission (SLC), while not an actual permit, the City will be coordinating with the SLC to acquire additional easement rights.

SECTION III – ENVIRONMENTAL CHECKLIST AND DISCUSSION

LAND USE AND PLANNING, POPULATION AND HOUSING, AGRICULTURAL RESOURCES AND ENERGY

Introduction

The California Environmental Quality Act (CEQA) requires the Lead Agency to examine the effects of a project on the physical conditions that exist within the area that would be affected by the project. CEQA also requires a discussion of any inconsistency between the proposed project and applicable general plans and regional plans.

An inconsistency between the proposed project and an adopted plan for land use development in a community would not constitute a physical change in the environment. When a project diverges from an adopted plan, however, it may affect planning in the community regarding infrastructure and services, and the new demands generated by the project may result in later physical changes in response to the project.

In the same manner, the fact that a project brings new people or demand for housing to a community does not, by itself, change the physical conditions. An increase in population may, however, generate changes in retail demand or demand for governmental services, and the demand for housing may generate new activity in residential development. Physical environmental impacts that could result from implementing the proposed project are discussed in the appropriate technical sections.

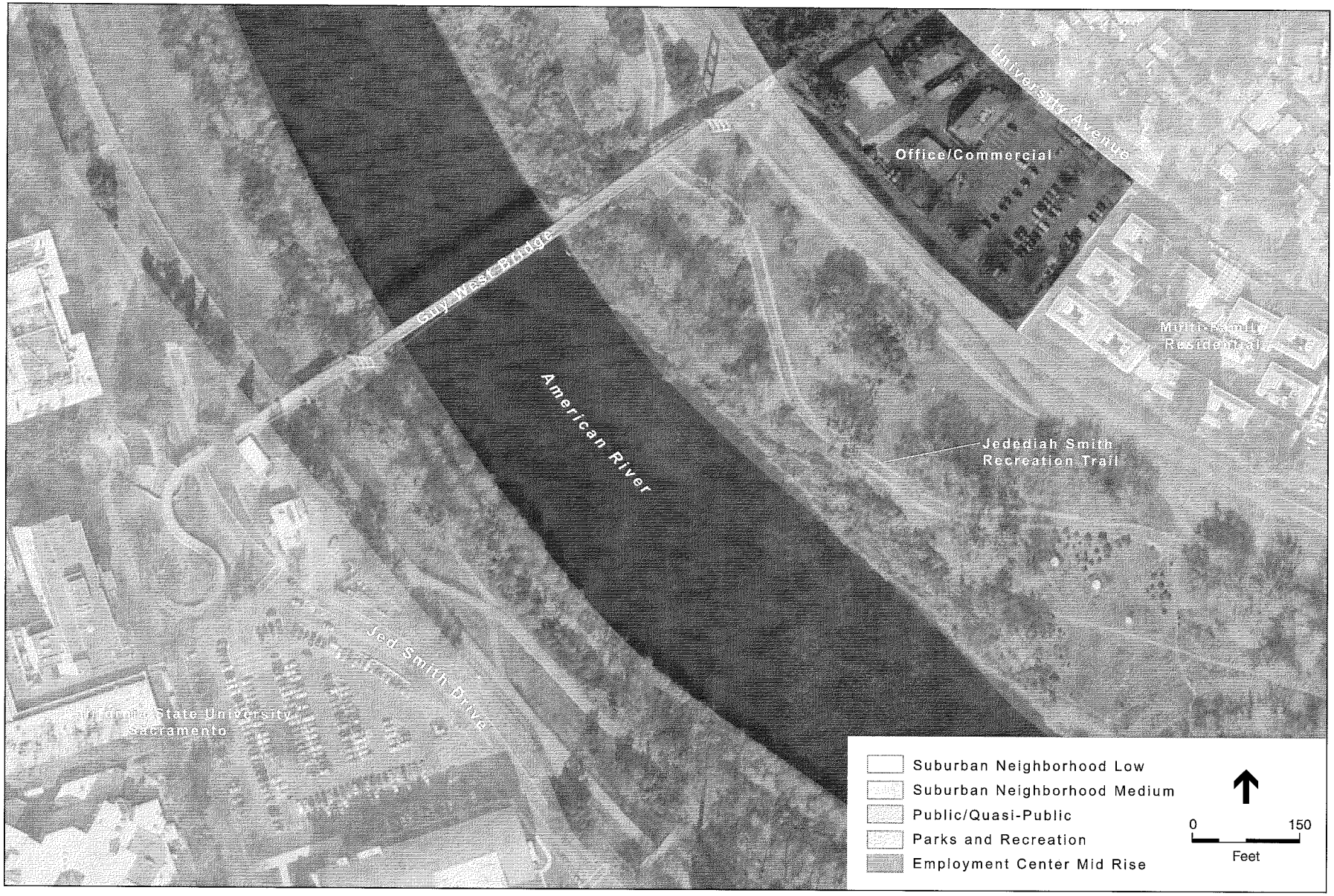
This section of the initial study identifies the applicable land use designations of the project study area. Because the proposed project is a bridge restoration/maintenance project (with a limited study area located with the American River Parkway) that would not involve the development of new or additional housing units or employment centers, detailed descriptions of community plans, policies, and permissible land use densities and intensities are not considered necessary and are not described further.

Discussion

Land Use and Planning

As shown in **Figure 6**, a majority of the project site is located within the American River Parkway and is designated as Parks and Recreation under the City's current 2030 General Plan. The dominate land use to the west is the CSUS campus, which is designated Public/Quasi-Public. Land use designations to the east include Employment Center Mid Rise, Suburban Neighborhood Medium and Suburban Neighborhood Low (see Figure 6).

While a majority of the project site is located within the American River Parkway, the project site is surrounded by an urbanized portion of the community. As shown in Figure 6, the predominant surrounding land uses include CSUS, residential areas, commercial/office uses, and public land maintained by the County of Sacramento. As described above under Section II "Project Description", the project is a temporary bridge restoration/maintenance project that would not involve new development or permanent land use changes within the City. Upon project completion, all



SOURCE: City of Sacramento, 2011; Microsoft, 2012; ESA, 2013

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Figure 6
Land Uses Within the Study Area

project areas (staging/access areas) would be returned to pre-project conditions after maintenance activities are completed. Consequently, project activities would not result in permanent changes to the existing landscape, and the proposed project is consistent with planning designations in the 2030 General Plan and Zoning Code.

Population and Housing

The proposed project does not involve construction of residential land uses that would generate new residents in the city or region. Temporary construction workers (estimated at 10 to 20 workers) serving the proposed project would reasonably be expected to come from the existing labor pool of residents in Sacramento and nearby communities. Additionally, the proposed bridge restoration/maintenance project does not include the provision of additional infrastructure with the capacity to serve other un-served properties, or stimulate additional economic activity not currently planned for in the vicinity or region. Therefore, the project would not induce direct or indirect population growth. Consequently, the proposed project will not have an impact on population and housing and these issues are not described further in this initial study.

Agricultural Resources

The Master EIR discussed the potential impact of development under the 2030 General Plan on agricultural resources. See Master EIR, Chapter 6.2. The Master EIR concluded that the impact of the 2030 General Plan on agricultural resources within the City was less than significant.

The project site is primarily located within the American River Parkway and does not contain soils designated as Important Farmland (i.e., Prime Farmland, Unique Farmland or Farmland of Statewide Importance). The site is not zoned for agricultural uses, and there are no lands with Williamson Act contracts that would be affected by project activities. No existing agricultural or timber-harvest uses are located on or in the vicinity of the project site. Consequently, implementation of the proposed project would not result in impacts to agricultural resources and this issue is not discussed further in this initial study.

Energy

Chapter 6.11, "Public Utilities," of the Master EIR evaluates the potential effects of the 2030 General Plan to result in the construction of new energy production facilities (Impact 6.11-9) and the potential cumulative effects associated with the continued use of electricity and natural gas in the region (Impact 6.11-10). Policies included in the 2030 General Plan were identified to reduce impacts associated with energy consumption to a less-than-significant level.

The proposed project focuses on bridge restoration/maintenance activities to the Guy West Bridge and would not result in the construction of additional development that would result in the permanent increased use of electricity and natural gas in the region. As part of the project, the two utility conduits running from abutment to abutment (which appear to carry electric cables) will be repaired and utility conduit integrity will be restored. Overall, the proposed project would not result in any impacts not identified and evaluated in the Master EIR.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
1. AIR QUALITY *Would the proposal:* A) Result in construction emissions of NO_x above 85 pounds per day?		X	
B) Result in operational emissions of NO_x or ROG above 65 pounds per day?			X
C) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X	
D) Result in PM_{10} concentrations equal to or greater than five percent of the State ambient air quality standard (i.e., 50 micrograms/cubic meter for 24 hours) in areas where there is evidence of existing or projected violations of this standard?		X	
E) Result in CO concentrations that exceed the 1-hour state ambient air quality standard (i.e., 20.0 ppm) or the 8-hour state ambient standard (i.e., 9.0 ppm)?		X	
F) Result in exposure of sensitive receptors to substantial pollutant concentrations?		X	
G) Result in TAC exposures create a risk of 10 in 1 million for stationary sources, or substantially increase the risk of exposure to TACs from mobile sources?		X	
H) Impede the City or state efforts to meet AB32 standards for the reduction of greenhouse gas emissions?			X

ENVIRONMENTAL SETTING

The Federal Clean Air Act establishes National Ambient Air Quality Standards (AAQS) and delegates enforcement to the states, with direct oversight by the U.S. Environmental Protection Agency (EPA). In California, the California Air Resources Board (CARB) is the responsible agency for air quality regulation. The California Clean Air Act established California AAQS. These standards are more stringent than Federal standards and include pollutants not listed in Federal standards.

The Sacramento area (including the project site) is included in the Sacramento Valley Air Basin. The air quality in the area is managed by the Sacramento Metropolitan Air Quality Management District (SMAQMD).

Ozone. The project site is located in the Sacramento Federal Ozone Nonattainment Area (SFNA). The SFNA is also subject to regulations, attainment goals, and standards of the U.S. and California EPAs. On February 14, 2008, CARB, on behalf of the air districts in the Sacramento region, submitted a letter to EPA requesting a voluntary reclassification (bump-up) of the Sacramento

Federal Nonattainment Area from a "serious" to a "severe" 8-hour ozone nonattainment area with an extended attainment deadline of June 15, 2019, and additional mandatory requirements. On May 5, 2010 EPA approved the request effective June 4, 2010 (SMAQMD, 2011). The SFNA is thus designated a "severe" nonattainment area for the National 8-hour AAQS for ozone. The EPA General Conformity Regulation requires that "severe" designated nonattainment areas further reduce Nitrogen Oxide (NOx) and Reactive Organic Gas (ROG) thresholds to 25 tons/year rather than 100 tons/year.

Particulate Matter. Particulate matter is a term used for solid or liquid particles emitted into the air. Particulate matter less than 10 microns in diameter (PM10) is small enough to be inhaled and can cause health problems in the respiratory system. According to the State and Federal 24-Hour AAQS, Sacramento County is designated as a nonattainment area for PM10. Additionally, on October 16, 2006, the EPA promulgated a new 24-Hour standard for particulate matter less than 2.5 microns in diameter (PM2.5). This change lowered the daily standard from 65µg/m3 to 35µg/m3 to protect the general public from short term exposure of the fine particulate matter. Sacramento does not meet the new standards (EPA, 2007). The California Clean Air Act of 1988 requires nonattainment areas to achieve and maintain the State AAQS by the earliest practicable date and local air districts to develop plans for attaining State ozone standards.

Toxic Air Contaminants. Under the Clean Air Act, toxic air contaminants (TACs) are airborne pollutants that may be expected to result in an increase in mortality, serious illness, or may pose a present or potential hazard to human health. A chemical becomes a regulated TAC after it is assessed for its potential for human exposure, and evaluated for its health effects on humans by CARB's California Air Toxics Program or the EPA's National Air Toxics Assessment. TACs are not classified as criteria air pollutants (CAPs) and no ambient air quality standards have been established for them. The effects of various TACs are very diverse and their health impacts tend to be local rather than regional; consequently, uniform standards for these pollutants have not been established.

Currently, the estimated risk from particulate matter emissions from diesel exhaust (diesel PM) is higher than the risk from all other TACs combined. In September 2000, CARB adopted the Diesel Risk Reduction Plan (Diesel RRP), which recommends many control measures to reduce the risks associated with diesel PM and achieve a goal of 75% diesel PM reduction by 2010 and 85% by 2020. The key elements of the DRR Plan are to clean up existing engines through engine retrofit emission control devices, to adopt stringent standards for new diesel engines, to lower the sulfur content of diesel fuel, and implement advanced technology emission control devices on diesel engines (CARB, 2010).

SUMMARY OF ANALYSIS UNDER THE 2030 GENERAL PLAN MASTER EIR

The Master EIR addressed the potential effects of the 2030 General Plan on ambient air quality and the potential for exposure of people, especially sensitive receptors such as children or the elderly, to unhealthful pollutant concentrations. See Master EIR, Chapter 6.1. Policies in the 2030 General Plan in Environmental Resources were identified as mitigating potential effects of development that could occur under the 2030 General Plan. For example, Policy ER 6.1.1 calls for the City to work with the California Air Resources Board and the SMAQMD to meet state and federal air quality standards; Policy ER 6.1.12 requires the City to review proposed development projects to ensure that the projects incorporate feasible measures that reduce construction and operational emissions; Policy ER 6.1.11 calls for coordination of City efforts with SMAQMD; and Policy ER 6.1.15 requires the City to give preference to contractors using reduced-emission equipment.

The Master EIR identified exposure to sources of toxic air contaminants (TAC) as a potential effect. Policies in the 2030 general Plan would reduce the effect to a less-than-significant level. The

policies include ER 6.1.5, requiring consideration of current guidance provided by the Air Resources Board and SMAQMD; as well as Policies ER 6.11.1 and ER 6.11.15, referred to above.

The Master EIR found that greenhouse gas emissions that would be generated by development consistent with the 2030 General Plan would be a significant and unavoidable cumulative impact. The discussion of greenhouse gas emissions and climate change in the 2030 General Plan Master EIR are incorporated by reference in this Initial Study. (CEQA Guidelines Section 15150) As the proposed project does not include the development of additional housing units or result in land uses that would generate additional sources of permanent or long-term greenhouse gas emissions, this impact is not discussed further.

STANDARDS OF SIGNIFICANCE

For purposes of this Initial Study, air quality impacts may be considered significant if implementation of the proposed project would result in one or more of the following:

- Construction emissions of NOx above 85 pounds per day;
- Operational emissions of NOx or ROG above 65 pounds per day;
- Violation of any air quality standard or contribute substantially to an existing or projected air quality violation;
- PM10 concentrations equal to or greater than five percent of the State ambient air quality standard (i.e., 50 micrograms/cubic meter for 24 hours) in areas where there is evidence of existing or projected violations of this standard. However, if project emissions of NOx and ROG are below the emission thresholds given above, then the project would not result in violations of the PM10 ambient air quality standards;
- CO concentrations that exceed the 1-hour state ambient air quality standard (i.e., 20.0 ppm) or the 8-hour state ambient standard (i.e., 9.0 ppm); or
- Exposure of sensitive receptors to substantial pollutant concentrations.

Ambient air quality standards have not been established for toxic air contaminants (TAC). TAC exposure is deemed to be significant if:

- TAC exposures create a risk of 10 in 1 million for stationary sources, or substantially increase the risk of exposure to TACs from mobile sources.

ANSWERS TO CHECKLIST QUESTIONS

QUESTION A

The proposed project would only generate short-term, temporary air quality emissions as a result of bridge restoration/maintenance activities such as bridge paint application and removal (i.e., from air compressors, paint equipment, etc.). Consequently, standard air quality emission modeling conducted for typical construction-related projects involving a variety of earthmoving activities was not conducted for the proposed project, as ground disturbing activities are not proposed. Other activities resulting in some minor amounts of construction-related exhaust emissions would be generated by heavy-duty maintenance equipment, material delivery/haul trucks, and a small number of construction worker vehicles (between 10 to 20 average daily trips). As the proposed project is limited to bridge restoration/maintenance activities, no ground-disturbance or building

demolition activities would generate fugitive particulate matter (PM) dust emissions, which typically account for a majority of construction-related air quality emissions. Some site restoration/clean-up activities (i.e., repairing AC surfaces, restoring existing slopes and grades, and restoring vegetated surfaces/hydro-seeding, etc.) would also generate very small amounts of reactive organic gas (ROG) emissions. As these emissions would be temporary in nature, and would cease following the restoration/maintenance work, project-related activities would not constitute a significant source of air quality emissions that would exceed the SMAQMD threshold of significance. However, the proposed project will include applicable SMAQMD Basic Construction Emission Control Practices (including low vehicle speeds, limited equipment idling, etc.) to ensure that maintenance activity emissions are low. These measures are outlined in SMAQMD's Basic Construction Emission Control Practices. Consequently, with implementation of **Mitigation Measure AQ-1** the proposed project would fulfill all the SMAQMD-required construction control practices and generate NOX emissions less than the 85 lbs/day threshold. Therefore, the impact would be ***less-than-significant*** with incorporation of mitigation.

QUESTION B

As previously described, the proposed project is a bridge restoration/maintenance project that would not involve extensive ground disturbing activities or result in the construction of additional development that would result in additional permanent or long-term air quality emissions As the proposed project would not result in operational emissions of NOx or ROG above 65 pounds per day, ***no impact*** is expected.

QUESTIONS C, D, AND E

The SMAQMD has developed construction activity screening criteria and cumulative construction significance criteria for PM10 and PM2.5. (SMAQMD CEQA Guide, Chapter 3). If a project would implement all SMAQMD Basic Construction Emission Control Practices (as set forth in Mitigation Measure AQ-1 below) and the maximum daily disturbed area (i.e., grading, excavation, cut and fill) of the project site would not exceed 15 acres (the proposed project involves no ground excavation), then the project does not have the potential to exceed or contribute to the SMAQMD's concentration-based thresholds of significance for PM10 and PM 2.5 at an off-site location. Consequently, with implementation of **Mitigation Measure AQ-1,** the proposed project would fulfill all the SMAQMD's criteria for construction activities to not exceed the concentration-based threshold of significance for PM10 and PM2.5. Finally, the proposed project's maintenance vehicle trips and material deliveries are not anticipated to be so great as to substantially change (i.e., more than 5%) the mix of vehicles at affected intersections along travel routes to the project site. Therefore, the proposed project would meet all of the SMAQMD's CO hotspot second tier screening criteria and would not generate traffic volumes that could cause CO hotspots at local intersections or adversely affect sensitive receptors. Therefore, the impact would be ***less-than-significant*** with incorporation of mitigation.

QUESTIONS F AND G

Implementation of the proposed project would result in the short-term generation of diesel PM emissions from the use of painting equipment and off-road diesel equipment required for moving materials, forklifts, and manlifts for accessing areas of the bridge. Diesel PM has been classified as a TAC by the ARB and therefore even acute exposure could have potential health impacts. Multi-family residences are located along the southeast side of the eastern staging area (roughly 180 feet from the nearest edge of the staging area), which are considered sensitive receptors. Maintenance emissions would occur intermittently during a 24-week work period. Diesel PM emissions would vary depending on the types of activities occurring each day.

The dose to which receptors are exposed is the primary factor used to determine health risk and is a function of both the concentration and duration of receptor exposure. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments that determine the health risks associated with exposure of residential receptors to TAC emissions should be based on a 70-year exposure period and health risk assessments that address the health risk associated with exposure of children to TAC emissions should be based on a 9-year exposure period (OEHHA 2003). TAC exposure to children is of special concern because children typically metabolize more air per unit of body weight in comparison to adults and can be more sensitive to toxics during development. As described above, maintenance activities would occur over a short term period (approximately 24 weeks). Therefore, the total exposure time where some level of maintenance activities and subsequent diesel PM emissions are occurring would be less than the minimum number of years recommended for a health risk assessment and less than 1% of the total exposure time for a typical health risk assessment.

Consequently, because the potential generation of TACs would be temporary and intermittent in nature and the relatively low exposure period in combination with the dispersive properties of diesel PM (Zhu and Hinds 2002), short-term maintenance activities would not result in the exposure of sensitive receptors to TAC concentrations that would exceed 10 in a million cancer risks. However, the proposed project will include applicable SMAQMD Basic Construction Emission Control Practices (including low vehicle speeds, limited equipment idling, etc.) to ensure that maintenance activity emissions are low. Implementation of **Mitigation Measure AQ-1** would fulfill SMAQMD's Basic Construction Mitigation Measures and reduce diesel PM emissions from heavy-duty construction equipment by limiting idling time, limiting construction vehicle speeds, and properly maintaining construction equipment. Therefore, the impact would be ***less-than-significant*** with incorporation of mitigation.

The proposed project also includes the use of painting compounds and other hazardous materials. These potential impacts associated with the use of hazardous materials are described below in "Hazards".

QUESTION H

As previously described above, the proposed bridge restoration/maintenance project does not include the development of additional housing units or result in land uses that would generate additional sources of permanent or long-term greenhouse gas emissions. Consequently, ***no impact*** is expected.

MITIGATION MEASURES

Mitigation Measure AQ-1 Implement Construction-related Emission Control Practices. The project applicant shall implement all SMAQMD basic construction emission control practices and requirements of SMAQMD Rule 403 during bridge maintenance activities, including the following:

- Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads.

- Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered.

- Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited.

- Limit vehicle speeds on unpaved roads to 15 miles per hour (mph).

- All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site.

- Maintain all equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.

FINDINGS

All additional significant environmental effects of the project relating to Air Quality can be mitigated to a less-than-significant level.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
2. BIOLOGICAL RESOURCES Would the proposal: A) Create a potential health hazard, or use, production or disposal of materials that would pose a hazard to plant or animal populations in the area affected		X	
B) Result in substantial degradation of the quality of the environment, reduction of the habitat, reduction of population below self-sustaining levels of threatened or endangered species of plant or animal		X	
C) Affect other species of special concern to agencies or natural resource organizations (such as regulatory waters and wetlands)?		X	

Environmental Setting

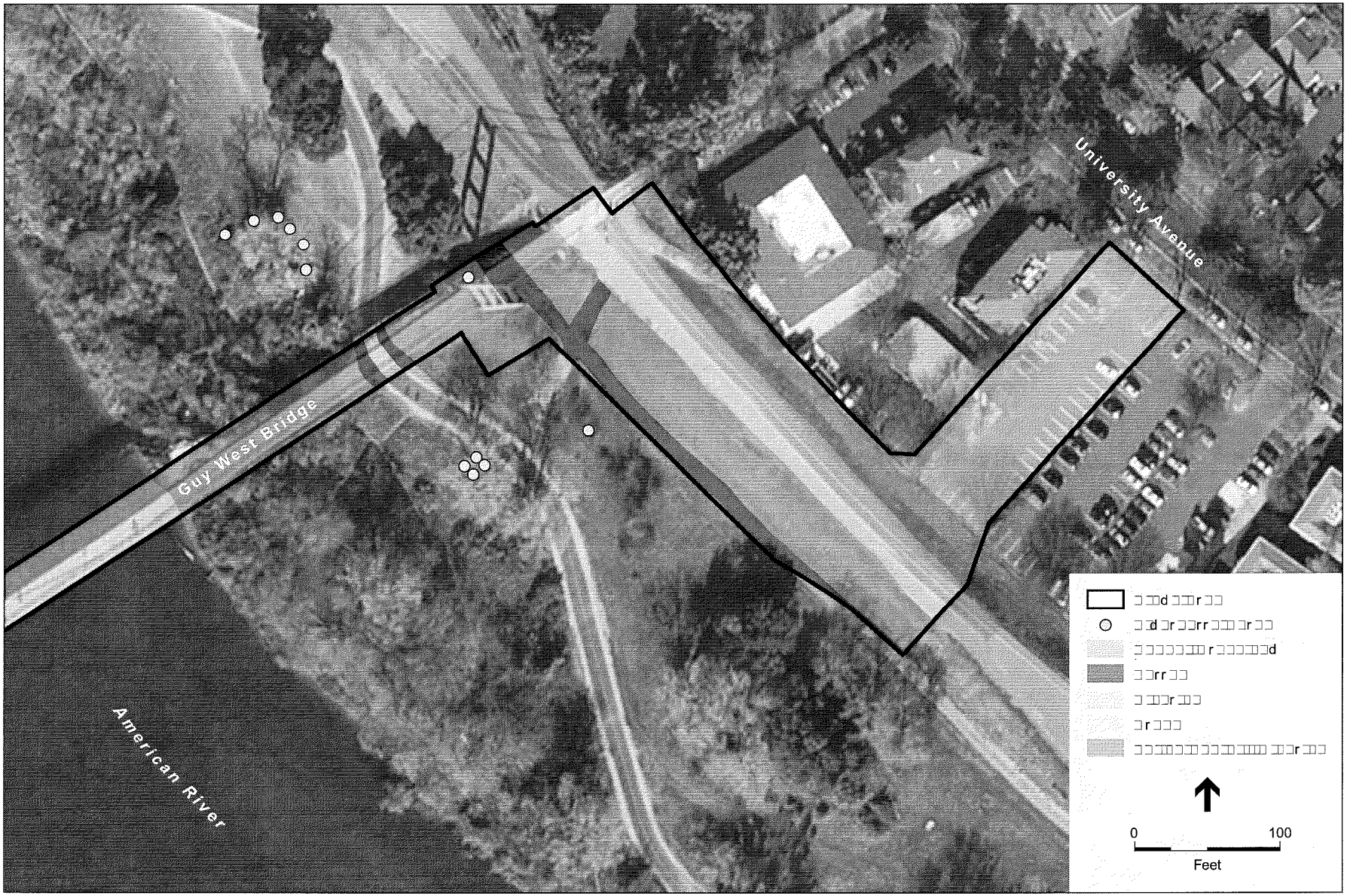
The project site is located in the Sacramento Valley floristic province of the Great Central Valley. Historically, this region supported extensive marshes, riparian woodlands intermixed with oak woodland, vernal pools, and grasslands. Intensive agricultural and urban development has resulted in substantial changes and conversions of these habitats. The project site is located within the American River Parkway, which is a greenbelt that extends from Folsom Dam southwest to the confluence of the American and Sacramento Rivers. The project study area encompasses both sides (eastern and western side) of the Guy West Bridge which spans the American River, access routes along the levees of the American River, and associated staging areas (**Figures 7** and **8**). Habitats present in and adjacent to the study area include annual grassland, Valley foothill riparian, riverine, barren, and urban or developed areas (see also Figures 7 and 8).

The east side of the study area is characterized by open space along the levee consisting of paved and compacted trails and roadways with annual grassland growing along the levee slopes and benches. The Campus Commons (residential complexes) is located east of the levee. Dense riparian habitat occurs along the riverside of the levee; this area is dominated by large cottonwoods (*Populus fremontii*), valley oaks (*Quercus lobata*), and dense shrubs. The west side of the study area is characterized by dense riparian habitat below the levee on the riverside and open space between the CSUS campus and the riparian habitat. Annual grassland, mature cottonwoods, and black locust (*Robinia pseudoacacia*) trees occur in association with paved trails.

Biological Data and Surveys

Biological resources within the study area were identified by ESA biologist LeChi Huynh through field reconnaissance, a review of pertinent literature, and database queries. The primary sources of data referenced for this report included the following:

- Federal Endangered and Threatened Species that may be Affected by Projects in the Sacramento East, California 7.5-Minute Topographic Quadrangles (United States Fish and Wildlife Service [USFWS], 2013a);
- USFWS Critical Habitat for Threatened and Endangered Species (online mapping program) (USFWS, 2013b);



SOURCE: Microsoft, 2012; Quincy Engineering 2013; ESA, 2013

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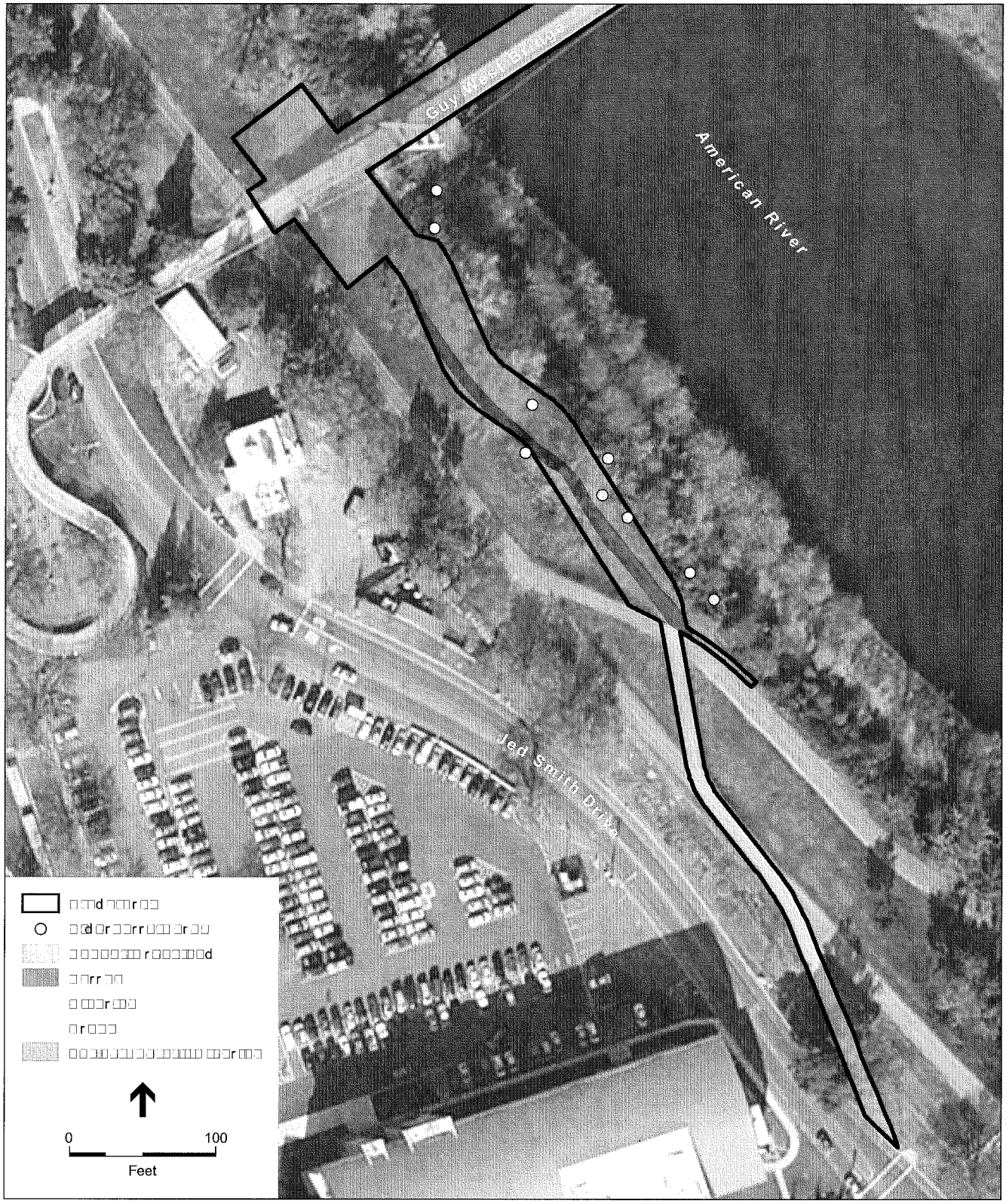
Figure 7

Eastern Side – Habitats within the Project Site



SOURCE: Microsoft, 2012; Quincy Engineering, 2013; ESA, 2013

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Figure 8

Western Side – Habitats within the Project Site

- California Natural Diversity Database (CNDDB), Rarefind 4 computer program (California Department of Fish and Wildlife [CDFW], 2013a);
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS, 2013)
- Special Vascular Plants, Bryophytes, and Lichens List (CDFW, 2013b);
- Special Animals List (CDFW, 2013c); and
- Ecological Subregions of California (Miles and Goudey, 1997).

ESA biologist LeChi Huynh conducted biological surveys of the study area on March 19 and June 4, 2013. The surveys were conducted on foot and existing habitat types, plants, and wildlife species within and adjacent to the study area were recorded. The biological surveys focused on identifying and delineating habitat for special-status plant and wildlife species, although general habitat conditions were noted and incidental species observations were recorded.

Plant Communities and Wildlife Habitats

Plant communities are assemblages of plant species that occur together in the same area. They are defined by species composition and relative abundance. The plant community and wildlife habitat descriptions and nomenclature used in this section generally follows the classification system of A Guide to Wildlife Habitats of California or CWHR (CDFG, 1988). The CWHR habitat classification scheme has been developed to support the CWHR System, a wildlife information system and predictive model for California's regularly occurring birds, mammals, reptiles and amphibians. **Table 2** provides a summary of the habitat acreage within both project sites as shown in Figures 7 (eastern side) and 8 (western side). Additional detail regarding these habitat types is provided in the Biological Resources Technical Report (ESA, 2013).

Table 2. Habitat Types within the Study Area

Habitat Type	Area (acres)
Annual Grassland	0.90
Valley Foothill Riparian	0.34
Riverine*	0.22
Urban	0.76
Barren	0.20
Total	**2.42**

*Wetlands and other waters of the U.S. have not been formally delineated and the jurisdictional status of features has not been verified by the U.S. Army Corps of Engineers.
SOURCE: ESA, 2013

Special-Status Species

Special-status species are legally protected under the State and federal Endangered Species Acts or other regulations or are species that are considered sufficiently rare by the scientific community to qualify for such listing. These species are classified under the following categories:

1. Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 Code of Federal regulations [CFR] 17.12 [listed plants], 17.11 [listed animals] and various notices in the Federal Register [FR] [proposed species]).
2. Species that are candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (61 FR 40, February 28, 1996);

3. Species listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 California Code of Regulations [CCR] 670.5);
4. Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);
5. Species that meet the definitions of rare and endangered under CEQA. CEQA Section 15380 provides that a plant or animal species may be treated as "rare or endangered" even if not on one of the official lists (State CEQA Guidelines, Section 15380); and
6. Plants considered under the CNPS to be "rare, threatened or endangered in California" (Rank 1A, 1B, and 2 in CNPS, 2013) as well as CNPS Rank 3 and 4[a] plant species.

A list of special-status species that have the potential to occur within the vicinity of the project study area was compiled based on data contained in the California Natural Diversity Database (CNDDB) (CDFW, 2013a), the United States Fish and Wildlife (USFWS) list of Federal Endangered and Threatened Species that Occur in or may be Affected by the proposed project (USFWS, 2013a), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS, 2013). Special-status species with a high potential to occur within the study area are described below. A complete list (and description) of all special-status species with potential to occur within the study area is provided in the Biological Resource Technical Report (ESA, 2013).

Special-Status Wildlife

Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle is completely dependent on its host plant, elderberry (*Sambucus sp.*), which is a common component of the riparian forests and adjacent upland habitats of California's Central Valley and foothills (USFWS, 1999a). Females lay eggs within the bark, where larvae hatch and bore into the stems. Larvae remain within the stems for one to two years and emerge as adults in early spring (March). Mating usually occurs in June. Often the only indicators of their presence are the distinctive small oval openings that are left after larvae pupate and emerge (UC Berkeley, 2005). For this reason, suitable habitat for the valley elderberry longhorn beetle is typically defined as live elderberry stems measuring at least one inch in diameter at ground level in habitats below 3,000 feet in elevation. They are generally found along waterways and in floodplains that support remnant stands of riparian vegetation. Elderberry shrubs with valley elderberry longhorn beetle populations occur in a variety of habitats and plant communities, but most often are found in riparian areas.

Suitable elderberry shrubs are present within the project sites in several locations (see Figures 7 and 8) and species occurrences have been recorded in the CNDDB along the American River Parkway within five miles of the project site (CDFW, 2013a). Additionally, critical habitat has been designated for valley elderberry longhorn beetle adjacent to or along the American River four miles northwest and five miles northeast of the project site (USFWS, 2013b).

Cooper's Hawk

Cooper's hawk is a breeding resident raptor species throughout most of the wooded portion of California from sea level to above 9,000 feet. It generally breeds in southern Sierra Nevada foothills,

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[a] List 3 plants may be analyzed under CEQA §15380 if sufficient information is available to assess potential impacts to such plants. Factors such as regional rarity vs. statewide rarity should be considered in determining whether cumulative impacts to a List 4 plant are significant even if individual project impacts are not. CNPS List 3 and 4 may be considered regionally significant if, e.g., the occurrence is located at the periphery of the species' range, or exhibits unusual morphology, or occurs in an unusual habitat/substrate. For these reasons, CNPS List 3 and 4 plants should be included in the special-status species analysis. List 3 and 4 plants are also included in the California Natural Diversity Database's (CNDDB) Special Plants, Bryophytes, and Lichens List. [Refer to the current online published list available at: http://www.dfg.ca.gov/biogeodata.].

New York Mountains, Owens Valley, and other local areas in southern California. The most frequently used habitats include dense stands of live oak, riparian deciduous or other forest habitats near water. Cooper's hawk hunts in broken woodland and habitat edges; thus, the species is seldom found in areas without dense tree stands or patchy woodland habitat. Nests are often found in deciduous riparian trees, but it also nests in second-growth conifer stands near streams (Zeiner et al., 1988).

Suitable habitat for Cooper's hawk is present in the vicinity of the project sites. The nearest CNDDB record of Cooper's hawk is located approximately three miles northwest of the project site (CDFW, 2013a).

Swainson's Hawk

Swainson's hawks were historically found throughout California except in the mountainous regions of the state, including the Central Valley, all of the Coast Ranges south of Marin County, the Tehachapi Range, the Colorado River area, the Mojave Desert, the Great Basin, and the Modoc Plateau. Today, Swainson's hawk occurrences are mainly limited to a few areas of the Central Valley and the Great Basin. Migrating individuals move south through the southern and central interior of California in September and October and north in March through May. Breeding occurs late March to late August, with peak activity late May through July (Zeiner et al., 1988).

The Swainson's hawk preferred habitat is concentrated along permanent waterways with a more or less continuous canopy of trees, with grassland, irrigated pasture, alfalfa or grain fields nearby to forage. Vineyards, orchards, rice and cotton crops are unsuitable foraging habitat for this species. Nests are composed of sticks, bark, and fresh leaves and are placed in tall trees or on utility poles. Swainson's hawks typically nest in open riparian habitat, in scattered trees or small groves in sparsely vegetated flatlands (Zeiner et al., 1988).

Suitable Swainson's hawk nesting and foraging habitat is present in the vicinity of the project site. Additionally, Swainson's hawk nests have been observed within five miles of the project site, primarily to the northwest of the study area. An occurrence was noted approximately one mile east of the project site along the American River Parkway (CDFW, 2013a).

White-tailed Kite

White-tailed kites are a yearlong resident in coastal and valley lowlands of California; they are rarely found away from agricultural areas. The species generally inhabit low-elevation grassland, savannah, oak woodland, wetland, agricultural, and riparian habitats. White-tailed kites forage in undisturbed, open grasslands, meadows, farmlands, and emergent wetlands. Some large shrubs or trees are required for nesting and for communal roosting sites. Nest trees range from small, isolated shrubs and trees to trees in relatively large stands. The breeding season lasts from February to October, with peak from May to August (Zeiner et al., 1988).

Suitable foraging and nesting habitat is present in the vicinity of the project site. Additionally, several white-tailed kite nests have been observed along the American River Parkway ranging from one to four miles away from the project site (CDFW, 2013a).

Central Valley Steelhead

Information on migration and spawning tendencies of Central Valley steelhead is difficult to determine due to the low abundance of spawners and the high flows and turbid waters occurring during winter spawning periods. Central Valley steelhead are reported to begin upstream migration into the American, Feather, Yuba, and Mokelumne rivers in August through October depending upon water temperature, weather conditions, and flow. Peak migration occurs in November through December (CALFED, 2001) with spawning peaks occurring from January through February.

Emergence occurs from January through May. Juvenile steelhead may rear in their natal streams for one to two years prior to emigrating from the river, with emigration of one- to two-year-old fish primarily occurring from April to June.

Adult steelhead migration within the Sacramento and American Rivers begins in November through January, and spawning begins December through April (Hanson, 2002). Fry emergence from the gravel generally occurs in March and may extend through June (Hanson, 2002).

Naturally spawning stocks of Central Valley steelhead are known to occur in the Sacramento River, the American River, and tributaries. Additionally, the American River is designated as critical habitat for steelhead salmon (USFWS, 2013b).

Central Valley Spring-Run Chinook and Sacramento River Winter-Run Chinook

Chinook salmon runs (spring-run and winter-run) are named for the time of season that upstream spawning migration occurs, and are defined by the combined timing of adult migration, the amount of time juveniles reside in a stream, and the time of year the smolts migrate out to sea. Timing of adult upstream migration varies within individual runs depending upon the region (Yoshiyama, 1998). Central Valley spring-run Chinook enter the Sacramento River system from March to July, and spawning occurs from late August through early October (Yoshiyama, 1998). Due to the longer period of time between upstream migration and spawning, spring-run Chinook must hold out in the cold temperatures of mountain headwaters to avoid excessive summertime temperatures of the valley and foothills. Spring-run ascent to mountain elevations can only be accomplished if there are no obstructions within the drainage system preventing passage. Winter-run Chinook generally begin migrating upstream from December through February and hold-over in the river system (Sacramento River) for a couple of months before peak spawning occurs between May and July (Healey, 1998). Temperatures must be suitable for the winter-run to hold over.

Life histories (migration, holding, spawning, rearing, and juvenile emigration) of Chinook salmon varies within the separate runs, but essential habitat requirements including substrate, temperature, dissolved oxygen, stream flow, and water quality are consistent throughout the runs. Chinook salmon require a water temperature from 43 to 56 degrees F to successfully spawn (Boles, 1988). Spawning can occur in habitats ranging from small tributaries to large river beds, and generally requires coarse gravel riffles. Chinook salmon eggs incubate in the gravel for approximately 35 to 50 days, depending on the temperature. The newly emerged fry remain in the gravel until most of the yolk sac is absorbed (CALFED, 2001). Successful rearing of juvenile Chinook requires cool streams/rivers with significant vegetative cover providing shade for protection from predation.

The American River supports a mixed run of hatchery and naturally produced winter-run Chinook salmon and smaller numbers of Central Valley spring-run Chinook salmon. The American River is also designated as critical habitat for Chinook salmon by the USFWS (2013b).

Sensitive Natural Community

A sensitive natural community is a biological community that is regionally rare, provides important habitat opportunities for wildlife, is structurally complex, or is in other ways of special concern to local, State, or federal agencies. CEQA identifies the elimination of such communities as a significant impact. The CDFW tracks sensitive natural communities in the CNDDB. Most sensitive natural communities are given special consideration because they perform important ecological functions, such as maintaining water quality and providing essential habitat for plants and wildlife. Some plant communities support a unique or diverse assemblage of plant species and therefore are considered sensitive from a botanical standpoint. Regionally occurring sensitive natural communities identified by the CNDDB (2013a) that occur within the study area include limited areas of Great Valley Cottonwood Riparian Forest and Great Valley Valley Oak Riparian Forest. Sensitive

natural communities that were identified by the CNDDB (2013a) that are not present within the study area include Elderberry Savanna, Northern Claypan Vernal Pool, Northern Hardpan Vernal Pool, and Northern Volcanic Mud Flow Vernal Pool.

Critical Habitat

Critical habitats are areas considered essential for the conservation of a special-status species listed as endangered or threatened under the federal Endangered Species Act. Critical habitats are specific geographic areas that contain features essential for conservation of special-status species and may require special management and protection. Critical habitat may include an area not currently used by an endangered or threatened species, but that will be needed for species recovery. Projects involving a federal agency or federal funding are required to consult with the USFWS to ensure that project actions will not destroy or adversely modify critical habitat.

A review of GIS-based habitat data for *USFWS Critical Habitat for Threatened and Endangered Species* shows that the study area is currently located within designated critical habitat for Central Valley steelhead, Central Valley spring-run Chinook, and Sacramento River winter-run Chinook (USFWS, 2013b). Additionally, critical habitat for the valley elderberry longhorn beetle is located four miles northeast and five miles northwest of the project site (USFWS, 2013b).

Heritage Trees

Heritage trees promote scenic beauty, enhance property values, reduce soil erosion, improve air quality, abate noise and provide shade to reduce energy consumption. City Code 12.64 provides provisions to protect significant specimen trees existing in the city known as "heritage trees." The City Code defines "heritage trees" as follows:

1. Any tree of any species with a trunk circumference of one hundred (100) inches or more, which is of good quality in terms of health, vigor of growth and conformity to generally accepted horticultural standards of shape and location for its species.
2. Any native *Quercus* species, *Aesculus californica* or *Platanus racemosa*, having a circumference of thirty-six (36) inches or greater when a single trunk, or a cumulative circumference of thirty-six (36) inches or greater when a multi-trunk, which is of good quality in terms of health, vigor of growth and conformity to generally accepted horticultural standards of shape and location for its species.
3. Any tree thirty-six (36) inches in circumference or greater in a riparian zone. The riparian zone is measured from the centerline of the water course to thirty (30) feet beyond the high water line.
4. Any tree, grove of trees or woodland trees designated by resolution of the city council to be of special historical or environmental value or of significant community benefit.

Although a formal arborist survey has not been conducted for the project site, biological surveys indicate that there are several tree species (e.g., Fremont cottonwood, black locust, and oaks) located in riparian habitat within the study area that qualify for designation of "heritage" per the City Code. However, no heritage trees along the riverside of the levee are expected to be removed or significantly impacted as a result of bridge maintenance activities resulting from the proposed project. Heritage trees located along the access path on the west side of the Guy West Bridge will be protected by standard tree protection measures during project implementation. Vegetation trimming may be required for both restoration and maintenance activities; however, all trimming will be conducted by a qualified arborist to minimize the extent of impacts to existing heritage trees. Prior to the trimming of heritage trees on the project site, the contractor will be required to submit a permit to the City's Department of Transportation's Urban Forestry Services (City Code 12.64.050).

Waters of the United States

The Clean Water Act (CWA) regulates the discharge of pollutants into waters of the U.S., including wetlands. Section 404 of the CWA regulates the discharge of dredged and fill material into wetlands and other waters of the U.S. The federal government defines "waters of the United States" in 33 Code of Federal Regulations (CFR) 328.3 as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    A. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    B. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    C. Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as waters of the United States under the definition;
5. Tributaries of the above waters;
6. The territorial seas;
7. Wetlands adjacent to the above waters (other than waters that are themselves wetlands). Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 123.11(m) which also meet the criteria of this definition) are not waters of the United States.
8. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the Environmental Protection Agency (EPA).

The term "wetlands" refers to those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Under normal circumstances, the definition of wetlands requires three wetland identification parameters be present: wetland hydrology, hydric soils, and hydrophytic vegetation. Typical examples of wetlands include freshwater marsh, seasonal wetlands, and vernal pool complexes that have a significant ecological nexus to a traditional navigable waterway.

"Other waters of the U.S." refers to those hydric features that are regulated by the Act but are not wetlands (33 CFR 328.4). To be considered jurisdictional, these features must exhibit a defined bed and bank and an ordinary high water mark. The term "ordinary high water mark" refers to that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider

the characteristics of the surrounding areas. Examples of other waters of the U.S. include rivers, creeks, ponds, and lakes.

On June 5, 2007 the EPA and the U.S. Army Corps of Engineers (ACOE) released guidance on the definitions of jurisdictional waters of the U.S. in response to *Rapanos v. United States* and *Carabell v. United States*. According to this guidance, the ACOE and the EPA will take jurisdiction over the following waters:

1. Traditional navigable waters, which are defined as all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. Wetlands adjacent to traditional navigable waters; including adjacent wetlands that do not have a continuous surface connection to traditional navigable waters;
3. Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months);
4. Wetlands adjacent to non-navigable tributaries as defined above; that have a continuous surface connection to such tributaries (e.g. they are not separated by uplands, a berm, dike, or similar feature).

The EPA and the ACOE decide jurisdiction over the following waters based on a fact-specific analysis to determine if there is a significant nexus, as defined below, to a traditional navigable water:

1. Non-navigable tributaries that are not relatively permanent;
2. Wetlands adjacent to non-navigable tributaries that are not relatively permanent;
3. Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary.

The EPA and the ACOE generally do not assert jurisdiction over the following features:

1. Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow);
2. Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.

The EPA and the ACOE have defined the significant nexus standard as follows:

1. A significant nexus analysis assesses the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters;
2. Significant nexus includes consideration of hydrologic and ecologic factors including:
    A. Volume, duration, and frequency of flow, including consideration of certain physical characteristics of the tributary,
    B. Proximity to the traditional navigable water,
    C. Size of the watershed,
    D. Average annual rainfall,
    E. Average annual winter snow pack,

F. Potential of tributaries to carry pollutants and flood waters to traditional navigable waters,

G. Provision of aquatic habitat that supports a traditional navigable water,

H. Potential of wetlands to trap and filter pollutants or store flood waters, and

I. Maintenance of water quality in traditional navigable waters.

The American River is the only potentially jurisdictional Waters of the U.S. identified during preliminary biological surveys of the project study area. No potential wetlands or other waters of the U.S. were observed directly adjacent to or within construction access ramps, pathways, or staging areas.

Summary of Analysis under the 2030 General Plan Master EIR

Chapter 6.3 of the Master EIR evaluated the effects of the 2030 General Plan on biological resources within the general plan policy area. The Master EIR identified potential impacts in terms of degradation of the quality of the environment or reduction of habitat or population below self-sustaining levels of special-status birds, through the loss of both nesting and foraging habitat.

Policies in the 2030 General Plan were identified as mitigating the effects of development that could occur under the provisions of the 2030 General Plan. Policy 2.1.5 calls for the City to preserve the ecological integrity of creek corridors and other riparian resources; Policy ER 2.1.10 requires the City to consider the potential impact on sensitive plants for each project and to require pre-construction surveys when appropriate; and Policy 2.1.11 requires the City to coordinate its actions with those of the California Department Fish and Game, U.S. Fish and Wildlife Service, and other agencies in the protection of resources.

The Master EIR concluded that the cumulative effects of development that could occur under the 2030 General Plan would be significant and unavoidable as they related to effects on special-status plant species (Impact 6.3-2), reduction of habitat for special-status invertebrates (Impact 6.3-3), loss of habitat for special-status birds (Impact 6.3-4), loss of habitat for special-status amphibians and reptiles (Impact 6.3-5), loss of habitat for special-status mammals (Impact 6.5-6), special-status fish (Impact 6.3-7) and, in general, loss of riparian habitat, wetlands and sensitive natural communities such as elderberry savannah (Impacts 6.3-8 through 6.3-10).

The project shall comply with the General Plan policies outlined above.

Standards of Significance

For purposes of this environmental document, an impact would be significant if any of the following conditions or potential thereof, would result with implementation of the proposed project:

- Creation of a potential health hazard, or use, production or disposal of materials that would pose a hazard to plant or animal populations in the area affected;
- Substantial degradation of the quality of the environment, reduction of the habitat, reduction of population below self-sustaining levels of threatened or endangered species of plant or animal; or
- Affect other species of special concern to agencies or natural resource organizations (such as regulatory waters and wetlands).

For the purposes of this document, "special-status" has been defined to include those species, which are:

- Listed as endangered or threatened under the federal Endangered Species Act (or formally proposed for, or candidates for, listing);
- Listed as endangered or threatened under the California Endangered Species Act (or proposed for listing);
- Designated as endangered or rare, pursuant to California Fish and Game Code (Section 1901);
- Designated as fully protected, pursuant to California Fish and Game Code (Section 3511, 4700, or 5050);
- Designated as species of concern by U.S. Fish and Wildlife Service (USFWS), or as species of special concern to California Department of Fish and Wildlife (CDFW);
- Plants or animals that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA).

Answers to Checklist Questions

Question A

Habitats and special-status species that may be affected either directly or indirectly through implementation of the proposed bridge restoration/maintenance project include valley elderberry longhorn beetle, Cooper's hawk, Swainson's hawk, white-tailed kite, Central Valley steelhead, Central Valley spring-run Chinook, and Sacramento River winter-run Chinook. Each of these potentially affected species is described below.

Valley Elderberry Longhorn Beetle: Project-related activities which could affect the Valley Elderberry Longhorn Beetle include vegetation removal and trimming within the project sites along with a variety of indirect impacts (vehicle dust, etc.). At least two shrubs will be removed as a result of the proposed project. One shrub will be removed due to its proximity to the construction access pathway (western project site), while the other requires removal as it is growing into the bridge tower (eastern project site), and would otherwise interfere with restoration/maintenance activities. At least nine (9) elderberry shrubs occur within the project impact area or within 20 feet of bridge restoration/maintenance activities, and one shrub occurs within 100 feet of the project impact footprint (see Figures 7 and 8). Implementation of avoidance measures consistent with **Mitigation Measures BR-1 and BR-2** would minimize or avoid potential impacts to elderberry shrubs and valley elderberry longhorn beetle. Therefore, the impact would be ***less-than-significant*** with incorporation of mitigation.

Raptors and Migratory Birds: Most bird species, especially those that are breeding, migrating, or of limited distribution, are protected under federal and state regulations. Under the Migratory Bird Treaty Act (MBTA), migratory bird species and their nests and eggs are protected from injury or death. Project related disturbances must be reduced or eliminated during the nesting cycle. California Fish and Game Code Subsections 3503, 3503.5, and 3800 prohibit the possession, incidental take, or needless destruction of birds, their nests, and eggs. California Fish and Game Code Section 3511 lists birds that are "fully protected" (those species that may not be taken or possessed except under specific permit).

Birds that may forage in the vicinity of the project study area include Cooper's hawk, tricolored blackbird, great egret, great blue heron, burrowing owl, Swainson's hawk, white-tailed kite, merlin, double-crested cormorant, purple martin and bank swallow. Suitable nest trees occur along the American River and the species with the greatest potential for nesting in the vicinity of the proposed project include Cooper's hawk, Swainson's hawk, and white-tailed kite. Implementation of pre-construction surveys consistent with **Mitigation Measure BR-3** will mitigate potential impacts to

species protected by the MBTA and other raptors (including Swainson's hawk). Therefore, the impact would be ***less-than-significant*** with incorporation of mitigation.

Special-Status Fish: The American River is considered critical habitat and essential fish habitat for the Central Valley steelhead, Central Valley spring-run Chinook, and Sacramento River winter-run Chinook. Restoration activities associated with the bridge and the use of construction access routes and staging areas do not include in-water work or would involve ground disturbing activities (i.e., generate erosion, etc.) that would directly impact fish species within the American River. Although no in-water work is proposed, there is potential for fugitive dust and construction runoff to enter the American River. As more fully described in sections Air Quality and Hydrology and Water Quality, a variety of water quality, sediment/erosion control, and dust abatement measures are proposed as part of **Mitigation Measure AQ-1 "Implement Construction-related Emission Control Practices"** and **Mitigation Measure HWQ-1 "Implement Water Quality Best Management Practices"** that would also serve to minimize impacts to fish species and the water quality of the American River. Therefore, the impact would be ***less-than-significant*** with incorporation of mitigation.

Question B

Several heritage trees (as defined by the City of Sacramento) are located along the riverside of the levees, including cottonwood, black locust, and oaks. The bridge maintenance activities will not require the removal of heritage trees along the riverside of the levee. However, the proposed project will likely include some removal or branch trimming of heritage trees to provide clearance for maintenance activities directly adjacent to the bridge. Compliance with avoidance measure as outlined under City Code (Section 12.64.040) specific to heritage trees will ensure that this impact remains ***less-than significant***.

As required by Section 12.64.040 of the City Code, a permit will be submitted by the contractor to the Director of the Department of Public Works or the Director's authorized representative for trimming of heritage trees in the City right of way. All trimming will be conducted by a qualified arborist to minimize structural damage to the trees and reduce potential for long-term health impacts. Retained heritage trees adjacent to construction activities may require additional protection. Where feasible, buffer zones should include a minimum one-foot-wide buffer zone outside the dripline for oaks and heritage trees. The locations of these resources would be clearly identified on the construction drawings and marked in the field. Fencing or other barriers would remain in place until all construction and restoration work that involves heavy equipment is complete. Construction vehicles, equipment, or materials would not be parked or stored within the fenced area. No signs, ropes, cables, or other items would be attached to the protected trees. Grading, filling, trenching, paving, irrigation, and landscaping within the driplines of oak trees and heritage trees should be limited. Grading within the driplines of oak and heritage trees is not permitted unless specifically authorized by a Certified Arborist or the Director of the Department of Public Works or the Director's authorized representative.

Question C

Aside from the American River, there are no other waters of the U.S. located within or directly adjacent to the project site. As more fully described in sections Air Quality and Hydrology and Water Quality, a variety of water quality, sediment/erosion control, and dust abatement measures are proposed as part of **Mitigation Measure AQ-1 "Implement Construction-related Emission Control Practices"** and **Mitigation Measure HWQ-1 "Implement Water Quality Best Management Practices"** that would also serve to minimize impacts to fish species and the water quality of the American River. Therefore, the impact would be ***less-than-significant*** with incorporation of mitigation.

Mitigation Measures

Mitigation Measure BR-1 Coordination with USFWS. Based on field surveys conducted at the project sites, at least nine (9) elderberry shrubs occur within 20 feet of the project impact area, and would require formal consultation under Section 7 of the Endangered Species Act with the USFWS. The City shall coordinate with the USFWS to determine an appropriate avoidance plan for all elderberry shrubs located within 20 feet of the construction disturbance zone.

Mitigation Measure BR-2 Implement Avoidance Measures for Valley Elderberry Shrubs. The construction contractor shall maintain a setback of 100 feet from all elderberry shrubs to avoid impacts to valley elderberry longhorn beetle. If the 100 foot setback is not feasible, the construction contractor shall implement a number of avoidance measures (in consultation and approval by the City and the USFWS). Such measures may include installing fencing around the shrubs, providing construction worker awareness training, transplanting of shrubs, and requiring biological monitoring during construction. The 1999 *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS, 1999) provides applicable avoidance and minimization measures. No construction shall occur within 100 feet of all elderberry shrubs identified onsite until final approvals are received from the USFWS (Biological Opinion or concurrence letter). Upon City and USFWS approvals, the construction contractor shall create a 20-foot buffer around each potentially affected shrub. Work crews shall be briefed on the status of the beetle, the need to protect its host plant (elderberries), requirements to avoid damaging elderberry shrubs, and possible penalties for not complying with identified avoidance and minimization measures. In addition, construction workers should be made aware of the habitat needs of VELB and the location of protection areas on the site.

Mitigation Measure BR-3 Conduct Pre-Construction Nesting Surveys. For construction activities expected to occur during the nesting season (February-August), a pre-construction survey shall be conducted to determine if active nests are present on or within 500 feet of the project site. The survey should be conducted by a qualified biologist no more than 30 days prior to the onset of construction. If active nests are found on or within 500 feet of the project site during pre-construction surveys, then CDFW should be consulted for additional mitigation measures that may be required. Typically CDFW will recommend that no construction activities occur within 500 feet of the nests, until the young have fledged or until the biologist determines that the nest is no longer active. Additionally, depending on the conditions specific to each nest, and the relative location and rate of construction activities, it may be feasible for construction to occur as planned within the buffer without impacting the breeding effort. In this case (to be determined on an individual basis by a qualified biologist in consultation with CDFW), the nest(s) shall be monitored by a qualified biologist during construction within the buffer. Construction activities may be halted at any time if, in the professional opinion of the biological monitor, construction activities are negatively impacting the breeding effort. Implementation of the pre-construction surveys should also be consistent with the protocol standards devised by the Swainson's Hawk Technical Advisory Committee (TAC) and endorsed by the CDFW (Swainson's Hawk TAC, 2000).

If no active nests are identified during the pre-construction survey, no further mitigation is necessary. If construction activities are proposed to occur during the non-breeding season (September-January), a pre-construction survey is not required and no further studies are necessary.

Findings

All additional significant environmental effects of the project relating to Biological Resources can be mitigated to a less-than-significant level.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
3. CULTURAL RESOURCES Would the project: A) Cause a substantial adverse change in the significance of a historical or archaeological resource as defined in § 15064.5?			X
B) Directly or indirectly destroy a unique paleontological resource?			X

Environmental Setting

The project site consists of the 1966 Guy West Bridge and adjacent access roads and staging areas on the east and west sides of the American River. The Cultural Resources Technical Report completed by ESA for the proposed project includes additional information regarding the historic context of the Guy West Bridge, Sacramento State University, and the Campus Commons neighborhood, as well as a detailed evaluation of the Guy West Bridge under local, state, and federal register criteria (ESA, 2013).

As part of the analysis conducted for the technical report, ESA completed archival review of records maintained at the North Central Information Center (NCIC), a pedestrian field survey in January and March of 2013, and contact with the Native American Heritage Commission (NAHC) as well as interested Native American tribes and individuals.

The NCIC records search conducted on January 22, 2013 (File No. SAC-13-08) indicated that fourteen cultural resource studies had been previously conducted within the ½-mile records search study radius. Additionally, the records search identified four cultural resources previously recorded within the records search radius, including two mid-twentieth century historic period levees in the project area itself (P-34-508 [CA-SAC-481H], and P-34-509 [CA-SAC-482H]). Previous evaluations had determined the levee segments ineligible for listing in the National or California Registers due to a lack of physical integrity resulting from extensive alterations and maintenance. No prehistoric period resources were identified during the archival review.

The field surveys in January and March 2013 identified the two levee segments, as well as the 1966 Guy West Bridge, which was recorded and evaluated for listing in the National, California, and Sacramento Registers. No additional historic or prehistoric period resources were identified during the field survey.

The evaluation of the Guy West Bridge recommended it as eligible for listing (consistent with established Criterion) in the Sacramento Register and California Register (at the local level), due to its associations with the development of Sacramento State University and the surrounding community (Criterion A/a), associations with the life and work of University President Guy West (Criterion B/b), and its high artistic value as a community landmark structure (Criterion C/e). As such, the Guy West Bridge is considered a historic resource at the state and local level, and is considered a resource for CEQA purposes.

The NAHC was contacted on February 1, 2013 to request a database search for sacred lands or other cultural properties of significance within or adjacent to the project area. A response was received on March 18, 2013. The sacred lands survey did not identify the presence of cultural

resources in the project area. The NAHC provided a list of Native American contacts that might have further knowledge of the project area with respect to cultural resources. Each person or organization identified by the NAHC was contacted by letter on March 19, 2013. On April 8, 2013, the United Auburn Indian Community of the Auburn Rancheria responded, noting concern regarding development within their aboriginal territory, and noted the presence of identified cultural resources within and in close proximity to the project area. Archaeologist Scott Baxter contacted the UAIC on April 25, 2013, detailing the results of the records search and survey, and stating that the project description involved no ground disturbing activities. The Shingle Springs Rancheria responded via letter on April 9, 2013, stating that they were unaware of any known cultural resources on the site, but would like to remain updated as the project progressed. To date, no additional responses have been received.

Standards of Significance

For purposes of this Initial Study, cultural resource impacts may be considered significant if implementation of the proposed project would result in one or more of the following:

- Cause a substantial change in the significance of a historical or archaeological resource as defined in CEQA Guidelines Section 15064.5 or

- Directly or indirectly destroy a unique paleontological resource.

Summary of Analysis Under the 2030 General Plan Master EIR

The Master EIR evaluated the potential effects of development under the 2030 General Plan on prehistoric and historic resources. See Chapter 6.4. The Master EIR identified significant and unavoidable effects on historic resources and archaeological resources.

General plan policies identified as reducing such effects call for identification of resources on project sites (Policy HCR 2.1.1), implementation of applicable laws and regulations (Policy HCR 2.1.2 and HCR 2.1.15), early consultation with owners and land developers to minimize effects (Policy HCR 2.1.10) and encouragement of maintenance and upkeep of historic resources (Policy HCR 2.1.7), especially City-owned resources (Policy HCR 2.1.9).

The project shall comply with the General Plan policies outlined above.

Answers to Checklist Questions

Question A

As described above, no prehistoric or historic period archaeological resources were identified during archival review or field survey. Additionally, the proposed project does not include any proposed earth moving or ground disturbing activities that would inadvertently disturb currently undiscovered archaeological resources. Therefore, no impacts to archaeological resources are anticipated through construction of the proposed project.

The archival review and field survey did, however, identify the 1966 Guy West Bridge as eligible for listing in the Sacramento Register and California Register at the local level, and would therefore be considered a historic resource at the state and local level, and a resource for CEQA purposes. The proposed project includes repair and restoration of the Guy West Bridge, including removal of existing lead-based paint, and repainting of the Guy West Bridge in its original "international orange" color. The decision to repaint the Guy West Bridge "international orange" will comply with the Secretary of Interior Standards (SOI) Guidelines for Rehabilitation (replacement in-kind**).** The new paint will preserve the distinctive original aesthetic of the Guy West Bridge, and will not result in a

significant impact to the bridge. For historic resources, CEQA Guidelines Section 15064.5 (b) (3) indicates that a project that follows the *U.S. Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings*, or the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995)*, shall mitigate impacts to a less than significant level. Consequently ***no impacts*** to the bridge as a historic resource are anticipated as a result of the proposed project.

Question B

As discussed in Section 6.5, Geology, of the General Plan Master EIR, the City of Sacramento is not considered sensitive to paleontological resources and the likelihood for finding a significant paleontological resource is considered low (page 6.5-25). As described under impacts to archaeological resources, the proposed project does not include any proposed ground disturbing activities with the potential to disturb currently undiscovered subsurface resources, and subsequently ***no impacts*** to paleontological resources are anticipated through implementation of the proposed project.

Mitigation Measures

None Required.

Findings

The project would have no additional project-specific environmental effects relating to Cultural Resources.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
4.GEOLOGY AND SOILS Would the project allow a project to be built that will either introduce geologic or seismic hazards by allowing the construction of the project on such a site without protection against those hazards?			X

Environmental Setting

The lower American River area is part of the Great Valley Geomorphic province of California, and consists of low rolling foothills and flood plain areas near the confluence with the Sacramento River. The floor of the Sacramento Valley is generally flat and open with little natural relief, and the broad valley is filled with erosion debris that originates from the surrounding mountains. Flood control levees provide the only significant topographic relief in or near the project site.

Geologic formations underlying the Sacramento Valley include igneous, metamorphic, and sedimentary rock types, which range in age from pre-cretaceous to recent. The valley is situated on vast alluvial deposits that have slowly accumulated over the last 100 million years. The materials have been derived from the surrounding uplands; transported by major streams; and deposited in successive clay, silt, sand, and gravel layers on the valley floor. Soils in the area are predominately recent alluvial flood plain soils consisting of unconsolidated deposits of clay, silt, and sand. Sedimentation rates in the American River Basin are relatively low due to limited development, shallow soils, a low rate of upstream erosion, and numerous containment basins.

Summary of Analysis under the 2030 General Plan Master EIR

Chapter 6.5 of the Master EIR evaluated the potential effects related to seismic hazards, underlying soil characteristics, slope stability, erosion, existing mineral resources and paleontological resources in the general plan policy area. Goals include the protection of water quality (Goal ER 1.1) through implementation of practices designed to minimize construction site impacts (ER 1.1.7). Implementation of identified policies in the 2030 General Plan reduced all effects to a less-than-significant level.

Standards of Significance

For purposes of this Initial Study, geology and soils impacts may be considered significant if implementation of the proposed project would result in one or more of the following:

- Allow a project to be built that will either introduce geologic or seismic hazards by allowing the construction of the project on such a site without protection against those hazards.

Answers to Checklist Questions

Question A

Implementation of the proposed project would not include ground disturbance activities or involve the construction of new structures or facilities. Consequently, the proposed project would not involve any activities that would result in new geologic/seismic hazards or increase the severity of an existing geologic/seismic hazard. The proposed project includes a variety of Best Management

Practices (BMPs) (see Hydrology and Water Quality, below) to reduce water quality impacts that may result from project-related erosion effects. These BMPs include a range of erosion control measures, sediment retention measures, and erosion protection practices. Consequently, no impact would result.

Mitigation Measures

None Required.

Findings

The project would have no additional project-specific environmental effects relating to Geology and Soils.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
5. HAZARDS Would the project: A) Expose people (e.g., residents, pedestrians, construction workers) to existing contaminated soil during construction activities?			X
B) Expose people (e.g., residents, pedestrians, construction workers) to asbestos-containing materials or other hazardous materials?			X
C) Expose people (e.g., residents, pedestrians, construction workers) to existing contaminated groundwater during dewatering activities?			X

Environmental Setting

The proposed project site is located within and adjacent to the American River Parkway, with a majority of the project area not associated with hazardous/toxic wastes, materials, or uses.

Standards of Significance

For the purposes of this Initial Study, hazard impacts may be considered significant if implementation of the proposed project would result in one or more of the following:

- Expose people (e.g., residents, pedestrians, construction workers) to existing contaminated soil during construction activities;
- Expose people (e.g., residents, pedestrians, construction workers) to asbestos-containing materials or other hazardous materials; or
- Expose people (e.g., residents, pedestrians, construction workers) to existing contaminated groundwater during dewatering activities.

Summary of Analysis under the 2030 General Plan Master EIR

The Master EIR evaluated effects of development on hazardous materials, emergency response and aircraft crash hazards. See Chapter 6.6. Implementation of the General Plan may result in the exposure of people to hazards and hazardous materials during construction activities, and exposure of people to hazards and hazardous materials during the life of the General Plan. Impacts identified related to construction activities and operations were found to be less than significant. Policies included in the 2030 General Plan, including PHS 3.1.1 (investigation of sites for contamination) and PHS 3.1.2 (preparation of hazardous materials actions plans when appropriate) were effective in reducing the identified impacts.

The project shall comply with the General Plan policies outlined above.

Answers to Checklist Questions

Question A

Implementation of the proposed project would occur primarily within the American River Parkway. Additionally, maintenance-related activities would not result in large-scale ground disturbing or earth moving activities. As the proposed project would involve maintenance activities focused on the existing bridge structure, ***no impact*** is associated with the potential to expose people (e.g., residents, pedestrians, construction workers) to existing contaminated soil during implementation of the proposed project.

Question B

Implementation of the proposed project would not include ground disturbance or building demolition activities that would expose people (e.g., residents, pedestrians, construction workers) to asbestos-containing materials or other hazardous materials. However, as described above under the project description, the exterior paint of the Guy West Bridge is currently comprised of a red lead-type primer that typically contains greater than 40% lead with a topcoat that also contains other heavy metals. Removal of the current paint has the potential to expose workers and the environment to stray lead slivers. To address this concern, restoration activities will include the use of specialized paint equipment that will remove the existing paint coat. Specialized equipment (see Required Equipment and Workers section on page 15) includes a paint blaster/recycling machine, dust collector, and air compressors. The recycling machine stores, sorts and transports inbound and outbound blasting material streams, while the dust collector filters and controls atmosphere within the paint containment tent. Use of this equipment will ensure that no lead slivers from the removed paint will be introduced into the environment.

While typical maintenance activities (including paint application and recycling, etc.) will include the use of a variety of hazardous materials, the construction contractor is obligated to store and handle these materials (and associated wastes) in compliance with all Federal, State, and local regulations, as well as in adherence to Occupational Safety and Health (OSHA) worker safety standards, which includes worker training related to onsite personal safety, hazardous materials storage and handling procedures (including container labeling, completion of material safety data sheets, employee training, and emergency response procedures. Additionally, the construction contractor would be responsible for developing and implementing a Storm Water Pollution Prevention Plan (SWPPP) (see Hydrology and Water Quality, below). Consequently, ***no impact*** would result.

Question C

Implementation of the proposed project would not involve any ground disturbing, earth moving, or dewatering activities. As the proposed project would involve maintenance activities focused on the existing bridge structure, ***no impact*** is associated with the potential to expose people (e.g., residents, pedestrians, construction workers) to existing contaminated groundwater through implementation of the proposed project.

Mitigation Measures

None Required.

Findings

The project would have no additional project-specific environmental effects relating to Hazards.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
6. HYDROLOGY AND WATER QUALITY Would the project: A) Substantially degrade water quality and violate any water quality objectives set by the State Water Resources Control Board, due to increases in sediments and other contaminants generated by construction and/or development of the project?		X	
B) Substantially increase the exposure of people and/or property to the risk of injury and damage in the event of a 100-year flood?			X

Environmental Setting

The proposed project site is located within and adjacent to the American River Parkway. The American River is a major waterway within the region and its flow is influenced by several factors including upstream dams, spring snow melt, and upstream tributaries. Local water quality conditions of the American River are affected by storm water runoff, water diversion, and surrounding land uses.

Standards of Significance

For the purposes of this Initial Study, hydrology and water quality impacts may be considered significant if implementation of the proposed project would result in one or more of the following:

- Substantially degrade water quality and violate any water quality objectives set by the State Water Resources Control Board, due to increases in sediments and other contaminants generated by project-related maintenance activities or

- Substantially increase the exposure of people and/or property to the risk of injury and damage in the event of a 100-year flood.

Summary of Analysis under the 2030 General Plan Master EIR

The Master EIR Chapter 6.7, "Hydrology and Water Quality," of the Master EIR evaluates the potential effects of development that could occur under the 2030 General Plan related to potential water quality degradation due to construction activities (Impacts 6.7-1 and 6.7-2) and exposure of people to flood risks (Impacts 6.7-3 and 6.7-4). Policies included in the 2030 General Plan were identified to reduced impacts related to hydrology and water quality to a less-than-significant level.

Policies ER 1.1.3 through ER 1.1.8 requires measures to reduce post-construction increases in runoff rates, maintains agreements for selected on-site stormwater quality facilities through the development permit process, reduces use of chemicals applied for landscape use, provides recycling programs and facilities to prevent unauthorized dumping, and provides watershed education to City staff.

The project shall comply with the General Plan policies outlined above.

Answers to Checklist Questions

Question A

The proposed project would occur primarily within the American River Parkway. However, restoration/maintenance-related activities would not result in large-scale ground disturbing or earth moving activities. Additionally, no in-water maintenance activities are proposed that would directly affect water quality or aquatic life. While a variety of project design measures (including, use of a wash water containment system; limiting the size and location of project staging areas away from the river channel; and the use of specialized equipment, including paint blaster/recycling machine, dust collector, and air compressors, that will prevent the release of hazardous materials into the river below) and compliance with federal, state, and local regulations regarding the storage, handling, use, and disposal of hazardous materials will significantly minimize these impacts, inadvertent spills of oil or fuels from maintenance equipment could be a source of contamination to the river parkway. However, with implementation of **Mitigation Measure HWQ-1**, the proposed project would ensure that no project-related water quality impacts would occur. Therefore, the impact would be ***less-than-significant*** with incorporation of mitigation.

Question B

Implementation of the proposed project would occur within the American River Parkway, which is also designated by the Federal Emergency Management Agency as a flood zone. However, the proposed bridge maintenance project will not affect the structural integrity of the surrounding levee nor will it result in additional development or exposure of people to additional flood risk resulting in injury or property damage. Consequently, **no impact** would result.

Mitigation Measures

Mitigation Measure HWQ-1 Implement Water Quality Best Management Practices. The project contractor would be required to obtain a National Pollution Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board (RWQCB), Central Valley Region. As part of the permit, the contractor would be required to prepare and implement a SWPPP into their construction plans, prior to initiating construction activities, identifying BMPs to be used to avoid or minimize any adverse effects before, during, and after construction to surface waters. The following BMPs will be incorporated into the project as part of the construction specifications:

- Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on applicable access roads, construction areas, and stockpiles.
- Properly dispose of oil or other liquids.
- Fuel and maintain vehicles in a specified area that is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water.
- Fuels and hazardous materials would not be stored on site.
- Inspect and maintain vehicles and equipment to prevent the dripping of oil or other fluids.
- Schedule construction to avoid the rainy season as much as possible. Ground disturbance activities are expected to begin in the spring/summer of 2014. If rains are forecasted during construction, additional erosion and sedimentation control measures would be implemented.

- Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.
- Train construction workers in storm water pollution prevention practices.
- Revegetate disturbed areas in a timely manner to control erosion.

Findings

All additional significant environmental effects of the project relating to Hydrology and Water Quality can be mitigated to a less-than-significant level.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
7. LIGHT AND GLARE Would the proposal: A) Create a source of glare that would cause a public hazard or annoyance?			X
B) Create a new source of light that would be cast onto oncoming traffic or residential uses?			X

Environmental Setting

The project site and area surrounding the Guy West Bridge possesses high visual sensitivity due to its open space character (experiencing a high degree of visual quality) and the areas use by a large number of sensitive viewers. Surrounding areas include residential development, businesses, levees, the American River Parkway Trail, American River access points and parking lots, bridges, and Sacramento State University. While the surrounding land uses include a variety of light and glare sources (glass windows, outdoor lighting, etc.) typical of a developed environment, the American River Parkway is relative free of similar light and glare sources.

Summary of Analysis under the 2030 General Plan Master EIR

The Master EIR described the existing visual conditions in the general plan policy area, and the potential changes to those conditions that could result from development consistent with the 2030 General Plan. See Master EIR, Chapter 6.13, Urban Design and Visual Resources.

The Master EIR identified potential impacts for glare (Impact 6.13-1). Mitigation Measure 6.13-1, set forth below, was identified to reduce the effect to a less-than-significant level.

Light cast onto oncoming traffic or residential uses was identified as a potential impact (Impact 6.13-2). The Master EIR identified Policy LU 6.1.14 (Compatibility with Adjoining Uses) and its requirement that lighting must be shielded and directed downward as reducing the potential effect to a less-than-significant level.

Standards of Significance

For purposes of this Initial Study, light and glare impacts may be considered significant if implementation of the proposed project would result in one or more of the following:

- Create glare in such a way as to cause public hazard or annoyance for a sustained period of time or
- Create a new source of light that would be cast onto oncoming traffic or residential uses.

Answers to Checklist Questions

Questions A and B

The Guy West Bridge currently includes a lighting system integrated into the handrail. The proposed bridge maintenance project would not enhance the existing lighting system or add additional sources of light or glare as part of bridge maintenance/restoration activities. Painting of the existing

structure would use similar materials and color schemes (International Orange) as those currently associated with the bridge structure. Under the proposed project, restoration/maintenance activities would be limited to daylight hours, resulting in no temporary light impacts. Guy West Bridge will remain consistent with the existing lighting of surrounding development and would not adversely affect day or nighttime views. *No impacts* to light and glare would result under the proposed project.

Mitigation Measures

None Required.

Findings

The project would have no additional project-specific environmental effects relating to Light and Glare.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
8. NOISE Would the project: A) Result in exterior noise levels in the project area that are above the upper value of the normally acceptable category for various land uses due to the project's noise level increases?			X
B) Result in residential interior noise levels of 45 dBA L_{dn} or greater caused by noise level increases due to the project?			X
C) Result in construction noise levels that exceed the standards in the City of Sacramento Noise Ordinance?			X
D) Permit existing and/or planned residential and commercial areas to be exposed to vibration-peak-particle velocities greater than 0.5 inches per second due to project construction?			X
E) Permit adjacent residential and commercial areas to be exposed to vibration peak particle velocities greater than 0.5 inches per second due to highway traffic and rail operations?			X
F) Permit historic buildings and archaeological sites to be exposed to vibration-peak-particle velocities greater than 0.2 inches per second due to project construction and highway traffic?			X

Environmental Setting

Noise is defined as unwanted sound that evokes a subjective reaction to the physical characteristics of a physical phenomenon. Ambient noise in the project area is generated primarily by traffic along adjacent surface streets and by land uses adjacent to the project site (i.e., CSUS, businesses, and residential land uses). A limited amount of noise is generated by a variety of recreational uses along the American River and the American River Parkway. Existing noise levels in the project area are in the range of 60 to 70 decibels (dB) day-night sound level (Ldn), with ambient noise generated by surrounding land uses and traffic on adjacent streets (i.e., J Street and University Avenue) (U.S. Army Corps of Engineers, 2013).

The City of Sacramento has established policies and regulations concerning the generation and control of noise that could adversely affect their citizens and noise-sensitive land uses. The Noise Element of the City's General Plan contains planning guidelines relating to noise. The Sacramento Municipal Code, Title 8 (Health and Safety) establishes the Noise Ordinance for the City.

Although bridge maintenance equipment may cause a noticeable increase in ambient noise levels near the project site and construction staging areas, all project-related noise increases are considered to be temporary and short-term in nature. Project-related noise would fluctuate, depending on maintenance/restoration activity, equipment type, and duration of use, distance

between noise source and receptor, and presence or absence of barriers between noise source and receptor. The nearest residences to the project site are located approximately 120 feet from the project site and traffic access routes (see Figures 3 and 6) on the eastern side of the project site. A variety of commercial (mostly office-related) uses are also located adjacent to the project site. Trees, shrubbery, and the levee would provide for some attenuation of the noise.

On the western side, classrooms in Sequoia Hall and Riverside Hall on the Sacramento State University campus would be within approximately 300 and 375 feet of construction activities, respectively. However, as shown in Figure 4 (above), the staging area is proposed for an area within the Parkway near the bridge tower. Classrooms on the Sacramento State University campus would be buffered by a variety of features including trees and the western levee.

Summary of Analysis Under the 2030 General Plan Master EIR

The Master EIR evaluated the potential for development under the 2030 General Plan to increase noise levels in the community. New noise sources include vehicular traffic, aircraft, railways, light rail and stationary sources. Traffic increases associated with implementation of the General Plan were modeled, including roadways affected by project traffic, with maps depicting both existing and future forecast noise levels. Stationary source noise impacts were also addressed in the Master EIR, along with vibration-related effects on both people and structures.

The General Plan policies establish exterior (Policy EC 3.1.1) and interior (EC 3.1.3) noise standards. A variety of policies provide standards for the types of development envisioned in the general plan. See Policy EC 3.1.8, which requires new mixed-use, commercial and industrial development to mitigate the effects of noise from operations on adjoining sensitive land use, and Policy 3.1.9, which calls for the City to limit hours of operations for parks and active recreation areas to minimize disturbance to nearby residences. Notwithstanding application of the general plan policies, noise impacts for exterior noise levels (Impact 6.8-1) and interior noise levels (Impact 6.8-2), and vibration impacts (Impact 6.8-4) attributable to implementation of the City's General Plan were found to be significant and unavoidable.

The project shall comply with the General Plan policies outlined above.

Standards of Significance

For purposes of this Initial Study, noise and vibration impacts may be considered significant if implementation of the proposed project would result in one or more of the following:

- Exceedance of the City's standards for incremental noise impacts, as provided in General Plan Table EC 2;
- Residential interior noise levels of 45 dBA Ldn or greater caused by noise level increases due to the project;
- Construction noise levels that exceed the standards in the City of Sacramento Noise Ordinance;
- Existing and/or planned residential and commercial areas to be exposed to vibration peak-particle velocities greater than 0.5 inches per second due to project construction;
- Adjacent residential and commercial areas to be exposed to vibration peak particle velocities greater than 0.5 inches per second due to highway traffic and rail operations; or
- Historic buildings and archaeological sites to be exposed to vibration-peak-particle velocities greater than 0.2 inches per second due to project construction and highway traffic.

Answers to Checklist Questions

Questions A Through C

Activities associated with the proposed project would generate temporary restoration-related noise primarily through the use of paint removal/application equipment and daily vehicle trips from construction employees (10 to 20 average daily vehicle trips) and deliveries. Activities (and noise levels) such as pile driving, demolition, or large numbers of daily haul/heavy truck trips would not occur as part of the proposed project. The primary noise sources would result from both on-site restoration activities, especially during site preparation (establish fencing, vegetation trimming) and equipment staging. Noise would be generated by equipment such as air compressors, paint recyclers/applicators, water trucks, cranes, manlifts, and other miscellaneous equipment. The exact type and number of construction equipment will be based on the contractor's judgment and what equipment is reasonably necessary to complete the project, using industry standard means and methods.

Construction noise is a temporary impact. The City of Sacramento Noise Ordinance (City Code Title 8, Chapter 8.68 et seq.) exempts construction-related noise if the construction takes place between the hours of 7:00 a.m. and 6:00 p.m., on Monday through Saturday, and between 9:00 a.m. and 6:00 p.m. on Sunday.

While a detailed inventory of maintenance equipment that would be used for the proposed project is not available; this analysis estimates project-related maintenance noise assuming that typical construction equipment would be used during restoration activities. **Table 2** presents a list of noise generation levels for typical equipment types similar to those anticipated for the restoration project. A conservative but reasonable assumption is that some of the pieces of equipment (paint applicators, air compressors, etc.) would operate simultaneously and continuously over at least a 1-hour period. If all of these pieces of equipment were to operate simultaneously, the combined-source noise level would be 86 dBA at a distance of 50 feet. The multi-family residences located near the eastern side of the project site are all roughly 120 feet away from the nearest project site boundary (see Figures 3 and 6, above). The combined noise levels would be 78.4 dBA (assuming 6 dBA attenuation) at 120 feet.

Table 2. Noise Emission Levels from Construction Equipment

Equipment Type (1)	Typical Noise Level (dB) at 50 feet
Air Compressor	78
Crane Mobile, Generator, Water Pump	81
Pneumatic Tools	85
Trucks	74-81
Paint Recycler	83 (dBA) at 120 feet

Source: (1) Paint Recycler, (Reed, personal communication). All other equipment types, Federal Transit Administration, 2006)

Restoration activities for the proposed project, including hours of operation, would comply with the requirements set forth in the City of Sacramento Noise Ordinance. While the proposed project would not exceed City of Sacramento noise standards, implementation of **Mitigation Measure N-1**, which would require the applicant to implement a series of noise-reducing measures, will further ensure that project site noise levels are maintained at acceptable standards. Because project maintenance activities would comply with the City's Noise Ordinance, and the applicant would be

required to adhere to the measures set forth in **Mitigation Measure N-1**, the impact from maintenance noise would be ***less-than-significant***.

Questions D Through F

Some maintenance activities associated with the proposed project may result in varying degrees of temporary ground vibration, depending on the specific maintenance equipment used and operations involved. While the Federal Transit Administration (FTA, 2006) identifies typical or representative vibration source levels for a variety of construction equipment, the proposed project does not involve the use of heavy equipment such as large bulldozers, pile driving, or drilling. Equipment anticipated for use includes cranes or manlifts, air compressors, haul/delivery trucks and vehicles. The proposed project also involves the use of a variety of specialized paint application/recycling equipment not typically associated with a construction project.

Maintenance activities associated with the project may result in some minor amount of ground vibration. Typical ground-borne vibration for trucks is less than 65 VdB at 50 feet (Federal Transit Administration, 2006:7-5). The closest residences to the construction activities would be just beyond this 50-foot limit; however, most residences would be 120 feet away or greater from the initial staging area/access route. Vibration from these activities would be short term and would end after completion of the maintenance activities.

Mitigation Measures

Mitigation Measure N-1 Implement Construction-related Noise Reduction Measures. The project applicant shall implement the following noise reducing measures:

- Maintenance equipment and vehicle noise would be minimized during project construction by muffling and shielding intakes and exhaust on maintenance/construction equipment (per the manufacturer's specifications) and by shrouding or shielding paint application/recycling equipment.

- All equipment, haul trucks, and worker vehicles would be turned off when not in use for more than 10 minutes.

- Residences and businesses would be notified about the type and schedule of maintenance activities at least two weeks prior to mobilization.

Findings

All additional significant environmental effects of the project relating to Noise can be mitigated to a less-than-significant level.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
9. PUBLIC SERVICES Would the project result in the need for new or altered services related to fire protection, police protection, school facilities, roadway maintenance, or other governmental services beyond what was anticipated in the 2030 General Plan?			X

Environmental Setting

The proposed project is within the jurisdiction of the City of Sacramento which provides a variety of public services to the surrounding area. The City of Sacramento Police Department would provide police protection services to the proposed project site. The project site is approximately 4.9 miles southeast of the Richards Police Facility. Additional law enforcements services are also provided by Sacramento County Park Rangers, who help control traffic along the Jedidiah Smith Memorial Trail to ensure safety during peak usage times. The Sacramento Fire Department would provide fire protection services to the proposed project, with Fire Station 8 located .5 miles northwest of the project site.

Summary of Analysis under the 2030 General Plan Master EIR

The Master EIR evaluated the potential effects of the 2030 General Plan on various public services. These include parks (Chapter 6.9) and police, fire protection, schools, libraries and emergency services (Chapter 6.10).

The 2030 General Plan provides that adequate staffing levels for police and fire are important for the long-term health, safety and well-being of the community (Goal PHS 1.1, PHS 2.1). The Master EIR concluded that effects would be less than significant.

Standards of Significance

For purposes of this Initial Study, public service impacts may be considered significant if implementation of the proposed project would result in one or more of the following:

- Result in the need for new or altered services related to fire protection, police protection, school facilities, roadway maintenance, or other governmental services beyond what was anticipated in the 2030 General Plan.

Answers to Checklist Questions

Question A

The proposed bridge maintenance project will not include the construction of new residential land uses or include a project feature (i.e. new utility infrastructure or access route to current undeveloped land) that would generate the need for additional public services (including schools, libraries, or other community facilities). The proposed project would not create any new public roadways or create the need for additional roadway maintenance (see Traffic Management Plan, under Transportation and Circulation, below) Bridge lighting would remain operational throughout the construction period for safety and security. Access for emergency personnel will be maintained within the project site and surrounding American River Parkway (see Traffic Management Plan, under Transportation and Circulation, below). Because the proposed project would not result in the

need for new or additional public services (including police and fire protection services) beyond what was anticipated in the 2030 General Plan, ***no impacts*** to public services would result under the proposed project.

Mitigation Measures

None Required.

Findings

The project would have no additional project-specific environmental effects relating to Public Services.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
10. RECREATION Would the project: A) Cause or accelerate substantial physical deterioration of existing area parks or recreational facilities?			X
B) Create a need for construction or expansion of recreational facilities beyond what was anticipated in the 2030 General Plan?			X

Environmental Setting

The proposed project site is located along the banks of the lower American River within the American River Parkway. The American River Parkway consists of a 5,000 acre regional park along the riparian corridor of the American River stretching from its confluence with the Sacramento River upstream to Folsom Lake. While a number of agencies have jurisdiction over aspects or resources within the parkway, the Sacramento County Department of Regional Parks (County Parks) has primary responsibility over the American River Parkway.

The Jedediah Smith Recreation Trail is the primary trail traversing the entire parkway and provides bicycle, pedestrian, and equestrian trail connectivity from Discovery Park to Folsom Lake. The trail also connects with the Folsom Lake Trail, the Sacramento River Trail, Old Sacramento State Historic Park, and provides a number of access points to residential neighborhoods along the parkway and portions of downtown Sacramento. Consequently, the trail serves both recreational users and provides a daily commute route for many users.

The project site is located along small portions of both the northern and southern alignments of the recreation trail. Project-related activities would also affect the Guy West Bridge which serves as a connection point for both northern and southern alignments of the trail. The Guy West Bridge also serves as an important bicycle/pedestrian connector between CSUS and the Campus Commons neighborhood.

Summary of Analysis under the 2030 General Plan Master EIR

Chapter 6.9 of the Master EIR considered the effects of the 2030 General Plan on the City's existing parkland, urban forest, recreational facilities and recreational services. The general plan identified a goal of providing an integrated park and recreation system in the City (Goal ERC 2.1). New residential development will be required to dedicate land, pay in-lieu fees or otherwise contribute a fair share to the acquisition and development of parks and recreation facilities. (Policy ERC 2.2.4) Impacts were considered less than significant after application of the applicable policies. (Impacts 6.9-1 and 6.9-2)

Standards of Significance

For purposes of this Initial Study, impacts to recreational resources are considered significant if the proposed project would do either of the following:

- Cause or accelerate substantial physical deterioration of existing area parks or recreational facilities; or

- Create a need for construction or expansion of recreational facilities beyond what was anticipated in the 2030 General Plan.

Answers to Checklist Questions

Question A

The proposed bridge maintenance project will not include the construction of new residential land uses or include a project feature (i.e. new utility infrastructure or access route to current undeveloped land) that would generate the need for additional recreational facilities or result in the accelerated physical deterioration of existing area parks. Consequently, ***no impacts*** to recreation facilities or parks (associated with increased demand for facilities or accelerated physical deterioration) would result under the proposed project.

While one of the primary objectives of the proposed project is to minimize access and circulation impacts to the CSUS Campus and users of the Jedediah Smith Recreation Trail, project-related maintenance activities and vehicle traffic may result in short-term pedestrian and bicycle circulation conflicts near the project sites. The reader is directed to the "Transportation and Circulation" section (below) for additional details regarding these potential impacts and for a description of mitigation necessary to ensure these impacts are reduced to a less-than-significant level.

Mitigation Measures

None Required.

Findings

All additional significant environmental effects of the project relating to recreation can be mitigated to a less-than-significant level.

Issues:	Effect remains significant with all identified mitigation	Effect can be mitigated to less than significant	No additional significant environmental effect
11. TRANSPORTATION AND CIRCULATION Would the project: A) Roadway segments: degrade peak period Level of Service (LOS) from A,B,C or D (without the project) to E or F (with project) or the LOS (without project) is E or F, and project generated traffic increases the Volume to Capacity Ratio (V/C ratio) by 0.02 or more?			X
B) Intersections: degrade peak period level of service from A, B, C or D (without project) to E or F (with project) or the LOS (without project) is E or F, and project generated traffic increases the peak period average vehicle delay by five seconds or more?			X
C) Freeway facilities: off-ramps with vehicle queues that extend into the ramp's deceleration area or onto the freeway; project traffic increases that cause any ramp's merge/diverge level of service to be worse than the freeway's level of service; project traffic increases that cause the freeway level of service to deteriorate beyond level of service threshold defined in the Caltrans Route Concept Report for the facility; or the expected ramp queue is greater than the storage capacity?			X
D) Transit: adversely affect public transit operations or fail to adequately provide for access to public?			X
E) Bicycle facilities: adversely affect bicycle travel, bicycle paths or fail to adequately provide for access by bicycle?		X	
F) Pedestrian: adversely affect pedestrian travel, pedestrian paths or fail to adequately provide for access by pedestrians?		X	

Environmental Setting

Roadways accessing the project site consist primarily of minor residential streets maintained by the City of Sacramento and Sacramento County. The primary access routes to the project site include University Avenue to the eastern side of the project site and Jed Smith Drive (through CSUS) to the western side of the project site. Larger arterial roadways leading to these access routes include Howe Avenue, Fair Oaks Boulevard, and Folsom Boulevard. As previously described above under the "Recreation" section, a number of paved and unpaved multiuse trails provide circulation routes through the American River Parkway and access points to surrounding business and residential areas surrounding the parkway.

Summary of Analysis under the 2030 General Plan Master EIR

Transportation and circulation were discussed in the Master EIR in Chapter 6.12. Various modes of travel were included in the analysis, including vehicular, transit, bicycle, pedestrian and aviation components. The analysis included consideration of roadway capacity and identification of levels of service, and effects of the 2030 General Plan on the public transportation system. Provisions of the 2030 General Plan that provide substantial guidance include Goal Mobility 1.1, calling for a transportation system that is effectively planned, managed, operated and maintained, promotion of multimodal choices (Policy M 1.2.1), identification of level of service standards (Policy M 1.2.2), development of a fair share funding system for Caltrans facilities (Policy M 1.5.6) and development of complete streets (Goal M 4.2).

While the general plan includes numerous policies that direct the development of the City's transportation system, the Master EIR concluded that the general plan development would result in significant and unavoidable effects. See Impacts 6.12-1, 6.12-8 (roadway segments in the City), Impacts 6.12-2, 6.12-9 (roadway segments in neighboring jurisdictions), and Impacts 6.12-3, 6.12-10 (freeway segments).

Standards of Significance

For purposes of this Initial Study, impacts to transportation or circulation issues are considered significant if the proposed project would do either of the following:

Roadway Segments

A) the traffic generated by a project degrades peak period Level of Service (LOS) from A,B,C or D (without the project) to E or F (with project) or

B) the LOS (without project) is E or F, and project generated traffic increases the Volume to Capacity Ratio (V/C ratio) by 0.02 or more.

Intersections

- the traffic generated by a project degrades peak period level of service from A, B, C or D (without project) to E or F (with project) or
- the LOS (without project) is E or F, and project generated traffic increases the peak period average vehicle delay by five seconds or more.

Freeway Facilities

Caltrans considers the following to be significant impacts.

- off-ramps with vehicle queues that extend into the ramp's deceleration area or onto the freeway;
- project traffic increases that cause any ramp's merge/diverge level of service to be worse than the freeway's level of service;
- project traffic increases that cause the freeway level of service to deteriorate beyond level of service threshold defined in the Caltrans Route Concept Report for the facility; or
- the expected ramp queue is greater than the storage capacity.

Transit

- adversely affect public transit operations or
- fail to adequately provide for access to public transit.

Bicycle Facilities

- adversely affect bicycle travel, bicycle paths or
- fail to adequately provide for access by bicycle.

Pedestrian Circulation

- adversely affect pedestrian travel, pedestrian paths or
- fail to adequately provide for access by pedestrians.

Answers to Checklist Questions

Questions A, B, C, and D

As previously described above in Section II (Project Description) and Section III (Land Use and Population and Housing), the proposed project does not involve the construction of residential land uses that would generate additional vehicle trips in the city or region. Temporary construction workers (estimated at 10 to 20 workers) associated with the proposed project are assumed to come from the existing labor pool of residents in Sacramento and would not generate a large number of vehicle trips (10 to 20 average daily trips) that would degrade peak hour roadway/intersection level of service or increase the roadway Volume to Capacity Ratio under current City standards. Additionally, once the bridge maintenance activities are complete, project-related vehicle traffic would cease. The proposed bridge maintenance project is located some distance from the nearest Sacramento Regional Transit stop (CSUS main campus) and would not directly or indirectly affect transit operations.

Project-related traffic would include a small number of equipment/material deliveries (by heavy trucks) to the project sites that may result in minor and temporary roadway access conflicts along University Avenue and Jed Smith Drive, in particular near the project site access points (see Figures 3 and 4). While these effects are anticipated to be minor, implementation of **Mitigation Measure TC-1** would ensure that these roadway/access conflicts would be further reduced through the implementation of traffic control measures as outlined in a traffic control plan. Therefore, the impact would be ***less-than-significant***.

Questions E and F

One of the primary objectives of the proposed project is to minimize access and circulation impacts to the CSUS Campus and for users of the Jedediah Smith Recreation Trail. As an example, the proposed project will include the use of signs, security fencing, and traffic controls (see Mitigation Measure TC-1, below) to advise recreation users/bicycle commuters on possible detour routes near the bridge site (see Figures 3 and 4). Additionally, the proposed project will be accomplished during a single season and will be divided up into two distinct stages to minimize impacts to participants of the Eppies Great Race (occurring in mid to late July).

Informational and detour signage would be posted a minimum of two weeks prior to project commencement. To ensure public safety, warning and restricted access signs would be posted before and during maintenance activities. Public outreach would be conducted prior to construction through mailings, a public workshop, and Internet sites (including the City's website). Coordination with local bicycle groups, residents, businesses, and other interested groups would keep the public informed of the upcoming construction.

Work performed on the bridge structure will require a narrowing of the bridge width available for bicyclists and pedestrians during distinct phases of the project. As such, cyclists may be required to dismount and walk their bike when utilizing the reduced access path. Additionally, during the establishment of tower scaffolding above the bridge deck and other operations, it will be necessary to shut down the bridge entirely to bicycle and pedestrian traffic in order to protect public safety. During these times, bicycle and pedestrian traffic will be temporarily detoured to the H Street Bridge, located downstream along the American River. Proper public notice including signage will be provided in advance to these required detours. With the implementation of **Mitigation Measure TC-1** and the public outreach planned, impacts to bicycle and pedestrian facilities would be ***less-than-significant***.

Mitigation Measures

Mitigation Measure TC-1 Implement Traffic Control Plan. The project contractor would be required to develop a Traffic Control Plan, which would be reviewed and approved by the City of Sacramento prior to construction. This plan would include the following measures:

- Do not permit construction vehicles to block any roadways or private driveways.
- Provide access for emergency vehicles at all times.
- Select travel routes to avoid schools, parks, and high pedestrian use areas when possible. Crossing guards provided by the contractor would be used when truck trips coincide with schools hours and when travel routes cross student travel path.
- Obey all speed limits, traffic laws, and transportation regulations during construction. If speed limits are not posted, construction vehicles would not exceed 15 miles per hour on unpaved levee roads.
- Use signs and flagmen, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflict with construction vehicles or equipment.
- Construction employee parking would be restricted to the designated staging areas.
- No road closures are anticipated; however, in the event that road closures are necessary, local agencies and affected organizations would be notified prior to construction.
- Closure of levee roads, construction sites, and public access areas for construction use would be clearly fenced and delineated with appropriate closure signage.
- Require cyclists to dismount and walk bikes when bike/pedestrian path is narrowed to eight feet.

Findings

All additional significant environmental effects of the project relating to transportation and circulation can be mitigated to a less-than-significant level.

Issues:	Effect will be studied in the EIR	Effect can be mitigated to less than significant	No additional significant environmental effect
12. UTILITIES AND SERVICE SYSTEMS Would the project: A) Result in the determination that adequate capacity is not available to serve the project's demand in addition to existing commitments?			X
B) Require or result in either the construction of new utilities or the expansion of existing utilities, the construction of which could cause significant environmental impacts?			X

Environmental Setting

Service systems and utilities located in or near the project site include potable water supply, electricity, natural gas supply, storm water discharge, and sanitary sewage. These utility services are implemented by local utility districts including the City of Sacramento, Sacramento County, the California Department of Transportation, the California State University of Sacramento, Cable Vision, Comcast, the Pacific Bell Telephone Company, the Sacramento Metropolitan Utility District, Pacific Gas & Electric, and the Sacramento Regional County Sanitation District.

Summary of Analysis under the 2030 General Plan Master EIR

The Master EIR evaluated the effects of development under the 2030 General Plan on water supply, sewer and storm drainage, solid waste, electricity, natural gas and telecommunications. See Chapter 6.11.

The Master EIR evaluated the impacts of increased demand for water that would occur with development under the 2030 General Plan. Policies in the general plan would reduce the impact generally to a less-than-significant level (see Impact 6.11-1) but the need for new water supply facilities results in a significant and unavoidable effect (Impact 6.11-2). The potential need for expansion of wastewater treatment facilities was identified as having a significant and unavoidable effect (Impacts 6.11-4, 6.11-5Impacts on solid waste facilities were less than significant (Impacts 6.11-7, 6.11-8). Implementation of energy efficient standards as set forth in Titles 20 and 24 of the California Code of Regulations for residential and non-residential buildings, would reduce effects for energy to a less-than-significant level.

Standards of Significance

For the purposes of this Initial Study, an impact would be considered significant if the project resulted in the need for new or altered utility services beyond what was anticipated in the 2030 General Plan:

- Result in the determination that adequate capacity is not available to serve the project's demand in addition to existing commitments or
- Require or result in either the construction of new utilities or the expansion of existing utilities, the construction of which could cause significant environmental impacts.

Answers to Checklist Questions

Questions A and B

As described above under the project description (see Section II, above), the two broken utility conduits running from abutment to abutment along the bridge will be restored as part of the proposed project. While relocation of utilities is not anticipated for this project, the limits of the project may contain various easements and underground utilities. On the eastside, the temporary ramp will be built over a SMUD easement and electrical line. Portions of the work on the eastside will also be performed over an easement for the Sacramento Regional County Sanitation District which contains a sanitary sewer. On the western project site, a portion of the project area will occur over a series of drainage culverts serving the CSUS campus. Work on the bridge will include restoration of a utility conduit carrying SMUD electrical lines. Utility coordination will be performed with all utility owners.

Overall, the proposed bridge maintenance project will not include the construction of new residential land uses or include a project feature (i.e. new access route to current undeveloped land) that would generate the need for additional utility services (including water supply, wastewater, or drainage). Because the proposed project would not result in the need for new or additional utility services beyond what was anticipated in the 2030 General Plan, ***no impacts*** to public services would result under the proposed project.

Mitigation Measures

None Required.

Findings

The project would have no additional project-specific environmental effects relating to utilities and service systems.

Issues:	Effect remains significant with all identified mitigation	Effect can be mitigated to less than significant	No additional significant environmental effect
13. MANDATORY FINDINGS OF SIGNIFICANCE A.) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X	
B.) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)			X
C.) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X

Answers to Checklist Questions

Question A

As discussed above, the project would not degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community with the incorporation of mitigation measures. Mitigation measures would be implemented to ensure that the project would not impact rare or endangered wildlife species. The proposed project would not eliminate important examples of the major periods of California history or prehistory.

Question B and C

When project impacts are considered along with or in combination with impacts from other projects, the project related impacts are less than significant. The proposed project would not add substantially to any cumulative effects. Project related impacts would be mitigated to a less than significant level. The project does not have environmental effects that could cause substantial adverse effects on human beings,

SECTION IV - ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would potentially be affected by this project.

	Agriculture		Land Use and Planning
X	Air Quality		Light and Glare
X	Biological Resources	X	Noise
	Cultural Resources		Public Services
	Energy and Mineral Resources		Recreation
	Geology and Soils	X	Transportation/Circulation
	Greenhouse Gas Emissions		Utilities and Service Systems
	Hazards and Hazardous Materials		Population and Housing
X	Hydrology and Water Quality		Mandatory Findings of Significance

SECTION V - DETERMINATION

On the basis of the initial study:

X I find that (a) the proposed project is an anticipated subsequent project identified and described in the 2030 General Plan Master EIR; (b) the proposed project is consistent with the 2030 General Plan land use designation and the permissible densities and intensities of use for the project site; (c) that the discussions of cumulative impacts, growth inducing impacts, and irreversible significant effects in the Master EIR are adequate for the proposed project; and (d) the proposed project will have additional significant environmental effects not previously examined in the Master EIR. A Mitigated Negative Declaration will be prepared. Mitigation measures from the Master EIR will be applied to the project as appropriate, and additional feasible mitigation measures and alternatives will be incorporated to revise the proposed project before the negative declaration is circulated for public review, to avoid or mitigate the identified effects to a level of insignificance. (CEQA Guidelines Section 15178(b))

Scott Johnson — Signature

Oct. 9, 2013 — Date

Scott Johnson
Printed Name

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APPENDIX A – COMMENT LETTERS AND RESPONSES

Follows

City of SACRAMENTO
Community Development

APPENDIX A:

Guy West Bridge Restoration Project (K15105000) (SCH#: 2013102021)
Draft Initial Study/Mitigated Negative Declaration Comment Letters & Responses

This appendix includes the comment letters received during the agency/public review period for the Initial Study/Mitigated Negative Declaration (from October 14, 2013 to November 13, 2013). A summary of the comment letters received is provided below in **Table 1** and the responses in **Table 2,** following the comment letters.

TABLE 1. SUMMARY OF COMMENT LETTERS		
Letter #	Letter Type	Commenter (Letter Date)
#1	Agency	Central Valley Flood Protection Board (November 6, 2013)
#2	Agency	California Department of Fish and Wildlife (November 8, 2013)
#3	Agency	California State Lands Commission (November 12, 2013)
#4	Agency	County of Sacramento (November 13, 2013)
#5	Organization	Breathe California of Sacramento-Emigrant Trails (November 12, 2013)
#6	Organization	Sacramento Area Bicycle Advocates (November 13, 2013)
#7	Organization	Walk Sacramento (November 13, 2013)
#8	Individual	Barbara Bravos (October 15, 2013)

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY EDMUND G. BROWN JR., GOVERNOR

CENTRAL VALLEY FLOOD PROTECTION BOARD
3310 El Camino Ave., Rm. 151
SACRAMENTO, CA 95821
(916) 574-0609 FAX: (916) 574-0682
PERMITS: (916) 574-2380 FAX: (916) 574-0682

November 6, 2013

Mr. Scott Johnson
City of Sacramento
300 Richards Blvd, 3rd Floor
Sacramento, California 95811

Subject: The Guy West Bridge Restoration Project
SCH Number: 2013102021
Document Type: Negative Declaration

Dear Mr. Johnson:

Staff of the Central Valley Flood Protection Board (Board) has reviewed the subject document and provides the following comments:

The proposed project is located adjacent to or within American River which is under the jurisdiction of the Central Valley Flood Protection Board. The Board is required to enforce standards for the construction, maintenance, and protection of adopted flood control plans that will protect public lands from floods. The jurisdiction of the Board includes the Central Valley, including all tributaries and distributaries of the Sacramento River, the San Joaquin River, and designated floodways (Title 23 California Code of Regulations (CCR), Section 2).

A Board permit is required prior to starting the work within the Board's jurisdiction for the following:

- The placement, construction, reconstruction, removal, or abandonment of any landscaping, culvert, bridge, conduit, fence, projection, fill, embankment, building, structure, obstruction, encroachment, excavation, the planting, or removal of vegetation, and any repair or maintenance that involves cutting into the levee (CCR Section 6);

- Existing structures that predate permitting, or where it is necessary to establish the conditions normally imposed by permitting. The circumstances include those where responsibility for the encroachment has not been clearly established or ownership and use have been revised (CCR Section 6);

- Vegetation plantings will require the submission of detailed design drawings; identification of vegetation type; plant and tree names (i.e. common name and scientific name); total number of each type of plant and tree; planting spacing and irrigation method that will be utilized within the project area; a complete vegetative management plan for maintenance to prevent the interference with flood control, levee maintenance, inspection, and flood fight procedures (CCR Section 131).

Vegetation requirements in accordance with Title 23, Section 131 (c) states "Vegetation must not interfere with the integrity of the adopted plan of flood control, or interfere with maintenance, inspection, and flood fight procedures."

The accumulation and establishment of woody vegetation that is not managed has a negative impact on channel capacity and increases the potential for levee over-topping. When a channel develops vegetation that then becomes habitat for wildlife, maintenance to initial baseline conditions becomes more difficult as the removal of vegetative growth is subject to federal and State agency requirements for on-site mitigation within the floodway. The project should include mitigation measures to avoid decreasing floodway channel capacity.

Hydraulic Impacts - Hydraulic impacts due to encroachments could impede flood flows, reroute flood flows, and/or increase sediment accumulation. The project should include mitigation measures for channel and levee improvements and maintenance to prevent and/or reduce hydraulic impacts. Off-site mitigation outside of the State Plan of Flood Control should be used when mitigating for vegetation removed within the project location.

The permit application and Title 23 CCR can be found on the Central Valley Flood Protection Board's website at http://www.cvfpb.ca.gov/. Contact your local, federal and State agencies, as other permits may apply.

The Board's jurisdiction, including all tributaries and distributaries of the Sacramento River and the San Joaquin River, and designated floodways can be viewed on the Central Valley Flood Protection Board's website at http://gis.bam.water.ca.gov/bam/.

If you have any questions, please contact me by phone at (916) 574-0651, or via e-mail at James.Herota@water.ca.gov.

Sincerely,

James Herota
Senior Environmental Scientist
Projects and Environmental Branch

cc: Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, California 95814

Scott Johnson

From: Kennedy, Amy@Wildlife <Amy.Kennedy@wildlife.ca.gov>
Sent: Friday, November 08, 2013 1:16 PM
To: Scott Johnson
Subject: Guy West Bridge ISMND

Hi Scott;

I just finished reading through the Guy West Bridge ISMND SCH # 200131102021. The only small comment I have is, that in the section regarding waters of the U.S there is no subsequent mention of
F & G Code 1600, or that these are also state jurisdictional waters (not just federal).

Let me know if you have any questions, and thank you for the opportunity to comment on this project.

Amy Kennedy
California Dept. of Fish and Wildlife
1701 Nimbus Road
Rancho Cordova, CA 95670
916-358-2842

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

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November 12, 2013

File Ref: SCH # 2013102021

Scott Johnson, Associate Planner
City of Sacramento, Community Development Department
Environmental Planning Services
300 Richards Boulevard, Third Floor
Sacramento, CA 95811

Subject: Mitigated Negative Declaration (MND) for the Guy West Bridge Restoration Project, Sacramento County

Dear Mr. Johnson:

The California State Lands Commission (CSLC) staff has reviewed the subject MND for the Guy West Bridge Restoration Project (Project), which is being prepared by the City of Sacramento (City). The City, as a public agency proposing to carry out a project, is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC is a trustee agency because of its trust responsibility for projects that could directly or indirectly affect sovereign lands, their accompanying Public Trust resources or uses, and the public easement in navigable waters.

CSLC Jurisdiction and Public Trust Lands

The CSLC has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the Common Law Public Trust.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On navigable non-tidal waterways, including lakes, the State holds fee ownership of the bed of the waterway landward to the ordinary low

water mark and a Public Trust easement landward to the ordinary high water mark, except where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

The bed of the American River at the project site is State-owned sovereign land under the jurisdiction of the CSLC. The City has a Right-of-Way Easement, No. PRC 3402, for the use and maintenance of a pedestrian foot-bridge known as the Guy West Bridge. The easement expires on November 2, 2014. The proposed Project falls within the "use and maintenance" of the current easement terms. Although the Project, therefore, will not require an approval from the CSLC, the CSLC is providing the comments below as a trustee agency.

Project Description

The City proposes to complete the Guy West Bridge Restoration Work Plan to meet its objectives and needs as follows:

- Implement a restoration work plan that ensures the continued safe performance of the Guy West Suspension Bridge;
- Complete the restoration work in a manner that minimizes environmental impacts to the American River Parkway;
- Implement the restoration activities in a way that maintains public access, circulation, and connectivity to the surrounding area; and
- Incorporate restoration activities that maintain the unique aesthetic and design features of the existing suspension bridge.

From the Project Description, CSLC staff understands that the Project would include the following components:

- Replace existing paint system, which contains lead primer and other heavy metals, and is currently experiencing widespread failure;
- Restore suspender cables and connections, including replacing corroded cotter pins and restoring the galvanized paint coating on the suspension cables;
- Repair suspended span, including repair of the damage on a lower strut of the bridge with drilled bolts and cover plates to restore the section to its original area and stiffness;
- Repair deck, including repair of minor concrete spalls and failed joint seals; and
- Complete other replacements and repairs, including replacement of handrail hardware, a loose utility conduit, and truss bearing pads.

Environmental Review

CSLC staff requests that the City consider the following comments on the Project MND.

Hydrology and Water Quality

1. Contingency Measures: The MND states that specialized construction equipment will be used to remove the existing lead-based paint system. This equipment includes a paint blaster/recycler and a water containment system. Using this specialized

equipment will prevent paint flakes, and associated heavy metals, from entering the American River. However, the MND does not assess or plan for any failure of these specialized paint-removal systems and potential release of paint into the American River, therefore, the impacts of this project may not be fully disclosed. The MND should assess the potential impacts of an accidental release of paint, from the paint blaster/recycler or contaminated water from the water containment system. The analysis should identify a threshold of significance for the release of the heavy metals in the paint and contaminated water, calculate the worst-case-scenario of paint/contaminated water release, and determine if impacts will be significant. If impacts are found to be significant, mitigation measures should be developed such as having spill-containment and cleanup equipment available on-site, providing appropriate worker training, and preparing and implementing a spill contingency plan, if necessary.

Recreation

2. Water-Based Recreation: The MND should include whether any limitations to river-based recreation are necessary during the Project, and if so, whether restrictions on recreational activity would give rise to a potentially significant impact. The public uses the American River for boating, fishing, and other recreational activities. If significant impacts are determined, mitigation could include posting signs announcing the project and any restrictions on boating or fishing in the area.

Thank you for the opportunity to comment on the MND for the Project. As a trustee agency, we request that you consider our comments prior to adoption of the MND.

Please send copies of future Project-related documents, including electronic copies of the Final MND, Mitigation Monitoring and Reporting Program (MMRP), and Notice of Determination (NOD), when they become available, and refer questions concerning environmental review to Holly Wyer, Environmental Scientist, at (916) 574-2399 or via e-mail at Holly.Wyer@slc.ca.gov. For questions concerning CSLC leasing jurisdiction, please contact Mary Hays, Public Land Manager, at (916) 574-1812, or via email at Mary.Hays@slc.ca.gov.

Sincerely,

Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
Mary Hays, LMD, CSLC
Holly Wyer, DEPM, CSLC
Eric Milstein, Legal, CSLC

Regional Parks Department
Jeffrey R. Leatherman, Director

County of Sacramento

Divisions
Administration
Golf
Leisure Services
Maintenance
Rangers
Therapeutic Recreation Services

Scott Johnson
Community Development Department
City of Sacramento
300 Richards Blvd, 3rd Floor
Sacramento, CA 95811
SRJohnson@cityofsacramento.org

Dear Mr. Johnson,

Thank you for the opportunity to comment on the Mitigated Negative Declaration for the Guy West Bridge Restoration Project.

We are pleased to see that the environmental document acknowledges Eppie's Great Race and that the document describes implementing the project in two stages to minimize impacts to Eppie's Great Race. The document states that phasing will strategized to allow adequate time for removal of project equipment and for the restoration of project staging areas located along the eastern side of the bridge.

The Eastern Staging Layout shows a fenced area to protect an "environmentally sensitive area" just upstream of the bridge. This proposed fenced area is also an important staging area for the Eppie's Great Race, and is mowed by Regional Parks staff several weeks in advance of the event. If project fencing is used around this area, it will need to be removed to allow a mid-June pre-race mowing, for other race preparations, and for use during Eppie's Great Race.

Thanks you for the opportunity to comment on this document, and we look forward to continuing to work with the City on coordinating needs of Regional Parks with the Guy West Bridge Restoration Project.

Sincerely,

Jeffrey R. Leatherman
Director

4040 Bradshaw Road • Sacramento, California 95827 • phone (916) 875-6961 • fax (916) 875-6632 • www.saccounty.net

909 12th Street
Sacramento, CA 95814
Phone: (916) 444-5900
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staff@sacbreathe.org

www.sacbreathe.org
www.SceneSmoking.org
www.sacSTAND.org

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Breathe California of Sacramento-Emigrant Trails is dedicated to healthy air and preventing lung and other air-pollution related diseases by partnering with youth, advocating public policy, supporting air ion research, and educating the public.

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November 12, 2013

Breathe California of Sacramento-Emigrant Trails
909 12th Street Suite 100
Sacramento, CA 95814

Mr. Scott Johnson
Community Development Department
City of Sacramento
300 Richards Blvd, 3rd Floor
Sacramento, CA 95811

RE: SUPPORT – Notice of Availability/Intent to Adopt – Mitigated Negative Declaration for the Guy West Bridge Restoration Project

Dear Mr. Johnson,

I am writing on behalf of Breathe California of Sacramento-Emigrant Trails in support of the Initial Study/Proposed Mitigated Negative Declaration for the Guy West Bridge Restoration project. The Guy West suspension bridge is one of the few replicas of the Golden Gate Bridge, and it provides an important primary access route and connection point for pedestrians, bicyclists and recreation users along American River Parkway.

Having reviewed the Initial Study/Proposed Mitigated Negative Declaration, the proposed project demonstrates restoration and maintenance activities to ensure the continued safe performance of the Guy West Bridge. The proposed project minimizes environmental impacts, maintains pedestrian/recreation access, and maintains the bridge's unique aesthetic and design features. Because the proposed project is short-term, temporary air quality emissions can be mitigated to a less than significant level. Implementation of **Mitigation Measure AQ-1** would fulfill SMAQMD's Basic Construction Mitigation Measures. This is necessary to ensure that the proposed project would generate less than significant environmental health impacts with regard to ozone, particulate matter and toxic air contaminants.

As public health advocates we believe the proposed project with identified mitigation measures will not have a significant effect on the environment, and will continue to foster pedestrian and bicyclist connectivity, benefiting community health. We encourage adoption of the Guy West Bridge Restoration Project, and look forward to its success.

Sincerely,

Kori Titus

Kori Titus
CEO

SACRAMENTO AREA
BICYCLE ADVOCATES

909 12th St, Ste. 116
Sacramento, CA 95814

sacbike.org
saba@sacbike.org
916 444-6600

November 13, 2013

Scott Johnson
City of Sacramento
Community Development Dept.
Environmental Planning Services
300 Richards Blvd., 3rd Floor
Sacramento, CA 95835
SRJohnson@cityofsacramento.org

Subject: Initial Study/Proposed Mitigated Negative Declaration for the Guy West Bridge Restoration Project.

Dear Mr. Johnson,

I'm writing on behalf of the Sacramento Area Bicycle Advocates in response to the Initial Study/Proposed Mitigated Negative Declaration for the Guy West Bridge Restoration Project.

SABA is dedicated to making the Sacramento region more livable by ensuring that residents can choose bicycling as a comfortable, convenient method of everyday travel. Our work includes reviewing proposals for public works projects to ensure that they do not impede bicycle circulation or connectivity or create conditions that endanger people riding bikes.

The initial study's "Project Purpose and Objectives" includes this objective:

> "Implement restoration/maintenance activities in a manner that maintains pedestrian/recreation access, circulation, and connectivity to the surrounding Campus Commons area, the Sacramento State University Campus, and for users of the Jedediah Smith Recreation Trail as much as possible...."

We believe the project will fail to meet this objective, as the study fails to adequately address significant impacts on bicycle travel and bicycle paths and adequately provide for access by bicycle, as required by the Master EIR for the 2030 General Plan.

The study indicates that the proposed mitigation for the impacts of periodic closures of the Guy West Bridge – detouring bike and pedestrian traffic onto the nearby H Street Bridge for up to two days at a time – can be mitigated to less than significant. However, the study fails to adequately address the impacts in these ways:

1. The study fails to account for the high volume of bike traffic currently carried by the Guy West Bridge and the importance of the bridge as a primary connector for bike traffic between the American River Parkway and the neighborhoods south of the American River.

On Wednesday, April 4, 2012, civil engineering students at Sacramento State University counted 597 bike trips entering campus from across the Guy West Bridge between 7 a.m. and 7 p.m., which suggests that the bridge carries at least 1,200 bike trips in both directions on most weekdays when classes are in session. This traffic also includes commute and recreational bike trips unrelated to classes or campus operations.

These results correlate with SABA's own bike traffic counts conducted quarterly at the Guy West Bridge as part of the National Bicycle and Pedestrian Documentation Project. On a weekday afternoon between 4 and 6 p.m. in the first full week of September 2011, for example, we counted 337 bike trips crossing the bridge in both directions. Our quarterly

citywide counts consistently indicate that bike traffic at the Guy West Bridge is about 50% higher than bike traffic at any of the 20+ other count locations, including three other bridges crossing the Sacramento and American rivers.

2. The study fails to account for the size of the H Street Bridge sidewalk as an alternate route to the Guy West Bridge.

The H Street Bridge has a single sidewalk on the south side that is 5 feet wide, whereas the Guy West Bridge is 13 feet wide. Due to the high volume and speed of vehicle traffic on the H Street Bridge and the approaches at both ends, virtually all bike traffic crossing the bridge in both directions uses this one sidewalk. Delays are common as the narrow width forces traffic to move slowly in single file; it is generally not possible for bikes to pass other bikes or pedestrians from behind or in the opposite direction. The current width of the sidewalk falls well below the City of Sacramento's standard of 8 feet for paths that carry two-way bicycle and pedestrian traffic.

3. The study fails to account for impacts to bicycle circulation and connectivity due to the detours required for bikes and pedestrians by the U.S. Army Corps of Engineers levee project.

The concurrent U.S. Army Corps of Engineers (USACE) levee project involves closing the levee approaches to the H Street Bridge on both sides of the river for up to 7 months. Bike and pedestrian traffic will be rerouted from the levee approaches onto the west end of the bridge from the shoulder of eastbound J Street starting at the toe of the levee and onto the east end of the bridge through Campus Commons via University Drive, Campus Commons Drive and the sidewalk on the south side of Fair Oaks Blvd.

When the Guy West Bridge is closed, substantially higher volumes of bike and pedestrian traffic from the bridge will be routed onto the J Street shoulder, which does not have a sidewalk and is not currently used for pedestrian traffic. The USACE project calls for adding a protective barricade of K-rail along eastbound J Street from the toe of the levee to the bridge, although this remedy does nothing to improve accommodation for bikes on the bridge itself. Indeed, the USACE project also calls for placing a slurry pipe on the H Street Bridge sidewalk, which will narrow it from 5 feet to 4 feet throughout the Guy West Bridge restoration project.

Similarly, the USACE project reroutes bike and pedestrian traffic from the east end of the Guy West Bridge through Campus Commons to the sidewalk on the south side of Fair Oaks Blvd. west of Campus Commons Drive. The 5-foot-wide sidewalk narrows to 43 inches at one point, at the east end of the guardrail that extends beyond the east end of the bridge. The width of this entire sidewalk segment falls well below the City of Sacramento's standard of 8 feet for paths that carry two-way bicycle and pedestrian traffic.

Finally, the Campus Commons Drive/Cadillac Drive intersection with Fair Oaks Blvd. is closed to through traffic in both directions. During the Guy West Bridge closures, bike traffic to and from the neighborhood along Cadillac Drive north of Fair Oaks Blvd. will be forced into the crosswalk on the west side of the Cadillac/Fair Oaks intersection (there is no pedestrian crosswalk on the east side of the intersection), leaving northbound bike traffic positioned facing into oncoming southbound vehicle traffic.

Due to the high volume of bike and pedestrian traffic rerouted across the H Street Bridge and the inadequacy of those facilities, we foresee the following impacts from closing the Guy West Bridge:

- Significant delays for bike and pedestrian traffic crossing the river in both directions
- Serious conflicts between bike and pedestrian traffic and between eastbound and westbound traffic attempting to share the single narrow sidewalk
- Serious conflicts between bike and car traffic, should bike-riders attempt to ride in traffic lanes on the bridge in both directions in order to avoid the congested sidewalk.
- Many people will choose to drive rather than bike or walk across the bridge.

Furthermore, there are no alternatives to the H Street Bridge. The Howe Avenue and Watt Avenue bridges and the Sacramento Northern Bikeway bridge are 1-3 miles from the H Street Bridge, too far to be useful for most people who ride across the Guy West Bridge. Additionally, the Howe Avenue Bridge does not have bike lanes or direct access to the adjacent American River Parkway, and its pedestrian paths are very narrow.

For these reasons, we request that the initial study be revised to address high bike traffic volumes on Guy West Bridge and the adequacy of the detour routes across the H Street Bridge and along Fair Oaks Blvd.

We also propose that the initial study address these possible solutions for easing the impacts of closing the Guy West Bridge:

- Expand the capacity of the H Street Bridge and approaches for the duration of the project to accommodate the additional bike traffic during Guy West Bridge closures. For the duration of the Guy West Bridge project, the K-rail to be placed by the USACE could be extended across the H Street bridge and along eastbound Fair Oaks Blvd., ideally to Campus Commons Drive, to create a fully protected path for two-way bike traffic in the roadway and thus reduce congestion and potential bike-pedestrian and bike-car conflicts on the H Street bridge and approaches. This would require temporarily restriping narrower traffic lanes across the bridge, implementing construction zone speed limits across the bridge, and adding signs and signals to advise drivers, among other precautions.

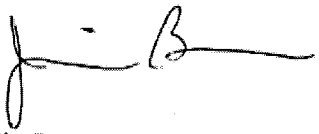
- Reduce the number of bridge closures by consolidating them into a single week or less, to minimize the logistics and impacts of reconfiguring traffic lanes on the H Street Bridge.

- Reduce the duration and frequency of closures to no more than 6 hours at a time and no more than one closure per week, and schedule them to coincide with the periods of lowest bike traffic, i.e., late on weekday nights or early on Sunday mornings.

- Avoid some or all closures by installing protective overhead barriers across the bridge so it can remain open during periods when overhead work is being performed.

We appreciate having this opportunity to comment on the Initial Study/Proposed Mitigated Negative Declaration. Please feel welcome to contact me anytime if you have questions or need more information from us.

Sincerely,



Jim Brown
Executive Director
916-444-6600
jim@sacbike.org

CC Ricky Chuck, RChuck@cityofsacramento.org
Max Katt, maxk@quincyeng.com

WALKSACRAMENTO
www.walksacramento.org

11/13/2013 VIA EMAIL

Scott Johnson, Associate Planner
City of Sacramento, Community Development Department
Environmental Planning Services
300 Richards Boulevard, Third Floor
Sacramento, CA 95811

RE: Initial Study/Proposed Mitigated Negative Declaration for the Guy West Bridge Restoration Project (K15105000)

Dear Mr. Johnson:

WALKSacramento has reviewed the Initial Study/Proposed Mitigated Negative Declaration for the Guy West Bridge Restoration project. WALKSacramento was founded in 1998 as a nonprofit community organization "dedicated to achieving safe, walkable communities — for personal health and recreation, for livable neighborhoods, for traffic safety, and for clean air." We appreciate the opportunity to review the IS/MND and offer the following comments.

1. **The IS/MND did not fully analyze pedestrian and bicycle access and circulation.**

The Guy West Bridge provides a crossing of the American River for pedestrians and bicyclists that is a major access route to Sac State for students, faculty and staff, and is heavily used by bicycle commuters and recreational users of the American River Parkway. The H Street Bridge and the Howe Avenue Bridge, each about a half-mile away, are the closest river crossings for pedestrians.

It is our understanding the restoration and repair work will require temporary full closures of the bridge twice during the project work. The proposed detour would route pedestrians and bicyclists to the five-foot wide sidewalk on the south side of the H Street Bridge.

If the Guy West Bridge was used only by pedestrians, the 1.1-mile detour during the two Guy West Bridge closures would be inconvenient due to the added distance. However, bicyclists currently use the Guy West Bridge in great numbers, with peak usage occurring during typical morning and afternoon commute hours and at mid-day. Adding hundreds of pedestrians and bicyclists during several weekday hours to the narrow sidewalk on the H Street Bridge doesn't seem feasible.

The standard of significance for pedestrian circulation considered by the IS/MND is stated as being impacts that "adversely affect pedestrian travel, pedestrian paths or fail to adequately provide for access by pedestrians."

909 12th Street, Suite #203 • Sacramento, CA 95814 • 916-446-9255
www.walksacramento.org

In order to determine the significance of the project impacts to pedestrian, we believe it is necessary to consider the numbers of pedestrian and bicyclists that currently use the Guy West Bridge and the ability of the H Street Bridge sidewalk to accommodate the detoured traffic.

2. The IS/MND did not adequately mitigate for the impacts to pedestrians.

The document contends that with public outreach and implementation of **Mitigation Measure TC-1**, impacts to bicycle and pedestrian facilities would be *less-than-significant*. However, the only item in TC-1 that is related to pedestrians is to "Require cyclists to dismount and walk bikes when bike/pedestrian path is narrowed to eight feet." This doesn't address the impacts during the times when the Guy West Bridge is closed to pedestrians and bicyclists. Since the adequacy of the H Street Bridge sidewalk to accommodate the potential volume of bicycle and pedestrian traffic was not considered, it is unreasonable to assume the affected facilities would not be impacted.

3. The IS/MND did not consider the impacts to pedestrians from the US Army Corp of Engineers WRDA 96 R7 and L7 levee work that is scheduled for the same time frame as the Guy West Bridge Restoration project.

The US Army Corps of Engineers work on the levees at both ends of the H Street Bridge will compound the challenges of the Guy West Bridge Restoration project detour. The levee work will have several major impacts. First, the detour route on the east side of the river will need to go through the Campus Commons area, increasing the detour length to 1.6 miles. Second, the USACE will install pipes with a plywood-sheet cover on the H Street Bridge sidewalk, temporarily reducing the sidewalk width to four feet. The IS/MND should be revised to consider and mitigate the increased impacts to pedestrian and bicycle circulation as a result of the USACE levee work.

Thank you for your consideration of these comments and recommendations. If you have questions, please contact me by phone at (916) 446-9255.

Sincerely,

Chris Holm
Project Analyst

909 12th Street, Suite #203 • Sacramento, CA 95814 • 916-446-9255
www.walksacramento.org

Scott Johnson

From: Barbara Bravos <bbravos@sbcglobal.net>
Sent: Tuesday, October 15, 2013 2:45 PM
To: Scott Johnson
Subject: Guy West Bridge

City of SACRAMENTO
Community Development

APPENDIX A:

Guy West Bridge Restoration Project (K15105000) (SCH#: 2013102021)
Draft Initial Study/Mitigated Negative Declaration Comment Letters & Responses

TABLE 2. RESPONSES TO COMMENT LETTERS	
Letter	
1	Central Valley Flood Protection Board, November 6, 2013
	Response: The commenter summarizes the Central Valley Flood Protection Board's jurisdictional authority over the designated flood plain in the project. As described in the IS/MND, the proposed project will focus on restoring the existing Guy West Bridge and will not involve activities (e.g., increase fill materials or place additional structures) that affect the capacity of the flood channel in the study area. The Initial Study discusses the project's mitigation measures (see Mitigation Measures BR-1 and BR-2) that minimize vegetation impacts and provide for off-site mitigation opportunities. No addition analysis is required.
2	California Department of Fish and Wildlife, November 8, 2013
	Response: The commenter summarizes the intent of Fish and Game Code (FGC) §1602. The City will comply with the intent and requirements of this section of the Fish and Game Code as appropriate.
3	California State Lands Commission, November 12, 2013
	Response: The commenter summarizes the California State Lands Commission's jurisdictional authority over the resources in the project area and provides comments regarding the potential impacts to hydrologic/water quality and water-based recreation resources. Project measures designed to address water quality impacts are described on pages 45-49 of the IS/MND and include Mitigation Measure HWQ-1 "Implement Water Quality Best Management Practices. Consistent with standard practice, lead paint removal, containment and disposal requirements will be included in the construction specifications and will be responsive to the specific design and site features of the project. Prior to starting construction, the contractor will submit a paint removal plan to the Engineer for acceptance, along with a monitoring plan and an emergency repair, remediation and notification plan in the event of lead paint leakage. No fishing piers or boat access ramps/facilities are located in the project study area and implementation of the proposed bridge restoration project will not affect the ability of water-based recreation activities from continuing to occur within this portion of the American River.
4	County of Sacramento, November 13, 2013
	Response: The commenter provides a letter of support regarding the proposed project. No further comment is necessary.
5	Breathe California of Sacramento-Emigrant Trails, November 12, 2013
	Response: The commenter provides a letter of support regarding the proposed project. No further comment is necessary.
6	Sacramento Area Bicycle Advocates, November 13, 2013

APPENDIX A:

Guy West Bridge Restoration Project (K15105000) (SCH#: 2013102021)
Draft Initial Study/Mitigated Negative Declaration Comment Letters & Responses

	Response: The comment addresses issues relating to the need to close the bridge during the project work, and the timing of activities by the U.S. Army Corps of Engineers work in the project vicinity. The bridge closures are temporary and the document identifies alternative routes that would be available during these closures. Those who use the bridge would, during the closures, have various route and mode choices available to them, and the Initial Study analyzes the impacts to the extent it is reasonable to do so, correctly concluding that the impacts would be less than significant as mitigated. Coordination with the federal agency, university, and outreach to the public will continue throughout the project, and efforts to minimize disruption to paths and times of travel sought by the City and its contractor. The Initial Study has adequately identified and evaluated impacts and no additional analysis is required.
7	Walk Sacramento, November 13, 2013
	Response: The commenter identifies issues similar to those set forth by the Sacramento Area Bicycle Advocates (Letter 6). See response to that letter, above. The City has acknowledged the importance of the bridge to the university community and the public. Periodic maintenance of the bridge is required for safety reasons and the temporary closure of the bridge for this purpose, requiring temporary adjustments to travel routes and schedules, would not result in significant impacts due to conditions on local streets and bridges. The Initial Study has adequately identified and evaluated impacts and no additional analysis is required.
8	Barbara Bravos, October 15, 2013
	Response: The commenter provides a letter of support regarding the proposed project. No further comment is necessary.

ESA Biological Resources

2600 Capitol Avenue
Suite 200
Sacramento, CA 95816
916.564.4500 phone
916.564.4501 fax

www.esassoc.com

Item 3

February 26, 2014

Mike Thomas
Chief, Conservation Planning Branch
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

Subject: Request for Technical Assistance for the Guy West Bridge Restoration Project: Elderberry Shrub Protective Measures

Dear Mike:

This letter was prepared on behalf of the City of Sacramento (City) for the proposed Guy West Bridge Restoration Project (project), located along the American River Parkway within the City of Sacramento (**Figure 1**). This location corresponds to Township 8N, Range 5E, Section 10 of the Sacramento East, CA U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map (USGS, 1980). The existing Guy West Bridge is a suspension bridge that provides a primary access route for pedestrians and bicyclists travelling from the Campus Commons residential area (east of the existing bridge) to the California State University Sacramento (CSUS) Campus (west of the bridge).The City proposes to implement a restoration plan for the Guy West Bridge to ensure the continued safe performance of the bridge. The proposed restoration plan would restore two suspender rope connections; repair one truss strut member, replace all deck seals and repair deck spalls; fully remove and replace the paint system; replace handrail hardware; repair loose utility conduit; and replace approach truss bearing pads. The City intends to complete the restoration work in a manner that minimizes environmental impacts to the American Parkway and existing biological resources within and adjacent to the project area while maintaining access across the bridge. The City plans to implement the proposed project during the May-November 2014 construction season in two stages (the contractor will select the east or west side of the bridge to restore first in order to avoid impacts to the Eppies Great Race that occurs in mid- to late-July).

The proposed project area encompasses the Guy West Bridge, which spans across the American River, and adjacent riparian habitat (**Figures 2 and 3**). The project area has the potential to support several federally listed special-status species, including: Central valley steelhead (*Oncorhynchus mykiss*), Central Valley fall-/late-fall-run Chinook (*Oncorhynchus tshawytscha*), and Valley elderberry longhorn beetle (VELB) (*Desmocerus californicus dimorphus*). The proposed project would have no effect on fish species because construction activities associated with the bridge and the use of construction access routes and staging areas do not include in-water work or would involve ground disturbing activities that would directly or indirectly affect fish species within the American River. Additionally, the project includes a requirement for the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that would avoid and/or minimize any potential effects to fish species and the water quality of the American River that could occur through construction activities on the bridge.

Elderberry shrubs with suitable stem size (1 inch or greater in diameter at ground level) to support VELB occur within the project area and in proximity to construction access routes and staging areas; the location of elderberry shrubs is illustrated in Figures 2 and 3 and photographs of representative habitat are located in **Appendix A**. The proposed project would not result in the incidental take of VELB because: (1) no elderberry

shrubs will be removed as a result of the project, and (2) protective measures will be implemented to further reduce potential ground disturbance and incidental damage to elderberry shrubs during construction. The following proposed conservation measures will be incorporated into the design of the proposed project and stipulated in the Project Specifications to ensure impacts to elderberry shrubs and VELB would be avoided and minimized.

Proposed Conservation Measures

1) **Environmental Awareness Training:** The City contractor will provide construction worker awareness training. Work crews will be briefed on the status of the VELB, the need to protect its host plant (elderberries), requirements to avoid damaging elderberry shrubs, and possible penalties for not complying with identified avoidance and minimization measures. In addition, construction workers should be made aware of the habitat needs of VELB and the location of environmentally sensitive areas on the site.

2) **Site Access Routes and Equipment Staging Areas:**

   a) All project personnel will access the project via established roadways, trails, or designated pathways.

   b) Construction equipment and materials will be stored in designated staging areas outside of environmentally sensitive areas including habitat for special-status species.

   c) The construction contractor will erect a temporary fence to exclude access routes and equipment staging areas from sensitive biological resources within the project area. No construction activities will occur beyond the temporary fence.

3) **Site Preparation:**

   a) Containment scaffolding (required for paint activities at each existing tower) will be installed carefully in the vicinity of the east tower to avoid damage to a nearby elderberry shrub (ELD#6). If necessary, the construction crew may carefully pull the shrub away from the tower and temporarily secure it with a rope to ensure scaffolding installation does not impact stems measuring 1" or greater in diameter. No stems measuring 1" or greater in diameter will be trimmed.

   b) Elderberry shrubs extending into the access route on the west side of the bridge will be pulled back gently and temporarily tied back with rope to prevent breakage. No stems measuring 1" or greater in diameter will be trimmed.

4) **Avoidance of Impacts and Establishment of a Buffer Zone:**

   a) Where feasible, the construction contractor will maintain a setback of 100 feet from all elderberry shrubs to avoid impacts to VELB. If the 100 foot setback is not feasible, the construction contractor will create a 20-foot buffer around each potentially affected shrub and install high-visibility protective fencing around elderberry shrubs. Due to space limitations and site-specific physical features, it may not be feasible for the construction contractor to establish the 20-foot buffer in some locations. In such areas, a biological monitor will be on-site to monitor construction work as described below (Conservation Measure #5).

   b) Erect signs every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a threatened species, and must not be disturbed. This

species is protected by the Endangered Species Act of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet, and must be maintained for the duration of construction.

5) **Biological Monitor:** A biological monitor will be on-site to monitor site preparation activities that occur in the vicinity of elderberry shrubs. The biological monitor will be present during activities which involve the installation of scaffolding adjacent to the east tower and installation of protective fencing for elderberry shrubs and environmentally sensitive areas on the east and west sides of the bridge. During active construction in the vicinity of elderberry shrubs, the biological monitor will conduct weekly site visits to inspect the condition of protective fencing around each elderberry shrub. The health condition of the retained shrubs will be assessed weekly and photographs will be taken to record site activities. The biological monitor will provide recommendations to the construction contractor if protective fencing requires maintenance or repair.

6) **Restoration:** All areas within the 100-foot buffer of an elderberry shrub will be restored to the previous condition. Provide erosion control and re-vegetate with appropriate native plants (if applicable).

7) **Chemicals:** No insecticides, herbicides, fertilizers, or other chemicals that might harm the beetle or its host plant will be used in the buffer areas or within 100 feet of any elderberry plant with one or more stems measuring 1 inch or greater in diameter at ground level.

8) **Mowing:** No mowing will occur within five feet of elderberry plant stems. Mowing must be done in a manner that avoids damaging plants (an example of damaging activity includes striping away bark through careless use of mowing/trimming equipment).

9) **Water Quality:** A Storm Water Pollution Prevention Plan (SWPPP) will be prepared for the proposed project that will address water quality impacts associated with development of the project. Water quality control measures that will be implemented in the SWPPP will include but are not limited to the following:

   a) Temporary erosion control measures (such as silt fences, staked wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation) will be employed for disturbed areas, stockpiled soil, and along drainages.

   b) Dirt and debris will be swept from paved areas in the construction zone on a daily basis as necessary to remove excessive accumulations of silt, mud or other debris.

   c) Existing vegetation will be retained where possible. To the extent feasible, grading activities will be limited to the immediate area required for construction. Grass or other vegetative cover will be established on bare soils within the construction site as soon as possible after disturbance.

   d) No disturbed surfaces will be left without erosion control measures in place during the winter and spring months (October 1st to April 30th).

   e) A spill prevention and countermeasure plan will be developed, if necessary, which will identify proper storage, collection, and disposal measures for potential pollutants used on-site.

10) **Best Management Practices:** In addition to the measures included in the SWPPP, a number of mitigation measures and Best Management Practices (BMPs) have been incorporated into the proposed project:

a) Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on haul roads, construction areas, and stockpiles.

b) Properly dispose of oil or other liquids.

c) Fuel and maintain vehicles in a specified area that is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to the American River.

d) Fuels and hazardous materials will not be stored on site.

e) Inspect and maintain vehicles and equipment to prevent the dripping of oil or other fluids.

f) Schedule construction to avoid the rainy season as much as possible. If rains are forecasted during construction, additional erosion and sedimentation control measures would be implemented.

g) Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event.

h) Train construction workers in storm water pollution prevention practices.

i) Revegetate disturbed areas in a timely manner to control erosion.

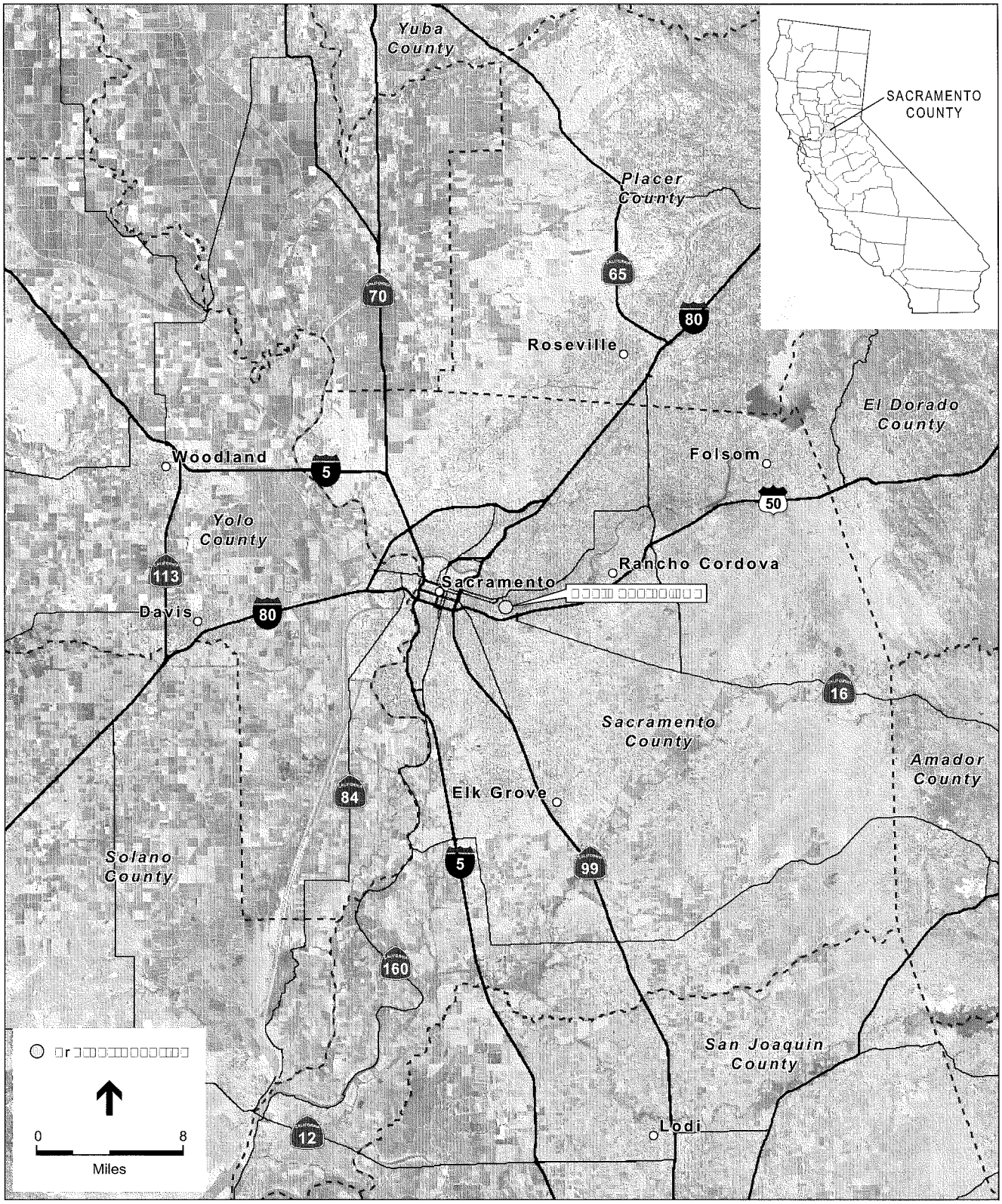
With the above conservation measures incorporated into the proposed project, it is anticipated that project activities would not result in direct impacts to elderberry shrubs and the VELB. Additionally, implementation of best management practices will further reduce potential indirect impacts to elderberry shrubs and the VELB.

In addition to providing notification to the Service, we seek additional input on conservation measures (if any) which may enhance the protection of suitable elderberry shrubs and the VELB during project implementation. Please provide your comments no later than April 10, 2014 and let me know if you need additional information.

Sincerely,

LeChi Huynh

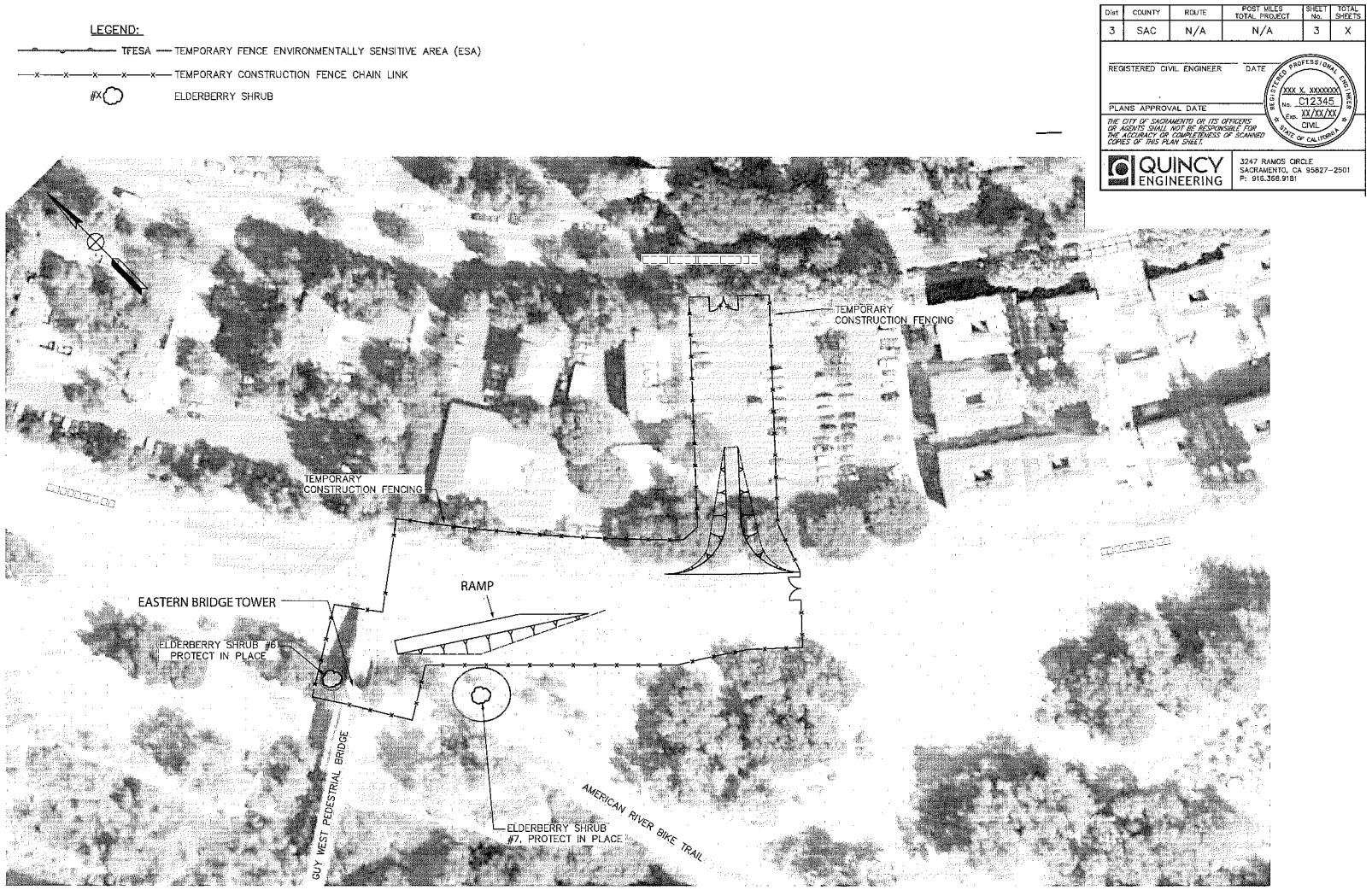
LeChi Huynh
Associate Biologist
Environmental Science Associates
2600 Capitol Avenue, Suite 200
Sacramento, CA 95816
(916) 564-4500



SOURCE: USDA, 2012; ESRI, 2012; ESA, 2013

Guy West Bridge Rehabilitation Project . 120851

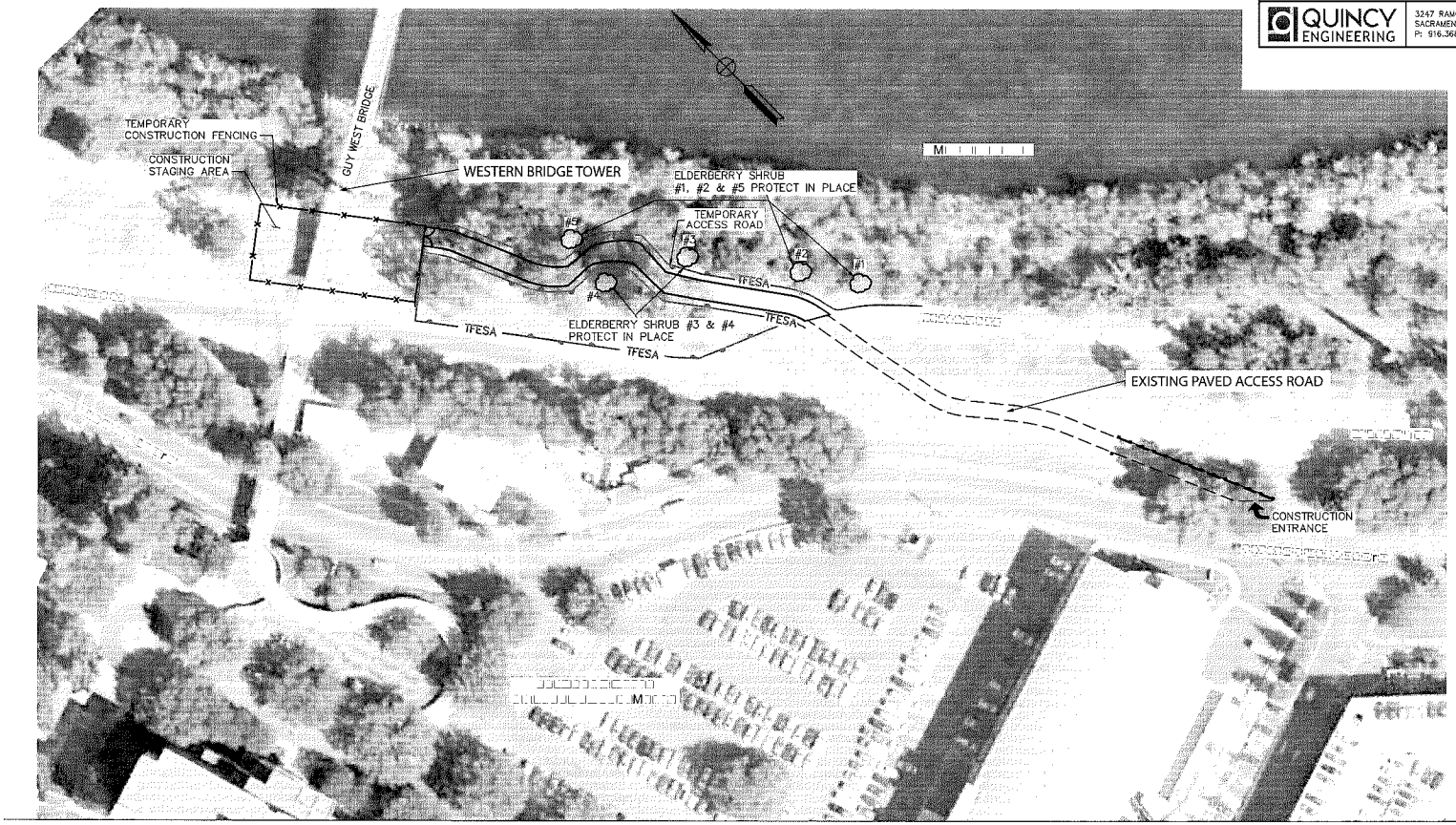
Figure 1
Regional Locator



SOURCE: Quincy Engineering, Inc., 2010; ESA, 2014

Guy West Bridge Rehabilitation Project . 120851

Figure 2
Eastern Side



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
3	SAC	N/A	N/A	4	X

REGISTERED CIVIL ENGINEER — DATE

PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER — XXX X. XXXXXX — No. C12345 — Exp. XX/XX/XX — CIVIL — STATE OF CALIFORNIA

QUINCY ENGINEERING
3247 RAMOS CIRCLE
SACRAMENTO, CA 95827-2501
P: 916.368.9181

SOURCE: Quincy Engineering, Inc., 2010; ESA, 2014

Guy West Bridge Rehabilitation Project . 120851

Figure 3
Western Side

APPENDIX A – SITE PHOTOS

Photo 1. Elderberry shrub #6, located adjacent to the Eastern Bridge Tower.

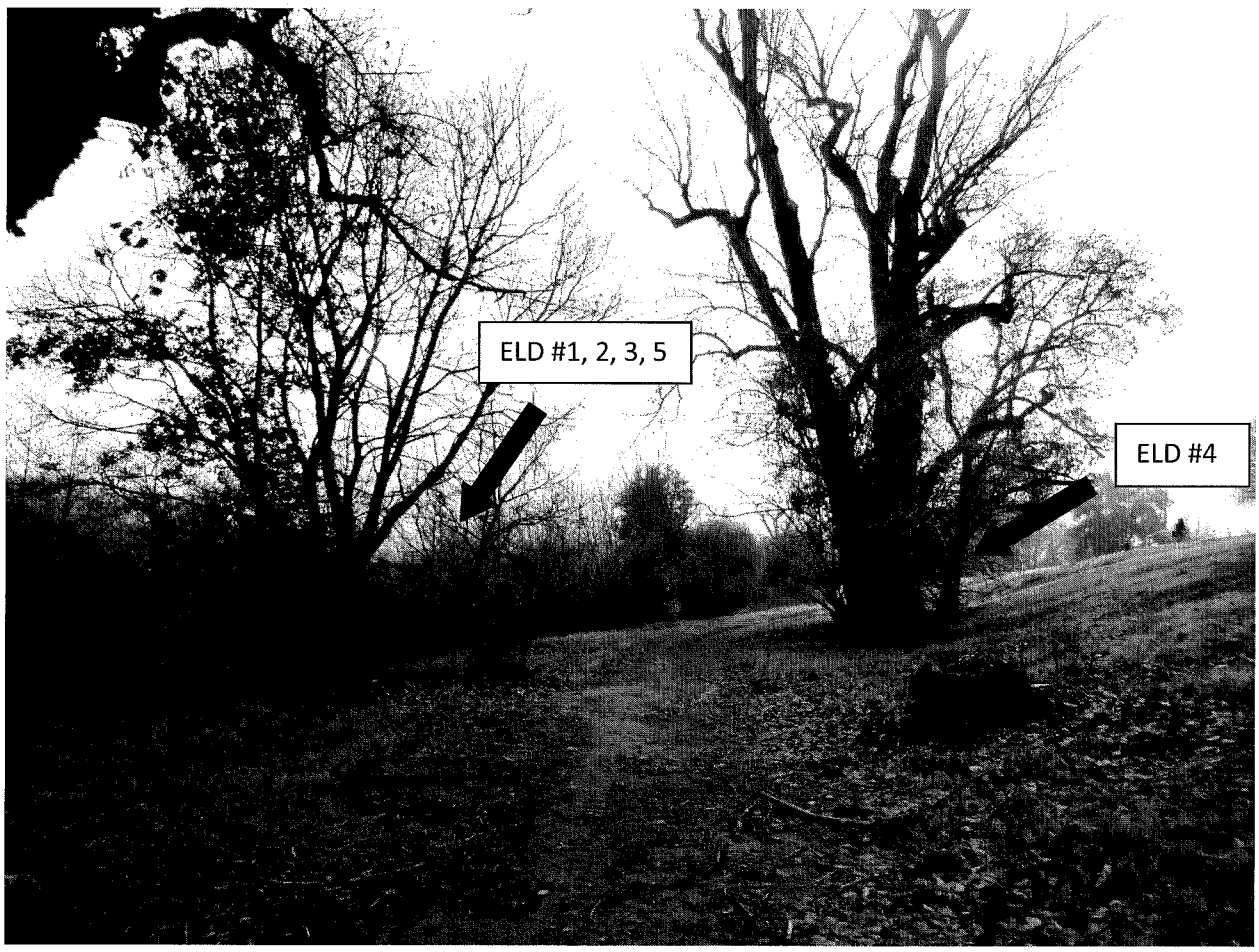


Photo 2. Elderberry shrub # 4 and general location of elderberry shrubs #1, 2, 3, and 5. View from western bridge tower toward southeast.

Photo 3. View of general habitat in vicinity of elderberry shrub # 7 (view from top of levee to the south).

Guy West Bridge Restoration Project (K15105000)(SCH#: 2013102201) Mitigation Reporting Program

In January 1989, Assembly Bill 3180 went into effect requiring the City to monitor all mitigation measures applicable to this project and included in the Mitigated Negative Declaration. For this project, mitigation reporting will be performed by the City of Sacramento, Community Development Department, in accordance with the monitoring and reporting program developed by the City to implement AB 3180.

This Mitigation Reporting Program is being prepared for the Community Development Department, Environmental Planning Services, 300 Richards Boulevard, 3rd Floor, Sacramento, CA 95811, pursuant to the California Environmental Quality Guidelines, Section 21081.

Project Number: K15105000

Project Name: Guy West Bridge Restoration Project.

Project Location: The Guy West Bridge is located in the City of Sacramento, California. The existing bridge crosses American River between California State University Sacramento and University Avenue in the Campus Commons Community.

Project Description: The project consists of restoration activities including repairs of minor truss and deck repair, repairs of suspender ropes and sockets, repairs of handrail, replacement of bearing pads, and full removal and replacement of the failing lead based paint system.

MITIGATION REPORTING PROGRAM CHECKLIST FOR THE GUY WEST BRIDGE RESTORATION PROJECT (K15105000) (SCH#: 2013102201)

Mitigation Measure	Reporting Milestone	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
AIR QUALITY **AQ-1: Implement Construction-related Emission Control Practices.** The project applicant shall implement all SMAQMD basic construction emission control practices and requirements of SMAQMD Rule 403 during bridge maintenance activities, including the following: • Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads. • Cover or maintain at least two feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered. • Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited. • Limit vehicle speeds on unpaved roads to 15 miles per hour (mph). • All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used. • Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [required by California Code of Regulations, Title 13, sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site. • Maintain all equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determine to be running in proper condition before it is operated.	Prior to and during construction. Mitigation measures shall be included in all construction documents for implementation during construction.	City of Sacramento Department of Public Works and Contractor		
BIOLOGICAL RESOURCES **BR-1: Coordination with USFWS.** Based on field surveys conducted at the project sites, at least nine (9) elderberry shrubs occur within 20 feet of the project impact area, and would require formal consultation under Section 7 of the Endangered Species Act with the USFWS. The City shall coordinate with the USFWS to determine an appropriate	Preparation and approval of an elderberry shrub avoidance plan	City of Sacramento Department of Public Works and		

MITIGATION REPORTING PROGRAM CHECKLIST FOR THE GUY WEST BRIDGE RESTORATION PROJECT (K15105000) (SCH#: 2013102201)

Mitigation Measure	Reporting Milestone	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
avoidance plan for all elderberry shrubs located within 20 feet of the construction disturbance zone.	prior to construction activities.	USFWS		
BR-2: Implement Avoidance Measures for Valley Elderberry Shrubs. The construction contractor shall maintain a setback of 100 feet from all elderberry shrubs to avoid impacts to valley elderberry longhorn beetle. If the 100 foot setback is not feasible, the construction contractor shall implement a number of avoidance measures (in consultation and approval by the City and the USFWS). Such measures may include installing fencing around the shrubs, providing construction worker awareness training, transplanting of shrubs, and requiring biological monitoring during construction. The 1999 *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS, 1999) provides applicable avoidance and minimization measures. No construction shall occur within 100 feet of all elderberry shrubs identified onsite until final approvals are received from the USFWS (Biological Opinion or concurrence letter). Upon City and USFWS approvals, the construction contractor shall create a 20-foot buffer around each potentially affected shrub. Work crews shall be briefed on the status of the beetle, the need to protect its host plant (elderberries), requirements to avoid damaging elderberry shrubs, and possible penalties for not complying with identified avoidance and minimization measures. In addition, construction workers should be made aware of the habitat needs of VELB and the location of protection areas on the site.	Prior to and during construction. Mitigation measures shall be included in all construction documents for implementation during construction.	City of Sacramento Department of Public Works and Contractor		
BR-3: Conduct Pre-Construction Nesting Surveys. For construction activities expected to occur during the nesting season (February-August), a pre-construction survey shall be conducted to determine if active nests are present on or within 500 feet of the project site. The survey should be conducted by a qualified biologist no more than 30 days prior to the onset of construction. If active nests are found on or within 500 feet of the project site during pre-construction surveys, then CDFW should be consulted for additional mitigation measures that may be required. Typically CDFW will recommend that no construction activities occur within 500 feet of the nests, until the young have fledged or until the biologist determines that the nest is no longer active. Additionally, depending on the conditions specific to each nest, and the relative location and rate of construction activities, it may be feasible for construction to occur as planned within the buffer without impacting the breeding effort. In this case (to be determined on an individual basis by a qualified biologist in consultation with CDFW), the nest(s) shall be monitored by a qualified biologist during construction within the buffer. Construction activities may be halted at any time if, in the professional opinion of the biological monitor, construction	Preparation of a nesting survey report prior to the start of construction.	City of Sacramento Department of Public Works		

MITIGATION REPORTING PROGRAM CHECKLIST FOR THE GUY WEST BRIDGE RESTORATION PROJECT (K15105000) (SCH#: 2013102201)

Mitigation Measure	Reporting Milestone	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
activities are negatively impacting the breeding effort. Implementation of the pre-construction surveys should also be consistent with the protocol standards devised by the Swainson's Hawk Technical Advisory Committee (TAC) and endorsed by the CDFW (Swainson's Hawk TAC, 2000). If no active nests are identified during the pre-construction survey, no further mitigation is necessary. If construction activities are proposed to occur during the non-breeding season (September-January), a pre-construction survey is not required and no further studies are necessary.				
HYDROLOGY AND WATER QUALITY **HWQ-1: Implement Water Quality Best Management Practices.** The project contractor would be required to obtain a National Pollution Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board (RWQCB), Central Valley Region. As part of the permit, the contractor would be required to prepare and implement a SWPPP into their construction plans, prior to initiating construction activities, identifying BMPs to be used to avoid or minimize any adverse effects before, during, and after construction to surface waters. The following BMPs will be incorporated into the project as part of the construction specifications: • Implement appropriate measures to prevent debris, soil, rock, or other material from entering the water. Use a water truck or other appropriate measures to control dust on applicable access roads, construction areas, and stockpiles. • Properly dispose of oil or other liquids. • Fuel and maintain vehicles in a specified area that is designed to capture spills. This area cannot be near any ditch, stream, or other body of water or feature that may convey water to a nearby body of water. • Fuels and hazardous materials would not be stored on site. • Inspect and maintain vehicles and equipment to prevent the dripping of oil or other fluids. • Schedule construction to avoid the rainy season as much as possible. Ground disturbance activities are expected to begin in the spring/summer of 2014. If rains are forecasted during construction, additional erosion and sedimentation control	Prior to and during construction. Mitigation measures shall be included in all construction documents for implementation during construction.	City of Sacramento Department of Public Works and Contractor		

MITIGATION REPORTING PROGRAM CHECKLIST FOR THE GUY WEST BRIDGE RESTORATION PROJECT (K15105000) (SCH#: 2013102201)

Mitigation Measure	Reporting Milestone	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
measures would be implemented. • Maintain sediment and erosion control measures during construction. Inspect the control measures before, during, and after a rain event. • Train construction workers in storm water pollution prevention practices. • Revegetate disturbed areas in a timely manner to control erosion.				
NOISE **N-1: Implement Construction-related Noise Reduction Measures.** The project applicant shall implement the following noise reducing measures: • Maintenance equipment and vehicle noise would be minimized during project construction by muffling and shielding intakes and exhaust on maintenance/construction equipment (per the manufacturer's specifications) and by shrouding or shielding paint application/recycling equipment. • All equipment, haul trucks, and worker vehicles would be turned off when not in use for more than 10 minutes. • Residences and businesses would be notified about the type and schedule of maintenance activities at least two weeks prior to mobilization.	Prior to and during construction. Mitigation measures shall be included in all construction documents for implementation during construction.	City of Sacramento Department of Public Works and Contractor		
TRANSPORTATION AND CIRCULATION **TC-1: Implement Traffic Control Plan.** The project contractor would be required to develop a Traffic Control Plan, which would be reviewed and approved by the City of Sacramento prior to construction. This plan would include the following measures: • Do not permit construction vehicles to block any roadways or private driveways. • Provide access for emergency vehicles at all times. • Select travel routes to avoid schools, parks, and high pedestrian use areas when possible. Crossing guards provided by the contractor would be used when truck trips coincide with schools hours and when travel routes cross student travel path. • Obey all speed limits, traffic laws, and transportation regulations during construction. If speed limits are not posted, construction vehicles would not	Prior to and during construction. Mitigation measures shall be included in all construction documents for implementation during construction.	City of Sacramento Department of Public Works and Contractor		

MITIGATION REPORTING PROGRAM CHECKLIST FOR THE GUY WEST BRIDGE RESTORATION PROJECT (K15105000) (SCH#: 2013102201)

Mitigation Measure	Reporting Milestone	Reporting / Responsible Party	Verification of Compliance	
			Initials	Date
exceed 15 miles per hour on unpaved levee roads. • Use signs and flagmen, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflict with construction vehicles or equipment. • Construction employee parking would be restricted to the designated staging areas. • No road closures are anticipated; however, in the event that road closures are necessary, local agencies and affected organizations would be notified prior to construction. • Closure of levee roads, construction sites, and public access areas for construction use would be clearly fenced and delineated with appropriate closure signage. • Require cyclists to dismount and walk bikes when bike/pedestrian path is narrowed to eight feet.				

Item 5

TEMPORARY PERMIT

Trustees of the California State University grant permission to City of Sacramento (Grantee), its officers, agents, and invitees, to enter upon the portion of the Trustees' property shown on Exhibit A and to use that property for staging activities for painting of the Guy West Bridge consisting of ingress and egress to construction area, stockpiling of materials, equipment storage, and for such other incidental purposes as may be required.

The permissive rights hereby granted shall be for the period beginning April 15, 2014 and ending December 31, 2014, or two calendar months after the completion of construction, whichever occurs first. After Grantee completes the task described above and satisfies all other conditions of this Permit, a Trustees' Agreement and Grant of Easement shall be executed.

Grantee agrees to indemnify Trustees and its agents and employees, for any loss caused by the exercise of this Permit, and Grantee agrees to indemnify and defend Trustees and its agents and employees from all loss or liability they incur which is in any way connected with Grantee's exercise of the rights granted by this Permit, except those arising out of the sole negligence of Trustees.

Additional conditions on page 2 of this document constitute a part of this Permit.

Date 12-16-13

APPROVED:

Dr. Ali Izadian
Associate Vice President
Facilities Services
California State University, Sacramento

GRANTEE: City of Sacramento,
a municipal corporation

By _____

John Dangberg, Assistant City Manager
For: John F. Shirey

APPROVED AS TO FORM:

Jill C. Peterson
University Counsel
Office of General Counsel
California State University

Dated: _____

APPROVED AS TO FORM:

By _____
City Attorney

ATTEST:

By _____ 12/05/2013
City Clerk

2013-1111
Title: Guy West Bridge Restoration
Other Party: California State University

ADDITIONAL CONDITIONS OF PERMIT:

1. Grantee will advise the California State University, Sacramento, Facilities Office of the work schedule prior to starting construction.

2. Grantee will provide as-built drawings to the campus Facilities Office at the completion of construction.

3. Grantee is hereby advised that utility lines of unknown nature and origin may be present in the proposed easement area.

4. Grantee will ensure that its employees, contractors, and agents will coordinate with the campus Facilities Office with respect to other ongoing work on the campus and with respect to allowable work hours.

6. Grantee shall bear all expenses to restore any element of the campus that they damage or destroy.

7. All construction areas are to be kept clean, safe, and orderly at all times.

Exhibit A
Staging and Construction Area

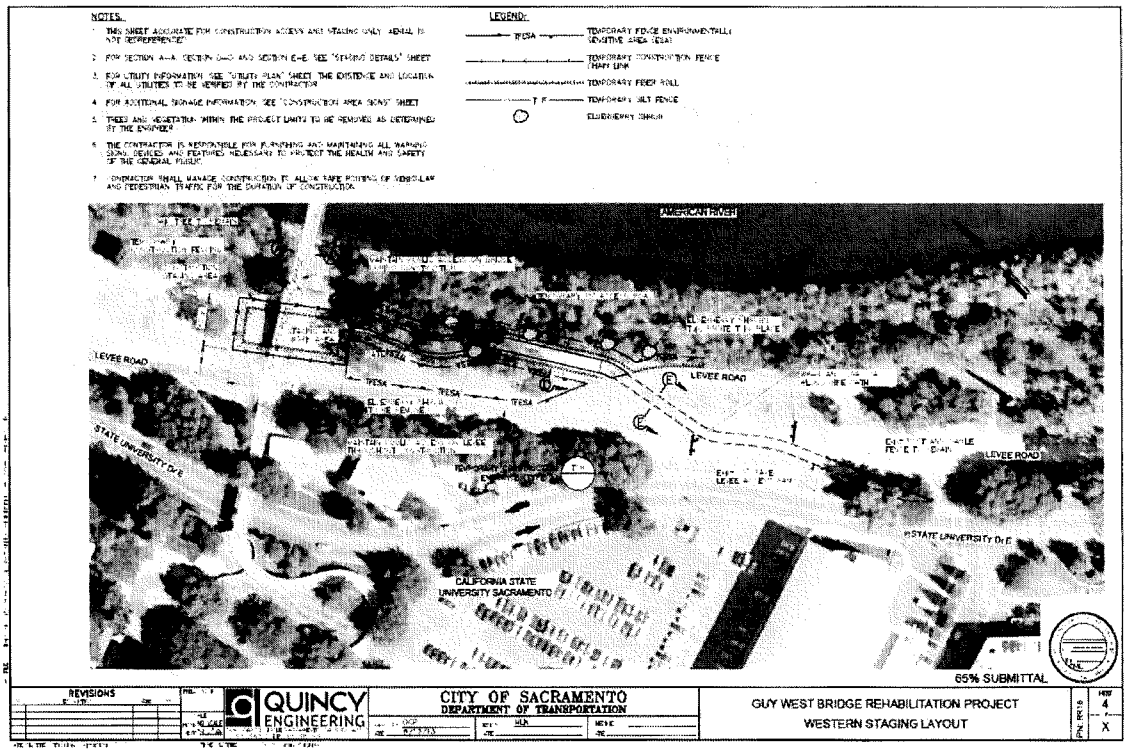
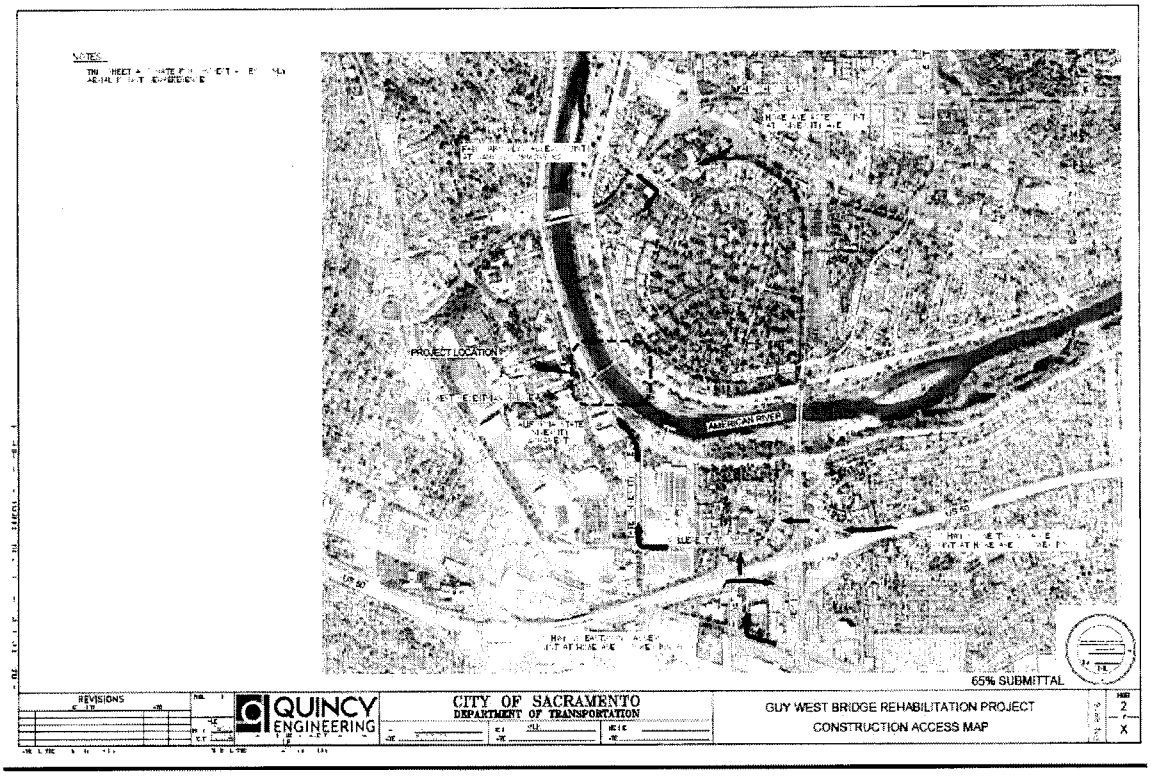


Exhibit B
Showing access from City street to State University Drive



RED File No.: COP 11680
OWNER: County of Sacramento (Regional Parks)
APN's: 295-0040-004, 295-0040-012
Project: Guy West Bridge Restoration

Item 6

PERMIT-TO-ENTER

This Permit-to-Enter (hereinafter "Permit") is dated for reference purposes as of 1-, 2014 and is made by and between the **COUNTY OF SACRAMENTO**, a political subdivision of the State of California, (hereinafter referred to as "COUNTY"), and the **CITY OF SACRAMENTO,** a municipal corporation (hereinafter referred to as "PERMITTEE").

The parties hereby agree as follows:

1. **Premises** - COUNTY grants PERMITTEE and its authorized agents non-exclusive permission to enter onto the property identified as a portion of APN's 295-0040-004 and 295-0040-012, located east of the Guy West Foot Bridge on the north bank of the lower American River in the Campus Commons area situated in the City of Sacramento, California, (hereinafter referred to as "Premises"), and more particularly shown in Exhibit "A" attached hereto and incorporated by reference for the Purposes herein after described.

2. **Purpose** - The sole purpose of this Permit is to allow PERMITTEE to enter upon and have ingress to and egress from portions of the Premises, for a haul route and staging area during bridge restoration, in accordance with the Final Initial Study/Mitigated Negative Declaration for the Guy West Bridge Restoration Project (hereinafter referred to as "Project"). PERMITTEE's use of the Premises shall be in accordance with the terms of this Permit, and shall be in accordance with the following conditions:

   - PERMITTEE shall provide COUNTY fourteen (14) calendar day's written notice prior to entering the Premises and prior to closing or redirecting bike trail traffic. Notice shall be in writing and approved by the Department of Regional Parks (hereinafter "Parks") Chief Park Ranger (4040 Bradshaw Road, Sacramento, CA 95827). Within seven (7) calendar days following submission of the notice to Parks, Parks shall do one of the following: 1) Approve PERMITTEE's access; or 2) Notice PERMITTEE of any additional conditions restrictions or safety items that will be required of PERMITTEE for Parks' approval.
   - PERMITTEE shall enter the Premises only at defined access points identified in the Project Mitigated Negative Declaration document. PERMITTEE shall keep the gates locked during and after accessing or exiting the Premises in accordance with the notice.
   - PERMITTEE shall provide fencing, temporary gates, and signage sufficient to prevent any project related increased opportunity for trespass onto the Premises.
   - PERMITTEE shall contact County Parks Senior Natural Resource Specialist Mary Maret (4040 Bradshaw Road, Sacramento, CA 95827; Phone: 916-875-4918) prior to removing any woody vegetation.
   - PERMITTEE shall at all times conduct its use of the Premises in such a manner that it shall not constitute a public or private nuisance.
   - No trash or other evidence of field visits will be left on the property.
   - All field staff will carry identification.
   - No firearms will be permitted.

- Perimeter fencing must be installed with adequate separation from the decomposed granite pedestrian trail to allow pedestrians room to walk unobstructed between the asphalt bike trail and the perimeter fence.
- All machinery and vehicles will be equipped with spark arrestors.
- All vehicles will stay on roads; no off-road vehicles will be permitted unless addressed and expressly allowed for in the written notice.
- Vehicle speeds will be kept to ten (10) miles per hour on unpaved roads and if applicable, for any off-road activities, to minimize dust.
- If applicable, pets must be kept on a leash at all times pursuant to Sacramento County Code Section 9.36.061(d).
- All permitted encroachments, with the exception of the areas shaded in orange on the attached map, are to be cleared of project equipment and materials, restored, and available for public use from 11:59 p.m. on July 17th to 11:59 p.m. on July 19th. Areas shaded with orange may be fenced for public safety, however, a corridor of gravel road below the bridge must remain open, as shown on the attached map.

3. **Term** - This Permit shall commence on April 15, 2014. Permit shall expire at 11:59 p.m. on December 31, 2014 ("Expiration Date"), or terminate at such time as PERMITTEE has completed its work, whichever is earlier. PERMITTEE agrees to notify the Regional Parks Director when construction is completed. If construction is not completed during the Term of this Permit, PERMITTEE shall renew the Permit by requesting an extension from and submitting the applicable fees to COUNTY, at least thirty (30) days prior to Expiration Date.

4. **Permit Costs –** PERMITTEE shall make separate payments to the County of Sacramento, Real Estate Division, 3711 Branch Center Road, Sacramento, CA 95827 and County of Sacramento, Department of Regional Parks, 4040 Bradshaw Road, Sacramento, CA 95827.

    a. Administrative Charges - Within thirty (30) days of the date this agreement is executed, PERMITTEE shall pay to COUNTY OF SACRAMENTO, REAL ESTATE DIVISION a non-refundable administrative payment in the amount of TWO THOUSAND FIVE HUNDRED DOLLARS AND NO CENTS ($2,500.00) to cover the administrative cost for Real Estate staff time and PERMITTEE shall pay to COUNTY OF SACRAMENTO, REGIONAL PARKS a non-refundable administrative payment in the amount of TWO THOUSAND FIVE HUNDRED DOLLARS AND NO CENTS ($2,500.00) to cover the administrative costs for Regional Parks staff time.

    b. COUNTY Processing Costs – In the event that COUNTY incurs other costs administering this Permit after execution (hereinafter "Other Costs"), PERMITTEE shall promptly reimburse COUNTY for said Other Costs, including but not limited to, all of COUNTY's staff time, the hiring of any consultants, reasonable attorney fees and costs, all postage (both first class and express mail) and all materials used or expended by COUNTY. PERMITTEE shall make said reimbursement to COUNTY within thirty (30) days of receipt of COUNTY's written reimbursement request. Should PERMITTEE not timely reimburse COUNTY as provided under this Section, this Permit will terminate.

5. **Expenses** – PERMITTEE shall bear any and all costs and expenses associated with Permit and use by PERMITTEE.

6. **Surrender/Restoration** – PERMITTEE shall peaceably surrender possession of the Premises upon expiration or sooner termination of this Permit and restore the Premises as provided in Paragraph 2 of

this Section, excepting reasonable wear, destruction by lightning or other natural causes, or fire not caused by the acts or omissions of PERMITTEE, its officers, agents, employees, subcontractors, customers, invitees, or other persons doing business with PERMITTEE, or on the Premises with the consent of PERMITTEE.

PERMITTEE shall restore the Premises to the condition it was in immediately prior to PERMITTEE's entry onto the Premises for PERMITTEE's Project purposes, and restore it to the reasonable satisfaction of COUNTY, in the sole discretion of COUNTY. PERMITTEE shall submit to COUNTY photographic documentation of the Premises condition prior to entry under this Permit and of the Premises as restored by PERMITTEE upon expiration or termination.

Upon expiration or termination of this Permit, PERMITTEE shall promptly remove all personal property not owned by COUNTY. All injury or damage to COUNTY property, both real and personal, caused by such removal shall be repaired at PERMITTEE's sole cost and expense. PERMITTEE shall remove or dispose of such property within thirty (30) days of such expiration. Should PERMITTEE fail to remove or dispose of such property in a manner satisfactory to COUNTY, COUNTY may, at its election, consider such property abandoned and may dispose of same at PERMITTEE's expense, or after sixty (60) days of such expiration or termination, and declare the personal property of PERMITTEE to be COUNTY property.

7. **Damage** - PERMITTEE shall be responsible for any personal injury or property damage caused by its acts or omissions. PERMITTEE shall undertake all activities hereunder so as to minimize any damage or destruction of the American River Parkway Bike Trail, fences, pipelines, facilities, equipment, or other property or appurtenances of COUNTY, its lessees or licensees. PERMITTEE agrees to reimburse COUNTY for any such damage or destruction, or upon mutual agreement to replace or restore said American River Parkway Bike Trail, fences, pipelines, facilities, equipment, or other property to COUNTY's satisfaction.

   No work performed by PERMITTEE shall cause any unreasonable interference with the constant, continuous and uninterrupted use of the Premises by COUNTY, its officers, agents, contractors, lessees, licensees or others. PERMITTEE shall undertake all activities hereunder so as to minimize any damage or destruction of the fences, pipelines, facilities, equipment, or other property or appurtenances of COUNTY, its lessees or licensees. PERMITTEE agrees to reimburse COUNTY for any such damage or destruction or upon mutual agreement to replace or restore said fences, pipelines, facilities, equipment, or other property to COUNTY's satisfaction.

   The provisions of this Paragraph shall survive the expiration or termination of this Permit.

8. **Environmental Fines and Penalties** – Notwithstanding the foregoing, PERMITTEE shall assume responsibility for and payment of any fines or penalties levied on either the COUNTY or PERMITTEE by any local, state or federal authority (hereinafter Authority) for breaches of the Authority's environmental regulations. PERMITTEE agrees to be solely liable for the payment of all fines and penalties resulting from PERMITTEE's breach of Authority's environmental regulations, except and in proportion to the extent caused by the negligence or willful misconduct of COUNTY.

   In addition, PERMITTEE understands and acknowledges that, during the course of the activities allowed by the Permit, the environmental regulations implemented or imposed by the Authority on the COUNTY and PERMITTEE may change and PERMITTEE specifically agrees to comply with any future environmental regulations implemented or imposed by the Authority on the COUNTY or PERMITTEE.

The provisions of this Paragraph shall survive the expiration or termination of this Permit.

9. **Indemnification** – PERMITTEE shall indemnify, defend, and hold harmless COUNTY, its Board of Supervisors, officers, directors, employees, agents, and volunteers from and against all claims, demands, actions, losses, liabilities, costs, injuries, and damages, including reasonable attorneys' fees, and including injury to or death of persons, arising out of or arising from PERMITTEE's use of the Premises hereunder, or the use of the Premises by PERMITTEE's officers, directors, employees, agents, representatives, contractors, sub-contractors, consultants, sub-consultants, invitees and volunteers, except and in proportion to the extent caused by the sole negligence or willful misconduct of the COUNTY, its Board of Supervisors, officers, directors, employees, agents or volunteers, where such indemnification would be invalid under Section 2782 of the Civil Code.

   This indemnity shall not be limited by the types and amounts of insurance or self-insurance maintained by the PERMITTEE or the PERMITTEE's contractors.

   Nothing in this indemnity shall be construed to create any duty to, any standard of care with reference to, or any liability or obligation, contractual or otherwise, to any third party.

10. **Insurance** – Each party, at its sole cost and expense, shall carry insurance, or self-insure its activities in connection with this Permit, and obtain, keep in force and maintain, insurance or equivalent program of self-insurance, for property, professional liability, general liability, workers compensation and business automobile liability adequate to cover its potential liabilities hereunder.

    PERMITTEE shall provide COUNTY proof of insurance or self-insurance upon PERMITTEE's execution of this Permit.

11. **Compliance with Laws** – In the prosecution of the work covered by this Permit, PERMITTEE shall comply with all applicable federal, state and local laws, regulations and enactments affecting the work. In addition, PERMITTEE shall comply with all applicable local, state and federal occupational safety and health acts and regulations. If any failure by PERMITTEE to comply with any such laws, regulations, and enactments, shall result in any fine, penalty, cost or charge being assessed, imposed or charged against COUNTY, PERMITTEE shall reimburse and indemnify COUNTY for any such fine, penalty, cost or charge, including without limitation attorney's fees, court costs and expenses (excepting environmental fines and penalties which shall be handled in accordance with Paragraph 8 above). PERMITTEE further agrees in the event of any such action, upon notice thereof being provided by COUNTY, to defend such action free of cost, charge or expense to COUNTY. The provisions of this Paragraph shall survive the expiration or termination of this Permit.

    a. Stormwater Quality – Prior to commencement of construction of the Project, COUNTY Stormwater Quality staff shall certify the Stormwater Pollution Prevention Plan (SWPPP) which must meet all requirements of the Sacramento County Storm Water Ordinance (Sacramento County Code Section 15.12). The SWPPP must include all of the components required by the Construction General Permit as well as temporary construction BMPs (Best Management Practices) at the Premises. The County of Sacramento Department of Water Resources (DWR) reserves the right to approve and/or revise the permanent stabilization proposed in the SWPPP. Prior to commencing construction, the certified SWPPP shall be submitted to the California Regional Water Quality Control Board (RWQCB) by the PERMITTEE.

DWR staff will monitor the Project for continued compliance with the Sacramento County Storm Water Ordinance. Should PERMITTEE, PERMITTEE's contractors, agents or assignees receive notice from the County and/or the RWQCB that a violation has occurred or is imminent, all work other than corrective action related thereto shall be immediately suspended until the corrective action is deemed satisfactory by the County and/or the RWQCB. Time is of the essence. Failure to comply may result in an immediate suspension of this Permit until the Project is deemed by the County and/or the RWQCB to be in compliance. For purposes of this paragraph, the parties intend that the word "PERMITTEE" shall include the City of Sacramento, its Federal and/or State sponsors and their contractors, agents, or assignees.

The County Department of Water Resources Stormwater Quality Program Manager, (827 7th Street, Room 301, Sacramento, CA 95814; Phone (916) 874-8913) will be contacted concerning any questions related to this Paragraph.

12. **Endangered Species** – PERMITTEE shall at all times in all respects comply with all environmental laws and any amendments thereto affecting PERMITTEE's use of and operation on the Premises, including all federal, state and local laws, ordinances and regulations relating to endangered, threatened and other sensitive species. Without limiting the generality of the foregoing, reference is made to the provisions set forth in the California Endangered Species Act (California Fish and Game Code Section 2050, et seq.); the Federal Endangered Species Act (16 U.S.C. Sections 1531 – 1543); and the Federal Migratory Bird Treaty Act (16 U.S.C. Sections 703-712).

    PERMITTEE shall, at all times, engage in appropriate avoidance and minimization measures to prevent the unlawful take, possession or destruction of any protected species. This includes birds-of-prey, and the take, possession or destruction of the eggs and nests of any such bird. Furthermore, elderberry shrubs or trees are known to exist in the project vicinity. Elderberry shrubs are host plants for the Valley Elderberry Longhorn Beetle (VELB), listed as Threatened under the federal Endangered Species Act. Therefore, no elderberry shrub or tree shall be disturbed without an appropriate permit from the United States Fish and Wildlife Service.

13. **Cultural Resources** – Should any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains be encountered during any activities, work shall be suspended and the Sacramento County Department of Planning and Environmental Review (PER) shall be immediately notified at (916) 874-6141. At that time, PER will coordinate any necessary investigation of the find with appropriate specialists as needed. The project applicant shall be required to implement any mitigation deemed necessary for the protection of the cultural resources. In addition, pursuant to Section 5097.97 of the State Public Resources Code and Section 7050.5 of the State Health and Safety Code, in the event of the discovery of human remains, all work is to stop and the Sacramento County Coroner shall be immediately notified. If the remains are determined to be Native American, guidelines of the Native American Heritage Commission shall be adhered to in the treatment and disposition of the remains.

14. **Maintenance** – PERMITTEE shall care for the Premises, including the approaches thereto and all appurtenances of the Premises, including but not limited to, all fences, gates, wells, ditches, roadways, and levees with its associated flood control features, and maintain them in the same condition as received at the commencement of the Project, normal wear and tear excepted. PERMITTEE is responsible for weed abatement.

15. **Notices** - Any notice required to be given hereunder, or which either may wish to give, shall be in writing and shall be personally delivered or sent by certified mail or registered mail, postage paid, addressed as follows:

Or to such other place as either party may designate by written notice:

COUNTY

County of Sacramento
Department of Regional Parks
4040 Bradshaw Road
Sacramento, CA 95827
Attn: Director' Office
(916) 875-6132 phone
(916) 875-6632 fax

PERMITTEE

City of Sacramento, a
municipal corporation
915 I Street
Sacramento, CA 95814
Attn: Ricky Chuck, Project Manager
(916) 808-5050 phone

With a copy to:
County of Sacramento
Real Estate Division
Attn: Asset Management Section
3711 Branch Center Road
Sacramento, CA 95827
(916) 876-6200

16. **Amendments** – Modifications or amendments to the terms of this Permit shall be in writing and executed by both Parties.

17. **Early Termination** -
    a. COUNTY may terminate this Permit without cause upon thirty (30) days written notice to the other party. Notice shall be deemed served on the date of mailing. If notice of termination for cause is given by COUNTY to PERMITTEE and it is later determined that PERMITTEE was not in default or the default was excusable, then the notice of termination shall be deemed to have been given without cause pursuant to this paragraph.
    b. COUNTY may terminate this Permit for cause immediately upon giving written notice to PERMITTEE should PERMITTEE materially fail to perform any of the covenants contained in this Permit in the time and/or manner specified. If notice of termination for cause is given by COUNTY to PERMITTEE and it is later determined that PERMITTEE was not in default or the default was excusable, then the notice of termination shall be deemed to have been given without cause pursuant to paragraph (A) above.

18. **Successors and Assigns** – This Permit shall bind the successors and assigns of COUNTY and PERMITTEE in the same manner as if they were expressly named. Waiver by either party of any default, breach or condition precedent shall not be construed as a waiver of any other default, breach or condition precedent or any other right hereunder.

19. **Interpretation and Enforcement** – Interpretation and enforcement of this Permit shall be governed by the laws of the State of California.

20. **Entire Agreement** – This Permit Agreement constituted the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior oral or written agreements and understandings between the parties relating to the subject matter hereof.

21. **Counterparts** – This Permit may be executed in counterparts, which shall, in the aggregate, be signed by COUNTY and PERMITTEE.

22. **Authority to Execute** - Each person executing this Permit represents and warrants that he or she is duly authorized and has legal authority to execute and deliver this Permit for or on behalf of the parties to this Permit. Each party represents and warrants to the other that the execution and delivery of the Permit and the performance of such party's obligations hereunder have been duly authorized.

23. **Not an Interest in Real Property** – PERMITTEE acknowledges that this Permit does not convey any interest in real property now or in the future.

24. **Construction of Permit.** Headings at the beginning of each paragraph and subparagraph are solely for the convenience of the parties and are not a part of the Permit. Whenever required by the context of this Permit, the singular shall include the plural and the masculine shall include the feminine and vice versa. It is agreed and acknowledged by the parties hereto that the provisions of this Permit have been arrived at through negotiation, and that each of the parties has had a full and fair opportunity to revise the provisions of this Permit and to have such provisions reviewed by legal counsel. Therefore, the normal rule of construction that any ambiguities are to be resolved against the drafting party shall not apply in construing or interpreting this Permit. All exhibits referred to in this Permit are attached and incorporated by this reference.

25. **Attorney's Fees and Costs** – Any party may bring a suit or proceeding to enforce or require performance of the terms of this Permit, and each party in that suit or proceeding shall be responsible for its own attorney's fees and costs.

Remainder of Page is Intentionally Left Blank.

IN WITNESS WHEREOF, the parties have executed this Permit as follows:

COUNTY

County of Sacramento, a political subdivision of the State of California

Date: _____

By: _____
Michael M. Morse, Director
Department of General Services
Under delegated authority by SCC 2.62.035

PERMITTEE

City of Sacramento, a municipal corporation

By: _____
John Dangberg, Assistant City Manager
For: John F. Shirey, City Manager

Dated: _____

Approved as to Form:

By: _____
City Attorney

Attest:

By: _____
City Clerk

Dated: _____

REVIEWED AND APPROVED BY COUNTY COUNSEL:

By: _____
Stephanie G. Percival
Deputy County Counsel

APPROVED AS TO TERMS:

By: _____
Jeffrey R. Leatherman, Director
Department of Regional Parks

APPROVED AS TO LEGAL FORM AND SUFFICIENCY:

By: _____
To be determined

EXHIBIT "A"
Premises

COUNTY OF SACRAMENTO
APN's : 295-0040-004, 295-0010-012

(Attached as a separate document)

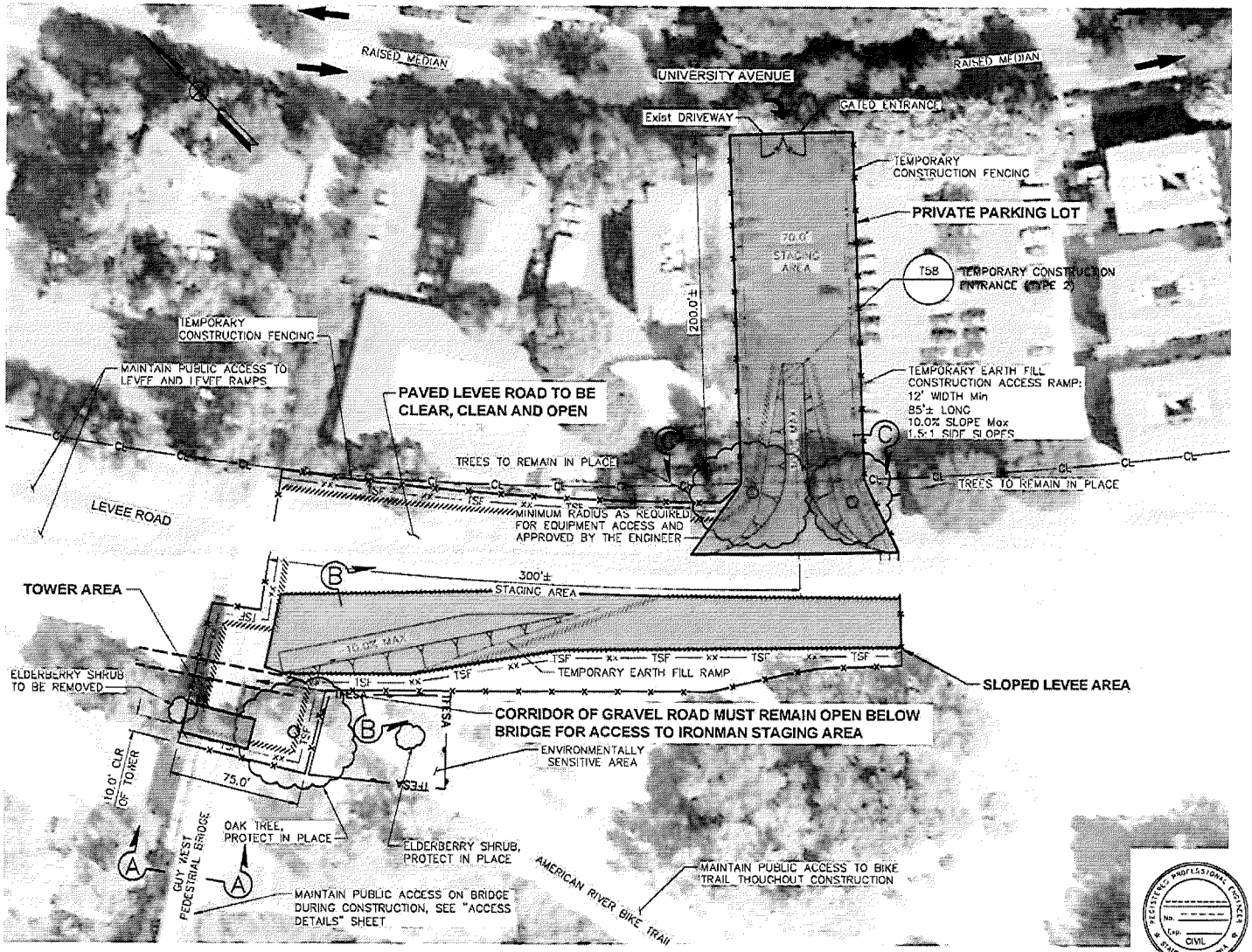
MAXIMUM LIMITS OF CONTRACTOR OCCUPIED AREAS DURING EPPIE'S GREAT RACE

NOTES:

1. THIS SHEET ACCURATE FOR CONSTRUCTION ACCESS AND STAGING ONLY. AERIAL IS NOT GEOREFERENCED.
2. FOR SECTION A–A, SECTION B–B AND SECTION C–C, SEE "STAGING DETAILS" SHEET.
3. FOR UTILITY INFORMATION, SEE "UTILITY PLAN" SHEET. THE EXISTENCE AND LOCATION OF ALL UTILITIES TO BE VERIFIED BY THE CONTRACTOR.
4. FOR ADDITIONAL SIGNAGE INFORMATION, SEE "SIGN DETAILS" SHEET.
5. TREES AND VEGETATION WITHIN THE PROJECT LIMITS SHALL BE REMOVED ONLY AS DETERMINED BY THE ENGINEER.
6. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND MAINTAINING ALL WARNING SIGNS, DEVICES AND FEATURES NECESSARY TO PROTECT THE HEALTH AND SAFETY OF THE GENERAL PUBLIC.
7. CONTRACTOR SHALL MANAGE CONSTRUCTION TO ALLOW SAFE ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC FOR THE DURATION OF CONSTRUCTION.

LEGEND:

- TFESA — TEMPORARY FENCE ENVIRONMENTALLY SENSITIVE AREA (ESA)
- TEMPORARY CONSTRUCTION FENCE CHAIN LINK
- TEMPORARY FIBER ROLL
- xx TSF — TEMPORARY SILT FENCE
- ELDERBERRY SHRUB
- CONSTRUCTION AREA SIGN
- AREA CONTRACTOR MAY OCCUPY DURING EPPIE'S GREAT RACE. MAY BE FENCED IN FOR PUBLIC SAFETY



Note:
The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

REVISIONS				FIELD BOOK	QUINCY ENGINEERING	CITY OF SACRAMENTO DEPARTMENT OF PUBLIC WORKS	GUY WEST BRIDGE REHABILITATION PROJECT	SHEET 1 OF 1
NO.	DESCRIPTION	DATE	BY	SCALE HORIZ. NO SCALE VERT. N/A	3247 RAMOS CIRCLE SACRAMENTO, CA 95827-2501	DRAWN BY: DCP DATE: 8/13/13 DESIGN BY: MLK DATE: CHECKED BY: DATE:	OCCUPIED LIMITS PLAN DURING EPPIE'S GREAT RACE	PN: K15105000

DATE PLOTTED: Thursday, December 19, 2013 TIME PLOTTED: 11:59:04 AM, Craig Palglase

Item 7

RESOLUTION NO. 2013-

Adopted by the Sacramento City Council

APPROVE THE PRELIMINARY ENGINEERING PLANS FOR THE GUY WEST BRIDGE RESTORATION PROJECT (K15105000)

BACKGROUND

A. City Staff has developed preliminary engineering plans and environmental documentation for the Guy West Bridge Restoration Project. Upon approval of the preliminary plans and adoption of the environmental document findings will allow staff move forward with the project's final design.

BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL RESOLVES AS FOLLOWS:

1. Approve the preliminary engineering plan for the Guy West Bridge Restoration Project (K151050000).

Table of Contents:

Exhibit A- Preliminary Engineering Plan

RECORDED AT THE REQUEST OF
AND WHEN RECORDED MAIL TO:
STATE OF CALIFORNIA
California State Lands Commission
Attn: Title Unit
100 Howe Avenue, Suite 100-South
Sacramento, CA 95825-8202

STATE OF CALIFORNIA
OFFICIAL BUSINESS
Document entitled to free recordation
pursuant to Government Code Section 27383

SPACE ABOVE THIS LINE FOR RECORDER'S USE

A.P.N. 295-0040-002, 295-0040-003, 295-0040-004, 005-0010-007, and 005-0010-008
County: Sacramento

LEASE NO. PRC 3402.9

This Lease consists of this summary and the following attached and incorporated parts:

Section 1	Basic Provisions
Section 2	Special Provisions Amending or Supplementing Section 1 or 3
Section 3	General Provisions
Exhibit A	Land Description
Exhibit B	Site and Location Map

SECTION 1

BASIC PROVISIONS

THE STATE OF CALIFORNIA, hereinafter referred to as Lessor acting by and through the **CALIFORNIA STATE LANDS COMMISSION** (100 Howe Avenue, Suite 100-South, Sacramento, California 95825-8202), pursuant to Division 6 of the Public Resources Code and Title 2, Division 3 of the California Code of Regulations, and for consideration specified in this Lease, does hereby lease, demise, and let to **CITY OF SACRAMENTO, A MUNICIPAL CORPORATION** hereinafter referred to as Lessee, those certain lands described in Exhibit A hereinafter referred to as Lease Premises, subject to the reservations, terms, covenants, and conditions of this Lease.

MAILING ADDRESS: City of Sacramento
Real Estate Services Section
Attention: Jan Ebert
5730 24th Street, Building 4
Sacramento, CA 95822

LEASE TYPE: General Lease – Public Agency Use

LAND TYPE: Sovereign

LOCATION: American River adjacent to Assessor's Parcel Numbers (APN) 295-0040-002, 295-0040-003, 295-0040-004, 005-0010-007, and 005-0010-008, City of Sacramento, Sacramento County, as described in Exhibit A attached and by this reference made a part hereof.

LAND USE OR PURPOSE: Continued use and maintenance of an existing bicycle trail bridge commonly known as the Guy West Bridge.

TERM: 25 years; beginning February 21, 2014; ending February 20, 2039, unless sooner terminated as provided under this Lease.

CONSIDERATION: The public use and benefit, with the State reserving the right at any time to set a monetary rent if the Commission finds such action to be in the State's best interest.

AUTHORIZED IMPROVEMENTS:

X **EXISTING:** Bicycle Trail Bridge commonly known as the Guy West Bridge

_____ **TO BE CONSTRUCTED; CONSTRUCTION MUST BEGIN BY:** N/A

AND BE COMPLETED BY: N/A

LIABILITY INSURANCE: N/A

SURETY BOND OR OTHER SECURITY: N/A

SECTION 2
SPECIAL PROVISIONS

BEFORE THE EXECUTION OF THIS LEASE, ITS PROVISIONS ARE AMENDED, REVISED, OR SUPPLEMENTED AS FOLLOWS:

1. Prior to Lessee commencing demolition, construction, remodeling, reconstruction, removal, or remediation on the Lease Premises all required authorizations shall be obtained from the appropriate Regulatory Agencies.

2. Lessee shall not install, attach, or authorize the placement of any utilities or other improvements on the bridge or within the Lease Premises without the Lessor's prior review and approval.

3. All future structural modifications or abandonment/removal of the facility within the Lease Premises shall require prior review and approval by Lessor.

4. Lessee acknowledges that the land described in Exhibit A of this Lease is subject to the Public Trust and is presently available to members of the public for recreational, waterborne commerce, navigation, fisheries, open space, or other recognized Public Trust uses and that Lessee's use of the Lease Premises shall not interfere or limit the Public Trust rights of the public.

5. Section 3, Paragraph 5(a)(2) is deleted in its entirety and replaced with the following language: All demolition, construction, remodeling, reconstruction, maintenance, repairs, removal, or remediation performed on the Lease Premises at any time by Lessee shall first be authorized by all appropriate Regulatory Agencies, when and if needed. Lessee is solely responsible for determining what approvals, authorizations, or certifications are required, and shall be solely responsible for all costs incurred thereby. In addition, Lessee shall obtain and comply with preventative or remedial measures required by any environmental reports, assessments, or inspections, including, but not limited to those required by the California Environmental Quality Act and/or the National Environmental Policy Act, or as otherwise required by law or reasonably requested by Lessor. Nothing in this Lease shall be interpreted as a pre-approval of any permit, certification, or any other precondition required for the use of the Lease Premises.

6. Section 3, Paragraph 5(c)(2) is deleted in its entirety and replace with the following language: Lessee shall make, or cause to be made, any Repairs which may be required by any Regulatory Agency, when and if needed. Lessee shall observe and comply with, any law, statute, ordinance, plan, regulation, resolution, or policy applicable to the Lease Premises in making such Repairs. All work shall be performed with reasonable diligence, completed within a reasonable time, and performed at the sole cost and expense of Lessee.

SECTION 3

GENERAL PROVISIONS

1. **GENERAL**
In the case of any conflict between these General Provisions and Special Provisions found in Section 2, the Special Provisions control.

2. **DEFINITIONS**
For the purposes of this Lease, the following terms shall be defined as stated below:

"Additions" shall be defined as any use or Improvements other than those expressly authorized in this Lease.

"Alterations" shall be defined as any material change in the size, scope, density, type, nature, or intensity of Improvements on the Lease Premises from what is authorized in this Lease. Alterations shall also include any modifications, alterations, or renovations of the land or waterways on the Lease Premises other than those authorized by this Lease.

"Breach" shall be defined as a party's unjustified or unexcused nonperformance of a contractual duty the party is required to immediately perform.

"Damages" shall include all liabilities, demands, claims, actions or causes of action whether regulatory, legislative or judicial in nature; all assessments, levies, losses, fines, penalties, damages, costs and expenses, including, without limitation: (i) reasonable attorneys', accountants', investigators', and experts' fees and expenses sustained or incurred in connection with the defense or investigation of any such liability, and (ii) costs and expenses incurred to bring the Lease Premises into compliance with Environmental Laws, a court order, or applicable provisions of a Regulatory Agency. The term "Damages" also includes, expressly, those Damages that arise as a result of strict liability, whether arising under Environmental Laws or otherwise.

"Default" shall be defined as a material Breach of magnitude sufficient to justify termination of the Lease.

"Environmental Law" shall be defined as and include all federal, state, and local environmental, health, and safety laws, statutes, ordinances, regulations, rules, judgments, orders, and notice requirements, which were in effect as of the date of execution of this Lease or are subsequently enacted and lawfully applied hereto, which regulate or relate to (a) the protection or clean-up of the environment; (b) the use, treatment, storage, transportation, handling or disposal of hazardous, toxic or otherwise dangerous substances, wastes or materials; (c) the quality of the air and the discharge of airborne wastes, gases, particles, or other emissions; (d) the preservation or protection of waterways, groundwater, or drinking water; (e) the health and safety of persons or property; or (f) impose liability with respect to any of the foregoing, including without limitation, the California Environmental Quality Act (CEQA) [PRC §§ 21000 et seq.]; the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) [42 USCS §§ 9601 et seq.]; the Resource Conservation and Recovery Act of 1976 (RCRA) [42 USCS §§ 6901 et seq.]; the Clean Water Act, also known as the Federal Water Pollution Control Act (FWPCA) [33 USCS §§ 1251 et seq.]; the Toxic Substances Control Act (TSCA) [15 USCS §§ 2601 et seq.]; the Hazardous Materials Transportation Act (HMTA) [49 USCS §§ 1801 et seq.]; the Insecticide, Fungicide, Rodenticide Act [7 USCS §§ 136 et seq.]; the Superfund Amendments and Reauthorization Act [42 USCS §§ 6901 et seq.]; the Clean Air Act [42 USCS §§ 7401 et seq.]; the Safe Drinking Water Act [42 USCS §§ 300f et seq.]; the Solid Waste Disposal Act [42 USCS §§ 6901 et seq.]; the Surface Mining Control and Reclamation Act [30 USCS §§ 1201 et seq.]; the Emergency Planning and Community Right to Know Act [42 USCS §§ 11001 et seq.]; the Occupational Safety and Health Act [29 USCS §§ 655 and 657]; the California Underground Storage of Hazardous Substances Act [H & S C §§ 25280 et seq.]; the California Hazardous Substances Account Act [H & S C §§ 25300 et seq.]; the California Hazardous Waste Control Act [H & S C §§ 25100 et seq.]; the California Safe Drinking Water and Toxic Enforcement Act [H & S C §§ 24249.5 et seq.]; the Porter-Cologne Water Quality Act [Water C §§ 13000 et seq.] together with any amendments of or regulations promulgated under the statutes cited above.

"Hazardous Material" shall be defined as and include any substance which falls within the definition of hazardous substance, hazardous waste, hazardous material, toxic substance, solid waste, pollutant, or contaminant, under any Environmental Law.

"Improvements" shall be defined as any modification, alteration, addition, or removal of any material, and any other action which serves to change the condition of the Lease Premises from the natural state whether situated above, on, or under the Lease Premises. Improvements include, but are not limited to buildings, structures, facilities, decks, docks, wharves, piers, walks, curbs, bridges, buoys, landscaping, roadways, shoreline protective structures of all types, foundations, pilings or similar support structures whether above or below the water line, fences, utilities, pipelines, and any other construction of any type situated on the Lease Premises.

"Lease" shall be defined as this lease contract together with all amendments and exhibits.

"Lease Premises" shall be defined as the area of land, together with any improvements located thereon, the use and occupancy of which

is authorized by this Lease.

"Lessor" shall be defined as the state of California, acting by and through the California State Lands Commission, including the Commissioners, their alternates and designates, the Executive Officer, and the staff of the California State Lands Commission.

"Regulatory Agency" shall include any Federal, State, County, Municipal, or Local agency having jurisdiction over the Lease Premises.

"Repairs" shall be defined as all work of any kind made to maintain, change, restore, strengthen, replace, alter, or otherwise affect any Improvement on the Lease Premises.

"Residence" shall be defined as any Improvement, whether permanent, movable, or temporary, or a portion thereof, which is for the time being a home or place of lodging. A Residence includes any Improvement affixed to the land such as trailers or cabins, built on a raised foundation such as stilts or pilings, and floating residences such as boats, barges, arks, and houseboats, and any combination of such Improvements which provide residential accommodations to the Lessee or others. "Residence" shall not include transitory, intermittent, recreational use of facilities such as campgrounds.

"Residential Use" shall be defined as Improvements such as, but not limited to, sundecks, and sunrooms which are extensions of, or additions to, the upland property and are not water-dependent uses. Although the various uses or Improvements which may fall under this definition may vary by geographic area, lease type, or other factors, it is the intention of the parties to include in this definition all uses and Improvements which are not water-dependent but residential in nature, or those uses and Improvements which are not consistent with common law public trust principles and values.

3. **CONSIDERATION**

(a) **Absolute Triple Net Lease**

This Lease is an absolute triple net lease, pursuant to which Lessor has no obligation with respect to the payment of taxes, insurance, the cost of maintenance, utilities and repairs or other costs or obligations associated with the Leased Premises, except as expressly stated herein.

(b) **Rent**

Lessee agrees to pay Lessor rent as stated in this Lease, in annual installments, for the use and occupancy of the Lease Premises. The first installment shall be due on or before the beginning date of this Lease and all subsequent installments shall be due on or before each anniversary of its beginning date during each year of the Lease term, or as otherwise provided in this Lease. Said sums shall be paid in lawful money of the United States of America. Lessee shall send said rent to the mailing address of Lessor. Timeliness of receipt of remittances sent by mail shall be governed by the postmark date as stated in Government Code Section 11002. Invoices for rent due may be provided by Lessor as a courtesy. Lessor's failure to, or delinquency in, providing invoices shall neither excuse Lessee from paying rent, nor extend the time for paying rent.

(c) **Modification**

Lessor may modify the method, amount, or rate of consideration effective on each fifth anniversary of the beginning date of this Lease. Should Lessor fail to exercise such right effective on any fifth anniversary it may do so effective on any one (1) of the next four (4) anniversaries following such fifth anniversary, without prejudice to its right to effect such modification on the next or any succeeding fifth anniversary of the beginning date. No such modification shall become effective unless Lessee is given at least thirty (30) days' notice prior to the date of the Commission meeting wherein the rent modification is considered, or thirty (30) days' notice prior to the effective date of the increase, whichever provides a greater notice period.

If the consideration for this Lease is based on a percentage of income, royalties, profits, or any similar business performance indicators, Lessee shall provide Lessor with financial statements and all other documents necessary to determine the relevant basis for income.

(d) **Penalty and Interest**

Any installments of rent accruing under this Lease not paid when due shall be subject to a delinquency charge equal to five percent (5%) of the principal sum due. Annual payments shall bear interest as specified in Public Resources Code Section 6224 and the Lessor's then existing administrative regulations governing penalty and interest.

(e) **Non-Monetary Consideration**

If the consideration to Lessor for this Lease is the public use, benefit, health, or safety, Lessor shall have the right to review such consideration at any time and set a monetary rental if the Lessor, at its sole discretion, determines that such action is in the best interest of the State. Lessee's assignment or transfer of this Lease pursuant to Section 3 Paragraph 11 below to any third party

which results in royalties, profits, or any form of compensation, whether monetary or otherwise, shall give Lessor the right to reevaluate the requirements of this Lease as stated in Section 3 Paragraph 11. Lessee shall be given at least thirty (30) days' notice prior to the date of the Commission meeting wherein the rent modification is considered, or thirty (30) days' notice prior to the effective date that this Lease is converted to a monetary rental, whichever provides more notice.

(f) **Place for Payment of Rent**

All rent that becomes due and payable under this Lease shall be paid to Lessor in person or by United States mail at the Sacramento Offices of the California State Lands Commission, currently at 100 Howe Avenue, Suite 100-South, Sacramento, CA 95825-8202, or at any other place or places that Lessor may designate by written notice to Lessee. Alternately, Lessee may contact Lessor's accounting department for Lessor's current practices for payment by credit card or electronic fund transfer.

4. **BOUNDARIES**

This Lease is not intended to establish the State's boundaries and is made without prejudice to either party regarding any boundary or title claims which may be asserted presently or in the future.

5. **LAND USE**

(a) **General**

(1) Lessee shall use the Lease Premises only for the purpose or purposes stated in this Lease and only for the operation and maintenance of the Improvements expressly authorized in this Lease. Lessee shall commence use of the Lease Premises within ninety (90) days of the beginning date of this Lease or within ninety (90) days of the date set for construction to commence as set forth in this Lease, whichever is later.

(2) All demolition, construction, remodeling, reconstruction, maintenance, repairs, removal, or remediation performed on the Lease Premises at any time by Lessee shall first be authorized by all appropriate Regulatory Agencies. Lessee is solely responsible for determining what approvals, authorizations, or certifications are required, and shall be solely responsible for all costs incurred thereby. In addition, Lessee shall obtain and comply with preventative or remedial measures required by any environmental reports, assessments, or inspections, including, but not limited to those required by the California Environmental Quality Act and/or the National Environmental Policy Act, or as otherwise required by law or reasonably requested by Lessor. Nothing in this Lease shall be interpreted as a pre-approval of any permit, certification, or any other precondition required for the use of the Lease Premises.

(b) **Continuous Use**

Lessee's use of the Lease Premises shall be continuous from commencement of the Lease until its expiration. Lessee's discontinuance of such use for a period of ninety (90) days shall be presumed to be an abandonment unless Lessee demonstrates to Lessor's satisfaction that Lessee's use of the Lease Premises is consistent with similarly situated properties. In the event of an abandonment, Lessor may elect to terminate the Lease as provided in Paragraph 12(a)(3). Abandonment of the Lease Premises shall not relieve Lessee of any obligations under this Lease.

(c) **Repairs and Maintenance**

(1) Lessor shall not be required to make any Repairs in, on, or about all or part of the Lease Premises. Lessee shall, at all times during the term of this Lease and without any cost or expense to Lessor, keep and maintain the Lease Premises, including all Improvements, in good order and repair and in a clean, safe, sanitary, and orderly condition.

(2) Lessee shall make, or cause to be made, any Repairs which may be required by any Regulatory Agency. Lessee shall observe and comply with, any law, statute, ordinance, plan, regulation, resolution, or policy applicable to the Lease Premises in making such Repairs. All work shall be performed with reasonable diligence, completed within a reasonable time, and performed at the sole cost and expense of Lessee.

(3) Lessee expressly accepts the Lease Premises "as is" and expressly acknowledges that:

(i) Lessor has made no representations or warranties as to the suitability of the Lease Premises for any Improvements. Lessee shall conduct all tests necessary to determine the suitability of the Lease Premises for any proposed use or Improvements authorized; and

(ii) Lessor has made no representations or warranties as to the quality or value of any Improvements found on the Lease Premises, or of their conformity to any applicable building codes, zoning ordinances, or other regulations. Lessee agrees to inspect any preexisting Improvements at its own cost to determine whether such Improvements are safe and suitable for

the Lessee's intended use; and

(iii) Lessee shall neither be entitled to any reduction in rent, nor any extension of the terms of this Lease because of damage to or destruction of any Improvements on the Lease Premises.

(iv) Lessee and Lessor agree that any Improvements on the Lease Premises constitute the personal property of Lessee and that fixture law does not apply.

(4) In the event that the Lease Premises is partly, or in whole, comprised of tidal, submerged, or waterfront property, Lessee expressly accepts the hazards involved in using or improving such lands. Lessor is not responsible for, and Lessee shall not be reimbursed for nor receive any offset of rent for, any damages or reduced use of the Lease Premises caused by: local or invasive flora or fauna, flooding, erosion, sea level rise, storms, freezing, inclement weather of any kind, acts of god, maintenance or failure of protective structures, and any other such hazards.

(d) **Additions, Alterations, and Removal**

No Improvements other than those expressly authorized in this Lease shall be constructed by the Lessee on the Lease Premises without the prior written consent of Lessor. Any Additions or Alterations are expressly prohibited. Lessee is also prohibited from any Additions or Alterations which cause a material change to the environmental impact on or around the Lease Premises.

(e) **Enjoyment**

This Lease is non-exclusive, and is subject to the provisions of Section 3, Paragraph 6 below. Lessee shall have the right to exclude persons from the Lease Premises only when their presence or activity constitutes a material interference with Lessee's use and enjoyment of the Lease Premises.

(f) **Discrimination**

Lessee, in its use of the Lease Premises, shall not discriminate against any person or class of persons on any basis protected by federal, state, or local law, including: race, color, creed, religion, national origin, sex, sexual orientation, gender identity, age, marital/parental status, veteran status, or disability.

(g) **Residential Use**

Unless otherwise provided for in this Lease, no portion of the Lease Premises shall be used as a location for a Residence, for the purpose of mooring or maintaining a structure which is used as a Residence, or for Residential Uses.

(h) **Commercial Use**

Unless otherwise provided for in this Lease, the Lease Premises is to be used by Lessee and Lessee's invitees or guests only. Use of the Lease Premises for commercial purposes; conducting a business, whether for profit or otherwise; and any subleasing, rental, or any transaction whereby Lessee directly or indirectly receives compensation from a third party in exchange for use of the Lease Premises shall constitute an immediate Default of this lease with no cure period.

6. **RESERVATIONS, ENCUMBRANCES, AND RIGHTS-OF-WAY**

(a) **Reservations**

(1) Lessor expressly reserves all natural resources in or on the Lease Premises, including but not limited to timber, minerals, and geothermal resources as defined under Public Resources Code sections 6401, 6407, and 6903, respectively; the right to grant and transfer the same; as well as the right to grant leases in and over the Lease Premises which may be necessary or convenient for the extraction of such natural resources. Such leasing shall be neither inconsistent nor incompatible with the rights or privileges of Lessee under this Lease.

(2) Lessor expressly reserves a right to go on the Lease Premises and all Improvements for any purposes associated with this Lease or for carrying out any function required by law, or the rules, regulations, or management policies of the State Lands Commission. Lessor shall have a right of reasonable access to the Lease Premises across Lessee owned or occupied lands adjacent to the Lease Premises for any purpose associated with this Lease.

(3) Lessor expressly reserves to the public an easement for convenient access across the Lease Premises to other State-owned lands located near or adjacent to the Lease Premises and a right of reasonable passage across and along any right-of-way granted by this Lease; however, such easement or right-of-way shall be neither inconsistent nor incompatible with the rights or privileges of Lessee under this Lease.

(4) Lessor expressly reserves the right to lease, convey, or encumber the Lease Premises, in whole or in part, during the Lease term for any purpose not inconsistent or incompatible with the rights or privileges of Lessee under this Lease.

(b) **Encumbrances**

The Lease Premises may be subject to pre-existing contracts, leases, licenses, easements, encumbrances, and claims and is made without warranty by Lessor of title, condition, or fitness of the land for the stated or intended purpose.

7. **RULES, REGULATIONS, AND TAXES**

(a) Lessee shall comply with and be bound by all presently existing or subsequently enacted rules, regulations, statutes or ordinances of the State Lands Commission or any Regulatory Agency. Occupancy or use of the Lease Premises provides no exemption from applicable regulations including, but not limited to, federal, state, county and local regulations, regulations promoting public health, safety, or welfare, building codes, zoning ordinances, and sanitation regulations. Lessee expressly acknowledges that Regulatory Agencies have jurisdiction over the Lease Premises unless such laws are in direct conflict with state law or public trust principles.

(b) Lessee understands and agrees that a necessary condition for the granting and continued existence of this Lease is that Lessee obtains and maintains all permits or other entitlements. Lessee expressly acknowledges that issuance of this Lease does not substitute for, or provide preference in obtaining authorizations from other Regulatory Agencies.

(c) **Taxes**

(1) In addition to the rent due under this Lease, Lessee accepts responsibility for and shall pay any and all real and personal property taxes, including possessory interest taxes, assessments, special assessments, user fees, service charges, and other charges of any description levied, imposed on, assessed, or associated with the leasehold interest, Improvements on the Lease Premises, any business or activity occurring on the Lease Premises, the Lease Premises itself, or any portion thereof, levied by any governmental agency or entity. Such payment shall not reduce rent due Lessor under this Lease and Lessor shall have no liability for such payment.

(2) In the event that this Lease commences, terminates or expires during a tax year, Lessee shall pay the taxes for the period of such year during which this Lease was in effect.

(3) Any and all taxes and assessments and installments of taxes and assessments required to be paid by Lessee under this Lease shall be paid when due and the official and original receipt for the payment of such tax, assessment, or installment shall be delivered to Lessor upon request.

(4) Lessee shall indemnify and hold Lessor, the Lease Premises, and any Improvements now or hereafter located thereon, free and harmless from any liability, loss, or Damages resulting from any taxes, assessments, or other charges required by this Lease to be paid by Lessee and from all interest, penalties, and other sums imposed thereon and from any sales or other proceedings to enforce collection of any such taxes, assessments, or other charges.

8. **INDEMNITY**

(a) Lessee's use of the Lease Premises and any Improvements thereon is at Lessee's sole and exclusive risk.

(b) In addition to any other obligation to indemnify Lessor as otherwise provided in this Lease, except to the extent caused by the sole negligence and/or willful misconduct of the Lessor, Lessee shall indemnify, hold harmless, and, at the option of Lessor, defend Lessor, its officers, agents, and employees from any and all Damages resulting from Lessee's occupation and use of the Lease Premises. Lessee shall reimburse Lessor in full for all reasonable costs and attorneys' fees, specifically including, without limitation, any Damages arising by reason of: (1) The issuance, enjoyment, interpretation, Breach, or Default of this Lease; (2) The challenge to or defense of any environmental review upon which the issuance of this Lease is based; (3) The death or injury of any person, or damage to or destruction of any property from any cause whatever in any way connected with the Lease Premises, or with any of the Improvements or personal property on the Lease Premises; (4) The condition of the Lease Premises, or Improvements on the Lease Premises; (5) An act or omission on the Lease Premises by Lessee or any person in, on, or about the Lease Premises; (6) Any work performed on the Lease Premises or material furnished to the Lease Premises; (7) Lessee's failure to comply with any material legal or other requirement validly imposed on Lessee or the Lease Premises by a Regulatory Agency.

(c) The reimbursement provisions of this Paragraph 8 shall not apply to any claims, litigation, or other actions which may be brought by either Lessee or Lessor against each other.

(d) Nothing in this paragraph shall be construed as requiring that Lessor defend itself against all or any aspect of any challenge to

this Lease or any associated environmental review. However, Lessee may take whatever legal action is available to it to defend this Lease or any associated environmental review against any challenge by a third party, whether or not Lessor chooses to raise a defense against such a challenge.

(e) Lessee shall notify Lessor immediately in case of any accident, injury, or casualty on the Lease Premises.

9. **INSURANCE**

(a) Lessee shall obtain and maintain in full force and effect during the term of this Lease comprehensive general liability insurance and property damage insurance, with such coverage and limits as may be reasonably requested by Lessor from time to time, but in no event for less than the sum(s) specified against any and all claims or liability arising out of the ownership, use, occupancy, condition, or maintenance of the Lease Premises and all Improvements.

(b) The insurance policy shall identify the Lease by its assigned number. The specific Improvements shall also be generally identified, as well as their location on state owned property. The coverage provided shall be primary and non-contributing. Lessee shall keep such policy current. Lessor shall be named as a "certificate holder" and/or an "additional interest" on the policy. Lessee shall provide Lessor with a current certificate of insurance at all times. At Lessor's request, Lessee shall provide a full copy of the current insurance policy, along with any and all endorsements or other such documents affecting the coverage. Lessor will not be responsible for any premiums or other assessments on the policy.

(c) The insurance coverage specified in this Lease shall be in effect at all times during the Lease term and subsequently until Lessor has either accepted all of the Lease Premises as improved or restored by Lessee as provided elsewhere in this Lease. Lessee shall notify Lessor within five (5) business days if the insurance is canceled for any reason.

10. **SURETY BOND**

(a) When required by Section 1 of this Lease, Lessee shall provide a surety bond or other security device acceptable to Lessor, for the specified amount, and naming the State of California, California State Lands Commission as the assured, to guarantee to Lessor the faithful observance and performance by Lessee of all of the terms, covenants, and conditions of this Lease.

(b) Lessor may require an increase in the amount of the surety bond or other security device to cover any additionally authorized Improvements, any modification of consideration, or to provide for inflation or other increased need for security. The surety bond or other security device may be increased on each fifth anniversary of the beginning date of this Lease. Should Lessor fail to exercise such right effective on any fifth anniversary, it may do so effective on any one (1) of the next four (4) anniversaries following such fifth anniversary without prejudice to its right to effect such modification on the next or any succeeding fifth anniversary. No such modification shall become effective unless Lessee is given at least thirty (30) days' notice prior to the date of the Commission meeting wherein the modification of the bond or security is considered, or thirty (30) days' notice prior to the effective date of the increase, whichever provides more notice.

(c) The surety bond or other security device shall be maintained in full force and effect at all times during the Lease term and subsequently until Lessor has either accepted all of the Lease Premises as improved or restored by Lessee as provided elsewhere in this Lease. Lessee must first seek approval of Lessor before changing the type of security device used, or the bond holder.

11. **ASSIGNMENT, ENCUMBRANCING OR SUBLETTING**

(a) Lessee shall not either voluntarily or by operation of law, assign, transfer, mortgage, pledge, hypothecate or encumber this Lease and shall not sublet the Lease Premises, in whole or in part, or allow any person other than the Lessee's employees, agents, servants and invitees to occupy or use all or any portion of the Lease Premises without the prior written consent of Lessor, which consent shall not be unreasonably withheld.

(1) Notwithstanding the foregoing prohibition against transfer and assignment, the Lease may be transferred by Lessee if the transfer is caused by the death of a spouse and the full interest of the deceased spouse is transferred to a surviving spouse; or the transfer is caused by the dissolution of the marriage of Lessee and the full interest of one of the spouses is transferred to the other spouse. In the event of such a transfer, Lessor shall be notified in writing within 30 days of the transfer.

(2) Notice to Lessor of Successor Trustee(s): In the event this Lease is held in trust, and the Lessee is a trustee thereof, the substitution or succession of a new trustee shall not be an assignment or transfer for the purposes of this Paragraph. Lessee (and by operation of law, any successor trustee) agrees to provide prompt notice to Lessor of any succession or substitution of trustee in accordance with Paragraph 16(c) of General Provisions, no later than sixty (60) days after the named trustee as appears on the face of this Lease becomes unable or ceases to serve as trustee for any reason.

(b) The following shall be deemed to be an assignment or transfer within the meaning of this Lease:

(1) If Lessee is a business entity, any dissolution, merger, consolidation or other reorganization of Lessee, or the sale or other transfer of substantially all the assets of Lessee. If Lessee is a publicly traded entity, transfers of interests in Lessee shall not constitute an assignment requiring the consent of Lessor.

(2) If Lessee is a partnership, a transfer of any interest of a general partner, a withdrawal of any general partner from the partnership, or the dissolution of the partnership.

(c) If this Lease is for sovereign lands appurtenant to adjoining littoral or riparian land, Lessee shall not transfer or assign its ownership interest or use rights in such adjoining lands separately from the leasehold rights granted herein without the prior written consent of Lessor.

(d) If Lessee desires to assign, sublet, encumber or otherwise transfer all or any portion of the Lease Premises, Lessee shall do all of the following:

(1) Give not less than 90 days' prior written notice to Lessor;

(2) Provide the name, complete business organization, operational structure, and formation documents of the proposed assignee, sublessee, secured third party, or other transferee; and the nature of the use of and interest in the Lease Premises proposed by the assignee, sublessee, secured third party or other transferee.

(3) Provide the terms and conditions of the proposed assignment, sublease, or encumbrance or other transfer;

(4) Provide audited financial statements for the two most recently completed fiscal years of the proposed assignee, sublessee, secured party or other transferee; and provide pro forma financial statements showing the projected income, expense and financial condition resulting from use of the Lease Premises; and

(5) Provide such additional or supplemental information as Lessor may reasonably request concerning the proposed assignee, sublessee, secured party or other transferee.

(6) Lessor will evaluate proposed assignees, sublessees, secured third parties and other transferees and grant approval or disapproval according to standards of commercial reasonableness considering the following factors within the context of the proposed use: the proposed party's financial strength and reliability, their business experience and expertise, their personal and business reputation, their managerial and operational skills, their proposed use and projected rental, as well as other relevant factors.

(e) Lessor shall have a reasonable period of time from the receipt of all documents and other information required under this provision to grant or deny its approval of the proposed party. Lessor may reevaluate the rent, insurance and/or bond provisions of this Lease, and may condition its approval of the proposed assignment, sublease, hypothecation, mortgage, or other transfer on the party's acceptance of the new terms. Lessee's rights stated in this paragraph shall apply regardless of whether the proposed transfer coincides with a regular rent review period as stated in Section 3 Paragraph 3(c) above.

(f) Lessee's mortgage or hypothecation of this Lease, if approved by Lessor, shall be subject to terms and conditions imposed by a separately negotiated encumbrancing agreement.

(g) Upon the express written assumption of all obligations and duties under this Lease by an assignee approved by Lessor, the Lessee may be released from all liability under this Lease arising after the effective date of assignment and not associated with Lessee's use, possession or occupation of or activities on the Lease Premises; except as to any hazardous wastes, substances or materials as defined under federal, state or local law, regulation, or ordinance manufactured, generated, used, placed, disposed, stored or transported on the Lease Premises during Lessee's tenancy.

(h) If the Lessee files a petition or an order for relief is entered against Lessee, under Chapters 7, 9, 11 or 13 of the Bankruptcy Code (11 USC Sect. 101, et seq.) then the trustee or debtor-in-possession must elect to assume or reject this Lease within sixty (60) days after filing of the petition or appointment of the trustee, or the Lease shall be deemed to have been rejected, and Lessor shall be entitled to immediate possession of the Lease Premises. No assumption or assignment of this Lease shall be effective unless it is in writing and unless the trustee or debtor-in-possession has cured all Defaults under this Lease (monetary and non-monetary) or has provided Lessor with adequate assurances (1) that within ten (10) days from the date of such assumption or assignment, all monetary Defaults under this Lease will be cured; and (2) that within thirty (30) days from the date of such assumption, all non-monetary Defaults under this Lease will be cured; and (3) that all provisions of this Lease will be satisfactorily performed in the future.

(i) In the event of any transfer or assignment, under this Paragraph 11 or by any other means authorized by this Lease, the Lease terms shall be for the remaining years existing on the Lease prior to the transfer or assignment. A transfer or assignment shall not extend the term of this Lease.

12. **DEFAULT AND REMEDIES**

(a) **Default**

The occurrence of any one or more of the following events shall immediately and without further notice constitute a Default of this Lease:

(1) Lessee's failure to make any payment of rent, royalty, or other consideration as required under this Lease; or

(2) Lessee's failure to obtain or maintain liability insurance or a surety bond or other security device as required under this Lease; or

(3) Lessee's abandonment of the Lease Premises (including the covenant for continuous use as provided for in Paragraph 5(b)) during the Lease term; or

(4) Lessee's failure to obtain and maintain all necessary governmental permits or other entitlements; or

(5) The maintenance of the Lease Premises in violation of, or failure to comply with, any applicable provisions of any Regulatory Agency, Environmental Law, or maintenance of the Lease Premises in a condition constituting nuisance; or

(6) Lessee's Failure to commence to construct and to complete construction of the Improvements authorized by this Lease within the time limits specified in this Lease.

(7) Lessee is found to sublet or otherwise surrender daily management and control of the Lease Premises to a third party without the knowledge, expressed written consent or authorization of the Lessor.

(b) Lessee's failure to observe or perform any other term, covenant, or condition of this Lease when such failure shall continue for a period of thirty (30) days after Lessor's giving written notice shall constitute a Default of this lease. However, if the nature of Lessee's Default under this paragraph is such that more than thirty (30) days are reasonably required for its cure, then Lessee shall not be deemed to be in Default if Lessee commences such cure within such thirty (30) day period and diligently proceeds with such cure to completion.

(c) Should Lessee Breach any term, covenant, or condition of this Lease under Paragraph 12(b) above three (3) times in any three hundred and sixty-five (365) day period, the third Breach will be a Default under this Lease and Lessor will be entitled to immediately terminate this Lease, and take other appropriate action. Lessor will provide written notice of each Breach as provided above, and provide written notice that future Breaches will constitute immediate Default with no cure period.

(d) **Remedies**

In the event of a Default by Lessee and Lessee's failure to cure such Default if such a cure period is applicable, Lessor may at any time and with or without notice do any one or more of the following in addition to any rights or remedies permitted by law:

(1) Re-enter the Lease Premises, remove all persons and property, and repossess and enjoy such premises; or

(2) Terminate this Lease and Lessee's right of possession of the Lease Premises by any lawful means. The termination shall not relieve Lessee of any obligation, monetary or otherwise, which has accrued prior to the date of termination. Such termination shall be effective upon Lessor's giving written notice and upon Lessee's receipt of such notice. Lessee shall immediately surrender possession of the Lease Premises to Lessor. Lessor shall be entitled to recover from Lessee all amounts to which Lessor is entitled pursuant to Section 1951.2 of the California Civil Code, or any other provision of law, including any necessary Repair, renovation, alteration, remediation, or removal of Improvements; or

(3) Maintain this Lease in full force and effect and recover any rent, royalty, or other consideration as it becomes due without terminating Lessee's right of possession regardless of whether Lessee shall have abandoned the Lease Premises, subject to the conditions imposed by Cal. Civil Code § 1951.2; or

(4) Exercise any other right or remedy which Lessor may have at law or equity.

(e) **Determination of Rental Value**

If rent under this Lease is calculated as a percentage of Lessee's income attributable to the Lease Premises and Lessee abandons the Lease Premises during some or all of the applicable period, then the reasonable rental value shall be the percentage of proceeds Lessor would have received had Lessee operated the Lease Premises in the usual and customary manner.

(f) **Waiver of Rights**

The failure or delay of either party to exercise any right or remedy shall not be construed as a waiver of such right or remedy or any Breach by the other party. Lessor's acceptance of any rent shall not be considered a waiver of any preexisting Breach by Lessee other than the failure to pay the particular rent accepted regardless of Lessor's knowledge of the preexisting Breach at the time rent is accepted.

13. **RESTORATION OF LEASE PREMISES AND ENVIRONMENTAL MATTERS**

(a) **Restoration of Lease Premises**

(1) Upon expiration or sooner termination of this Lease, Lessee must immediately surrender possession of the Lease Premises to Lessor. Prior to the time of surrender, Lessee must remove all or any Improvements together with the debris and all parts of any such Improvements at its sole expense and risk, regardless of whether Lessee actually constructed or placed the Improvements on the Lease Premises; or Lessor, at its sole and absolute discretion, may itself remove or have removed all or any portion of such Improvements at Lessee's sole expense. Lessor may waive all or any part of this obligation in its sole discretion if doing so is in the best interests of the State.

(2) As a separate and related obligation, Lessee shall restore the Lease Premises as nearly as possible to the conditions existing prior to the installation or construction of any Improvements. For purposes of this Lease, restoration includes removal of any landscaping; removal of any Hazardous Materials; and to the extent possible, undoing any grading, fill, excavation, or similar alterations of the natural features of the Lease Premises. Lessor may waive all or any part of this obligation in its sole and absolute discretion.

(3) Unless otherwise provided for in this Lease, Lessee shall submit to Lessor no later than one (1) year prior to the expiration of this Lease either: (a) an application and minimum expense deposit for a new lease for the continued use of the Lease Premises, or (b) a plan for the restoration of the Lease Premises to be completed prior to the expiration of the lease term together with a timeline for obtaining all necessary permits and conducting the work prior to the expiration of this Lease.

(4) In removing any or all Improvements, or conducting any restoration work, Lessee shall be required to obtain any permits or other governmental approvals as may then be required by any Regulatory Agency, including, without limitation, any Environmental Law.

(5) Lessor may, upon written notice, in its sole and absolute discretion, accept title to any or all Improvements at the termination of this Lease. Lessor shall notify Lessee that Lessor intends to take title to any or all Improvements within six (6) months of Lessee submitting a plan for restoration under Paragraph 13(a)(3)(b) above. If Lessor elects to take title to any such Improvements, Lessee shall deliver to Lessor such documentation as may be necessary to convey title to such Improvements to Lessor free and clear of any liens, mortgages, loans, or any other encumbrances. Lessor shall not pay, and Lessee shall not be entitled to compensation for Lessor's taking title to such property.

(b) **Environmental Matters**

(1) Lessee's Obligations:

(i) Lessee will not use, occupy, or permit any portion of the Lease Premises to be used or occupied in violation of any Environmental Law. Lessee shall not manufacture or generate or store Hazardous Material on the Lease Premises unless specifically authorized under other terms of this Lease.

(ii) Lessee shall practice conservation of water, energy, and other natural resources.

(iii) Lessee shall notify Lessor and the appropriate governmental emergency response agency, or agencies immediately in the event of any release or threatened release of any Hazardous Material.

(2) Lessor may at any time during the Lease term require Lessee to conduct at its own expense and by a contractor approved

by Lessor an independent environmental site assessment or inspection for the presence or suspected presence of Hazardous Material generated, used, placed, disposed, stored, or transported on the Lease Premises during the term of the Lease. Lessee shall provide the results of the assessment or inspection to Lessor and the appropriate governmental response agency or agencies and shall further be responsible for removing or taking other appropriate remedial action regarding such Hazardous Material in accordance with applicable Environmental Law.

(3) Environmental Indemnity.

Lessee shall indemnify, defend, and hold Lessor and Lessor's, officer, appointees, volunteers, employees, agents, successors and assigns free and harmless from and against all Damages that may at any time be imposed upon, incurred by, or asserted or awarded against Lessor in connection with or arising from any Breach of Lessee's obligations hereunder; or out of any violation by Lessee of any Environmental Law; or resulting in the imposition of any lien or claim for the recovery of any costs for environmental cleanup or other response costs relating to the release or threatened release of Hazardous Materials on the Lease Premises during the Lessee's tenancy. This obligation shall include any prior leases between Lessor and Lessee and will continue through any periods Lessee is in holdover, unlawful detainer, or any subsequent month-to-month tenancies created by operation of law. Lessee's obligations hereunder will survive the expiration or sooner termination of this Lease.

(4) Violation of this section shall constitute grounds for termination of the Lease. Lessor, shall notify Lessee when, in Lessor's opinion, Lessee has violated the provisions of this section. Lessee shall immediately discontinue the conduct and respond within five (5) business days. Lessee shall take all measures necessary to remedy the condition.

14. QUITCLAIM

Lessee shall, upon the early termination of this Lease and at Lessor's request, execute and deliver to Lessor in a form provided by Lessor a good and sufficient release of all rights under this Lease. Should Lessee fail or refuse to deliver such a release, Lessor may record a written notice reciting such failure or refusal. This written notice shall, from the date of its recordation, be conclusive evidence against Lessee of the termination of this Lease and all other claimants.

15. HOLDING-OVER

(a) This Lease shall terminate without further notice upon the expiration of the term of this Lease. Lessee shall have removed any Improvements and completed any restoration as required by Lessor prior to the expiration of this Lease, and shall surrender possession of the Lease Premises. Any failure by the Lessee to remove Improvements, restore the Lease Premises, and/or surrender possession of the Lease Premises at the expiration or sooner termination of this Lease shall not constitute a renewal or extension and shall not give Lessee any rights in or to the Lease Premises or any part thereof except as expressly provided in this Lease. Lessee shall be deemed in unlawful detainer of the Lease Premises and Lessor shall be entitled to all resulting legal remedies.

(b) Lessor may, in its sole discretion, choose to accept Rent for the Lease Premises instead of immediately taking legal action to recover possession of the Lease Premises. Any tenancy created by operation of law on Lessor's acceptance of rent shall be deemed a month-to-month tenancy regardless of what sum or sums Lessee delivers to Lessor. Except as set forth below, any subsequent tenancy created in this manner shall be on the same terms, covenants, and conditions set forth in this Lease insofar as such terms, covenants, and conditions can be applicable to a month-to-month tenancy

(c) In recognition of the increased accounting, land management, and supervisory staff time required for month-to-month tenancies, the rent for each month or any portion thereof during such holdover period shall be an amount equal to one hundred fifty percent (150%) of one-twelfth (1/12) of the total compensation for the most recent year paid. In the event this Lease does not require monetary compensation, Lessor shall have the right to establish rent based on the fair market value of the Lease Premises. The month-to-month tenancy may be terminated by Lessee or Lessor upon thirty (30) calendar days' prior written notice to the other.

16. ADDITIONAL PROVISIONS

(a) **Waiver**

(1) No term, covenant, or condition of this Lease and no omission, neglect, Default or Breach of any such term, covenant or condition shall be deemed to have been waived by Lessor's acceptance of a late or nonconforming performance or otherwise, unless such a waiver is expressly acknowledged by Lessor in writing. No delay or omission of Lessor to exercise any right or power arising from any omission, neglect, Default or Breach of term, covenant, or condition of this Lease shall be construed as a waiver or any acquiescence therein.

(2) Any such waiver shall not be deemed to be a waiver of any other term, covenant or condition; of any successive Breaches of the same term, covenant, or condition; or of any other Default or Breach of any term, covenant or condition of this Lease.

(b) **Time**

Time is of the essence for this Lease and each and all of its terms, covenants or conditions in which performance is a factor.

(c) **Notice**

All notices required to be given under this Lease shall be given in writing, sent by U.S. Mail with postage prepaid, to Lessor at the offices of the State Lands Commission and the Lessee at the address specified in this Lease. Lessee shall give Lessor notice of any change in its name or address.

(d) **Consent**

Where Lessor's consent is required under this Lease its consent for one transaction or event shall not be deemed to be a consent to any subsequent occurrence of the same or any other transaction or event.

(e) **Changes**

This Lease may be terminated and its term, covenants, and conditions amended, revised, or supplemented only by mutual written agreement of the parties.

(f) **Successors**

The terms, covenants, and conditions of this Lease shall extend to and be binding upon and inure to the benefit of the heirs, successors, and assigns of the respective parties.

(g) **Joint and Several Obligation**

If more than one Lessee is a party to this Lease, the obligations of the Lessees shall be joint and several.

(h) **Captions**

The section and paragraph captions used in this Lease are for the convenience of the parties. The captions are not controlling and shall have no effect upon the construction or interpretation of this Lease.

(i) **Severability**

If any term, covenant or condition of this Lease is determined by a court of competent jurisdiction to be invalid or unenforceable, the remainder of this Lease shall not be affected thereby, and each term and provision of this Lease shall remain valid and enforceable to the fullest extent permitted by law.

(j) **Representations**

Lessee agrees that no representations have been made by Lessor or by any person or agent acting for Lessor. Lessor and Lessee agree and acknowledge that this document contains the entire agreement of the parties, that there are no verbal agreements, representations, warranties or other understandings affecting this Lease, and Lessor and Lessee, as a material part of the consideration of this Lease, waive all claims against the other for rescission, damages, or otherwise by reason of any alleged covenant, agreement or understanding not contained in this Lease.

(k) **Gender and Plurality**

In this Lease, the masculine gender includes both the feminine and neuter, and the singular number includes the plural whenever the context so requires.

(l) **Survival of Certain Covenants**

All covenants pertaining to bond, insurance, indemnification, restoration obligations, Breach, Default, and remedies shall survive the expiration or earlier termination of this Lease until Lessee has fulfilled all obligations to restore the Lease Premises as required by this Lease.

(m) **Counterparts**

This agreement may be executed in any number of counterparts and by different parties in separate counterparts. Each counterpart when so executed shall be deemed to be an original and all of which together shall constitute one and the same agreement.

(n) **Delegation of Authority**

Lessor and Lessee acknowledge Lessor as defined herein includes the Commission Members, their alternates or designees, and the staff of the Commission. The ability of staff of the Commission to give consent, or take other discretionary actions described herein will be as described in the then-current delegation of authority to Commission staff. All other powers are reserved to the Commission.

STATE OF CALIFORNIA - STATE LANDS COMMISSION

LEASE NO. PRC 3402.9

This Lease shall become effective only when approved by and executed on behalf of the State Lands Commission of the State of California and a duly executed copy has been delivered to Lessee. The submission of this Lease by Lessor, its agent, or representative for examination by Lessee does not constitute an option or offer to lease the Lease Premises upon the terms and conditions contained herein, or a reservation of the Lease Premises in favor of Lessee. Lessee's submission of an executed copy of this Lease to Lessor shall constitute an offer to Lessor to lease the Lease Premises on the terms and conditions set forth herein.

IN WITNESS WHEREOF, the parties hereto have executed this Lease as of the date hereafter affixed.

LESSEE:

CITY OF SACRAMENTO,
A MUNICIPAL CORPORATION

By: _____
Print Name: _____

Title: _____
For John F. Shirey, City Manager

Date: _____

LESSOR:

STATE OF CALIFORNIA
STATE LANDS COMMISSION

By: _____

Title: _____

Date: _____

APPROVED AS TO FORM:

By: _____
City Attorney

ATTEST:

By: _____
City Clerk

This Lease was authorized by the California State Lands Commission on

_____
(Month Day Year)

ACKNOWLEDGEMENT

Item 8

U.S. Department of Homeland Security

United States Coast Guard

Commander
Eleventh District

U.S. Coast Guard Island,
Building 50-2
Alameda, CA 94501-5100
Staff Symbol: (dpw)
Phone: (510) 437-3514
Fax: (510) 437-5836

RECEIVED
CITY OF SACRAMENTO
FEB 5 2014
DEPT. OF TRANSPORTATION

16590
American River (7.1)
January 31, 2014

City of Sacramento
Attn: Mr. Ricky Chuck
915 I Street, Room 2000
Sacramento, CA 95814-2604

Dear Mr. Chuck:

We have completed our review of the City of Sacramento's letter, dated January 9, 2014, concerning the repairs and painting of the Guy West Bridge, mile 7.1, American River, in Sacramento, California. Since the proposed project will not change the navigational clearances or the general appearance of the bridge, it is considered "repairs-in-kind", and no Coast Guard bridge permit will be required.

We understand the work is anticipated to be in progress May/June 2014 through November 2014, and will include the installation of a temporary scaffolding system under the bridge, reducing the bridge vertical clearance by no more than 5 feet. The scaffolding shall be lighted at night with red lights. No in-water work will be necessary to complete the work. The work is hereby approved, subject to the following conditions:

a. The work shall be performed such that waterway traffic and navigational clearances are not affected and the navigable depths not impaired.

b. All flame-producing, spark-producing, welding, or other hazardous operations shall be halted while vessels are passing through the bridge.

c. Nothing may interfere with proper display of required bridge navigational lighting, or other navigational signals and bridge markings.

d. All temporary construction items, required to perform the work, shall be removed completely from the waterway at the conclusion of the project, or when deemed appropriate by the District Commander.

e. Materials removed from the bridge shall be disposed of in upland, non-wetland areas, approved by the Corps of Engineers, or as appropriate for the materials removed.

f. Moored or stationary obstructions, including scaffolding, work platforms, barges, falsework, etc., between channel piers shall be lighted at night with steady burning red lights, visible at 2,000 yards from approaching vessels.

g. Nothing may fall from the bridge or be deposited into the water. If anything is accidentally dropped into the water, immediate action shall be taken to remove it and the waterway shall be cleared to the satisfaction of the U. S. Army Corps of Engineers.

h. The Federal Water Pollution Control Act prohibits the discharge of oil, including oil-based paints, into the navigable waters of the United States. In the event of discharge, the responsible party shall immediately take action to halt the discharge and notify the National Response Center, U. S. Coast Guard, by calling (800) 424-8802. Failure to report such discharge may result in substantial fines, imprisonment, or both. The responsible party will be responsible for clean up costs, if any.

Our office must be notified with updates as the work progresses, so we may provide appropriate notice to mariners. Please complete and return the enclosed Project Information Record, so we may contact the appropriate personnel to correct bridge discrepancies and hazards to navigation during the project.

You may contact Mr. Chris Cerles, Project Manager, by telephone at (510) 437-3461, to provide updates and for notification when the project is completed Sincerely,

DAVID H. SULOUFF
Chief, Bridge Section
Eleventh Coast Guard District
By direction of the District Commander

Enclosure

Copy: Coast Guard Sector San Francisco, Waterways
U. S. Army Corps of Engineers Sacramento Distrist

Project Information Record

Complete and return to:

Commander (dpw)
Eleventh Coast Guard District
Attn: Bridge Section
Bldg. 50-2, Coast Guard Island
Alameda, CA 94501-5100

Fax: (510) 437-5836 or send to Chris.G.Cerles@uscg.mil

Bridge: Guy West Bridge Waterway: American River Mile: 7.1

Project: Repairs & painting; "Repairs-in-Kind"

Bridge Owner, Person in Charge: _____
Daytime telephone: _____
Nighttime telephone: _____

Contractor, Person: _____
Daytime telephone: _____
Nighttime telephone: _____

Hours of Operation: _____
Days of the Week: _____

Proposed Start Date: May/June 2014 Anticipated Completion Date: November 2014

Marine Radio Call Sign & Frequency: N/A

Name of Vessel: N/A

Signature: _____ Date: _____
Bridge Owner, or Authorized Representative

Item 9

File No.: ACQE-11-53-05
Project: Guy West Bridge Restoration Project
Parcel No.: 295-0040-030

Grantor: THE ROBERT AND RITA DELUE FAMILY LIMITED PARTNERSHIP

Grantee: CITY OF SACRAMENTO, a Municipal Corporation

AGREEMENT FOR ACQUISITION OF TEMPORARY CONSTRUCTION EASEMENT

WHEREAS, the above-named Grantor(s) (hereafter referred to as the "Grantor") own the real property (hereafter referred to as the "Property") described in the Temporary Construction Easement deed attached hereto as Exhibit "A" and

WHEREAS, Grantor desires to convey and the City of Sacramento (hereafter referred to as the "City") desires to acquire a Temporary Construction Easement in the Property (hereafter referred to as the "TCE") as described in the TCE, on the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the payment and other obligations set forth below, Grantor and City mutually agree as follows:

1. **Payment.** City shall pay Grantor the sum of **TWENTY-ONE THOUSAND AND NO CENTS ($21,000.00)** which is specifically agreed by the parties to be the full amount of compensation due and owing to Grantor, and their successors and assigns, for conveyance of the TCE to the City, commencing no sooner than **May 1, 2014**, but payment will not begin until the City has issued a "Notice to Proceed" for construction which a copy shall be furnished to the Grantor and their successors and assigns, and TCE shall extend to **September 30, 2014** or until the date construction is complete, which ever date occurs last.

Grantor's execution and delivery of the TCE, to the City is free and clear of all rights, restrictions, easements, impediments, encumbrances, liens, assessments or other security interests of any kind, except: (a) covenants, conditions, restrictions and reservations of record, if any, which the City determines would not detrimentally interfere with the City's proposed use of the TCE; and (b) easements or rights-of-way for public roads or public utilities, if any. Grantor warrants that there are no leases, license, permit, option, right of first refusal or other agreement, written or oral, which affects the TCE, and the Grantor further agrees to hold the City harmless and reimburse the City for any of its losses and expenses occasioned by reason of any such lease, license, permit, option, right of first refusal or other agreement.

2. **Fees.** The City shall pay all recording fees incurred in this transaction.

3. **Just Compensation.** Grantor agrees that performance of this Agreement by City, including the payment recited in Section 1, above, shall constitute full and fair compensation and consideration for any and all claims that Grantor may have against City by reason of the acquisition, improvement, possession or occupancy of the TCE, and Grantor hereby waives any and all such

claims, including claims for severance or taking compensation or damages on account of the acquisition of the TCE or the location, establishment, construction or operation of the above-named project within the TCE. The foregoing waiver shall include any and all rights or claims that Grantor may have under Article 1, section 19 of the California Constitution, the Eminent Domain Law, or any other law or regulation. Further, it is mutually understood that the acquisition of the TCE by City is for a public purpose, and therefore, the TCE is otherwise subject to taking by the power of eminent domain. The acquisition by and through this Agreement is in lieu of City's exercise of the power of eminent domain.

4. Grantor's Ownership. Grantor certifies that it owns full legal title to the Property, and has full power and authority to convey all property rights described herein to City.

5. Eminent Domain.

A. It is mutually understood that the acquisition of the Easement by City is for a public purpose, and therefore, the Easement is otherwise subject to taking by the power of eminent domain. The acquisition by and through this Agreement is in lieu of City's exercise of the power of eminent domain.

B. If any eminent domain action has been filed by the City for acquisition of the Easement, Grantor hereby agrees and consents to the dismissal of such action. The Grantor waives any and all claims to any money that may have been deposited in the Superior Court or with the State Treasurer in any such action and waives any and all claims for damages or costs, including attorney's fees, arising by virtue of the abandonment of the action pursuant to Section 1268.510 of the California Code of Civil Procedure.

6. Possession and Use of the TCE. The City shall have the right of possession and use of the TCE including the right to remove and dispose of improvements and construct the above-named project commencing on the date that this Agreement is executed by both parties; provided that City makes no representation that the project shall be constructed, and no liability or obligation whatsoever shall be incurred by City by reason of any failure to construct the project for any reason. If the TCE subsequently is not acquired by City for any reason, City shall restore the TCE area to the condition existing prior to the City's possession or use hereunder, unless otherwise agreed by the parties.

7. Indemnification. Each party (hereafter the "Indemnifying Party") agrees and covenants to indemnify, defend (with counsel acceptable to the other party, which consent shall not be unreasonably withheld), and hold the other party, and its officers, employees and agents, harmless from and against any and all liabilities, penalties, losses, damages, costs, expenses (including reasonable attorneys' fees, whether for outside or staff counsel), causes of action, claims, or judgments that arise by reason of any acts or omissions related to the performance of this Agreement or the occupancy or use of the Property, by the Indemnifying Party, its officers, employees, agents or any other person or entity employed by or acting on their behalf. The provisions of this Section 5 shall survive the recording of any deeds hereunder.

8. Binding on Successors; Recording. This Agreement shall be binding on and shall inure to the benefit of the City and Grantor, and their respective successors, assigns, and their past, present and future officers, employees and agents; provided that this Agreement may only be assigned with the written consent of both parties, and any attempt to assign this Agreement without such consent

shall be void. Either party may record this Agreement in the Recorder's Office for Sacramento County.

9. Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original but all of which together shall constitute one and the same instrument.

10. Special Provisions. The Special Provisions attached hereto as Exhibit "B", if any, are hereby incorporated and made a part of this Agreement by this reference. In the event of any conflict or inconsistency between this Agreement and the Special Provisions, the terms of the Special Provisions shall prevail.

11. Notices. Any notice that either party may or is required to give the other shall be in writing, and shall be either personally delivered or sent by regular U.S. Mail, to the following address:

To City

Real Estate Services
City of Sacramento
5730 24th Street, Building 4
Sacramento, CA 95822
Attn: Supervising Real Property Agent

To Grantor
The Robert & Rita Delue Family Limited Partnership
(Riverbridge Apartments)
1025 University Avenue
Sacramento, CA 95825

12. Entire Agreement. The parties have herein set forth the whole of their Agreement. All prior oral discussions, representations, and/or agreements, if any, are specifically superseded by this Agreement, which is intended by the parties to contain all of the terms and conditions agreed to by them with regard to acquisition of the TCE by City.

(REST OF PAGE LEFT INTENTIONALLY BLANK)

IN WITNESS WHEREOF, the parties have executed this Agreement on the dates set forth below.

Grantor(s):

The Robert and Rita Delue Family Limited Partnership

By: Robert L. DeLue
Print Name: Robert DeLue
Title: General Partner

Dated: 1/28/14

By: Rita DeLue
Print Name: Rita DeLue
Title: General Partner

Dated: 1/28/14

Grantee:

CITY OF SACRAMENTO, a municipal corporation

By: _____
Print Name: _____
Title: _____
For John F. Shirey, City Manager

Dated: _____

APPROVED AS TO FORM:

By: _____
City Attorney

ATTEST:

By: _____
City Clerk

EXHIBIT "A"

Temporary Construction Easement Deed

RECORDING REQUESTED BY
AND FOR THE BENEFIT OF

CITY OF SACRAMENTO

NO FEE DOCUMENT
Govt Code 27383

WHEN RECORDED MAIL TO

CITY OF SACRAMENTO
Real Estate Services
5730 24th Street, Building 4
Sacramento, California 95822

NO TRANSFER TAX DUE per R&T Code 11922
Grantee is a Government Agency

SPACE ABOVE THIS LINE FOR RECORDER'S USE

ACQE-11-53-05 — RES File

295-0040-030 — Portion of APN

TEMPORARY CONSTRUCTION EASEMENT

The Robert and Rita Delue Family Limited Partnership hereby grant(s) to the **CITY OF SACRAMENTO, a municipal corporation,** ("City") a Temporary Construction Easement (TCE) for purposes of a constructing a temporary earth ramp on the east side of the parking lot up to the levee for the Guy West Bridge Restoration Project, on, over, across, and under all that real property situated in the City of Sacramento, County of Sacramento, State of California, described as follows:

SEE ATTACHED LEGAL DESCRIPTION MARKED EXHIBIT 'A'
AND DIAGRAMED IN THE CORRESPONDING PLAT MAP ATTACHED AS EXHIBIT 'B'

Grantor agrees that the term of the easement shall commence on May 1, 2014 and end on September 30, 2014

If City would need to extend the term of the TCE area, or any portion thereof and Grantor agrees upon this extended term and area for the extended use of the TCE City shall provide Grantor with the written notice of its intent to extend the term of the TCE at least thirty (30) days prior to the expiration of the TCE.

The grant described herein is subject to all existing recorded easements, and encumbrances.

The Robert and Rita Delue Family Limited Partnership

Dated: _____

By: _____
Print Name: _____
Title: _____

Dated: _____

By: _____
Print Name: _____
Title: _____

"Approved as to form - City Attorney"

EXHIBIT "A"
295-0040-030
TEMPORARY CONSTRUCTION EASEMENT

All that certain real property situated in the City of Sacramento, County of Sacramento, State of California, described as follows:

All that portion of that certain parcel as described in the Grant Deed, from Wells Fargo Bank, National Association to Robert S. DeLue and Rita DeLue, in Book 19930825, Official Records, Page 1054 of said County, more particularly described as follows:

Beginning at a point on the most northerly corner of said parcel; thence from said **Point of Beginning** along the northwesterly boundary of said parcel, South 40°59'58" West, 215.05 feet to the northeasterly boundary of that certain Parcel 'A' Levee Right of Way and Easement as described in Book 4132, Official Records, Page 414 of said County; thence along said northeasterly bounday, on a curve to the left, having a radius of 1960.00 feet, subtended by a chord bearing South 46°41'40" East, 70.06 feet; thence parallel with said northeasterly boundary and 70.00 feet distance thereof, North 40°59'58" East, 215.47 feet to the southerly boundary of University Avenue; thence along said Avenue on a curve to the right, having a radius of 1538.00 feet, subtended by a chord bearing North 47°02'23" West, 70.05 feet to the **Point of Beginning**, containing 15,048 square feet more or less.

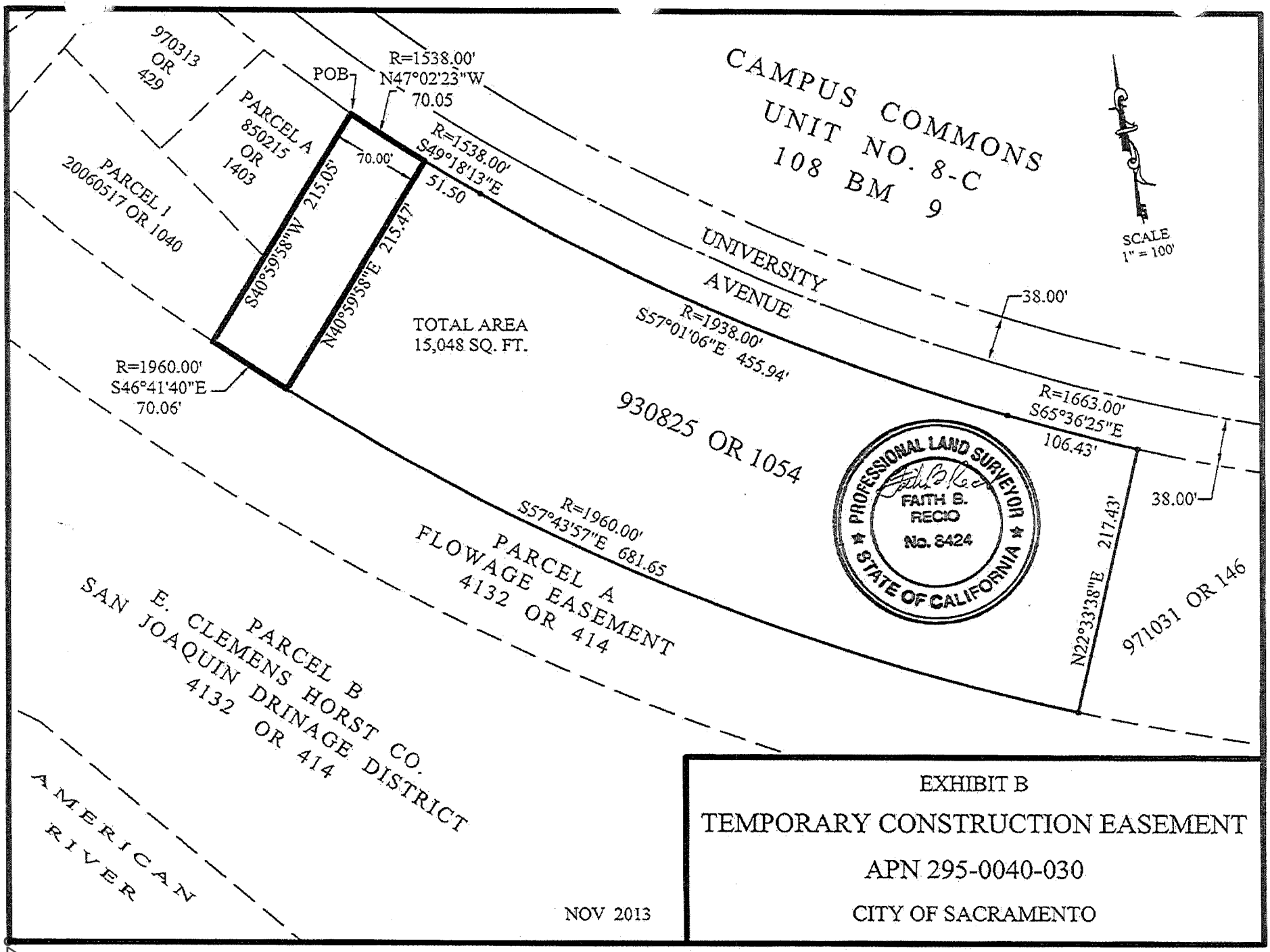


EXHIBIT B

TEMPORARY CONSTRUCTION EASEMENT

APN 295-0040-030

CITY OF SACRAMENTO

NOV 2013

EXHIBIT "B"

1) Payment Price of Temporary Construction Easement (TCE)

If City would need to extend the TCE area beyond **September 30, 2014** and Grantor agrees upon this extended term, City will pay Grantor, their successors and assigns, at a rate of **$2,300.00 per month** for the extended use of the TCE. City shall provide Grantor with a written notice of City's intent to extend the term of the TCE at least thirty (30) days prior to the expiration of the TCE.

2) Construction Contract Work

Grantor grants the City the right to construct a temporary earth ramp on the northeast side of the parking lot up to the levee. Grantor also grants the City the right to put up a temporary fence around entire TCE area. If necessary, Grantor also grants City the right to trim the trees in the TCE area so that there is no damage being done to the trees with any equipment being used for the project. This TCE area being used by the City will be cleaned, slurry sealed and stripped upon completion of the work and de-mobilization.

It is agreed that all work performed under this Agreement by City and situated within the Property shall be done in a good and workmanlike manner. All structures, improvements or other facilities when removed, relocated or reconstructed by City, shall be left in as good condition as found. However, unless otherwise expressly stated in this Agreement, all work performed under this Agreement by the City shall be done at a time and in a manner as the City, in its sole discretion, deems most appropriate for project purposes.

3) Reservation of Rights; Cooperation with Grantor's Construction Activity

Grantor reserves the right to use the Property in any manner, including but not limited to granting easements or licenses to other parties to use the Property, provided such use does not unreasonably interfere with Grantee's right hereunder. Such use may include but not limited, to Grantor's (or its successors' and assigns') construction activities. If such use by Grantor conflicts with the City's use of its easement granted hereunder, the parties hereby agree to cooperate in good faith to achieve a timely accommodation of City's and Grantor's, or it's successors and assigns, use of the Property.

AMERICAN RIVER FLOOD CONTROL DISTRICT

TEMPORARY USE PERMIT AND HOLD HARMLESS AGREEMENT

This Permit grants to the Permittee(s) named below the temporary right to access and use a portion of the levee easement(s) held by American River Flood Control District ("the District"). This right is subject to the following terms and conditions:

Part One: Activity Information

1. Permittee(s): City of Sacramento
2. Address: Department of Transportation, 915 "I" Street, Sacramento, CA 95814
3. Phone Number(s) Ricky Chuck (916) 808-5050
4. Type of Activity: Guy West Bridge Repair
5 Date(s) of Activity: May 27, 2014 through October 31, 2014
6. Location of Activity: Guy West Bridge
7. Unit Number(s): 4 & 9 Key Deposit: N/A Number of Key(s) 1 will be required upon request

Part Two: Terms of Entry

8. The permission granted under this Permit is strictly limited to the specific details provided above.
9. This Permit does not include the right to pass over property not belonging to or under the control of this District. Permittee(s) shall obtain any necessary approvals from other landowners or regulatory agencies.
10. Maximum speed limit on levees is ten (10) miles per hour.
11. Permittee(s) agree to exercise reasonable care to avoid damage and to protect persons and property. Permittee agrees to replace or repair any District property used and/or damaged as a result of the exercise of this Permit and, if needed, to restore the portion of the levee that is the subject of this Permit to its condition prior to entry by Permittee on the District's easement all to the satisfaction of the District.
12. Permittee's activities shall be undertaken so as to avoid any interference with the District's activities (including inspections, patrols, and maintenance) and, if Permittee's activities can only be undertaken in a way that involves some degree of interference with District's activities, Permittee shall minimize such interference to the greatest extent possible.
13. Permittee(s) agree to provide dust control measures as necessary to the satisfaction of the District.
14. The District assumes no liability for loss or damage to property or injuries to or death of agents, contractors, or employees of Permittee by reason of the exercise of the privileges given under this permit. Permittee hereby agrees to indemnify and hold and save the District, its directors, officer, agents, and employees harmless from any damages, costs or liability, including all cost of defense, which may arise as a result of the exercise of this Permit. If Permittee is the State of California or a State agency or subdivision, nothing in this permit shall preclude the District from filing a claim with the State Board of Control for any loss or expense which District, its directors, officers, agents, or employees may suffer caused by or due to exercise by Permittee of the rights granted under this permit.

15. Permittee shall not block the crown of the levee or access of the District to the levees of the District. No automobiles or equipment used by Permittee shall traverse levees slopes in any fashion that may cause damage to the levee or create additional maintenance for the District. The location of any storage of vehicles, equipment, or materials required, and/or other types of levee encroachments, shall be subject to prior approval by the District through attachment to this permit of an exhibit, which exhibit shall specifically identify the location of such storage and the vehicles, equipment, and materials to be stored there.
16. The District reserves the right to take such action as it deems necessary, in the event of an emergency, to protect the District's levees and the lands within said levees, including the removal from the levee, or any adjacent areas, of any equipment or materials located thereon and owned by the Permittee, its employees, agents, or contractors. If reasonably possible, District will give 48 hours advance notice to the Permittee to enable the Permittee to take such action as may be necessary to remove said equipment or materials If District is unable to give such notice, it shall give advance notice at the earliest time reasonably possible. An emergency means an unexpected occurrence involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property or essential public services. If made in good faith, the decision of the District as to when an emergency situation exists shall be final and District shall have no liability or responsibility to the Permittee, its employees, agents, or contractors in the exercise of the power herein reserved.

The District reserves the right to revoke this Permit at any time and Permittee agrees to stop work immediately upon such revocation.

DATED: February 19, 2014.

AGREED BY: _____
Signature

(PERMITTEE) _____
Ricky Chuck
for and on behalf of
City of Sacramento

AMERICAN RIVER FLOOD CONTROL DISTRICT

BY: _____
Timothy R. Kerr General Manager

American River Flood Control District
165 Commerce Cr Suite "D"
Sacramento California 95815
(916)929-4006 FAX (916)929-4160

Item 11

Kelly Gallagher

From: Darren Hanson <Darren.Hanson@smud.org>
Sent: Wednesday, January 22, 2014 7:53 AM
To: Ricky Chuck; Erline Applegate; Jack Graham; David Brown P.E.
Cc: Jan Ebert
Subject: RE: SMUD Easement on Levee for Guy West Bridge Project

Ricky

I apologize for not responding to this request sooner.

An agreement is not required to build the temporary ramp over the underground line. No special requirements as I recall the amount of temp fill was sufficient to protect the underground conduit/cable.

Darren Hanson
Engineering Designer
Grid Assets
4401 Bradshaw Rd,
P.O. Box 15830, Mailstop EA105, Sacramento, CA 95817
w.916-732-5221 | darren.hanson@smud.org

SMUD™
Powering forward.
Together.

From: Ricky Chuck [mailto:RChuck@cityofsacramento.org]
Sent: Wednesday, January 22, 2014 7:47 AM
To: Erline Applegate; Jack Graham; David Brown P.E.; Darren Hanson
Cc: Jan Ebert
Subject: RE: SMUD Easement on Levee for Guy West Bridge Project

Dear Darren, Erline, David, and Jack:

Can you confirm whether an agreement is required for the City to construct a temporary dirt ramp over SMUD easement at the toe of the levee by the parking lot.
Are there any requirements that the City contractor has to comply with in order to get the access via SMUD easement.

Thank you.

Ricky

From: Ricky Chuck
Sent: Monday, January 13, 2014 3:11 PM
To: Erline Applegate (Erline.Applegate@smud.org); 'jack.graham@smud.org'; 'dbrown3@smud.org'
Cc: Jan Ebert
Subject: RE: SMUD Easement on Levee for Guy West Bridge Project

Dear All:

Thank SMUD for continuous support of the City project.

Can SMUD confirm whether an agreement is required for the City to allow the City's contractor to construct a temporary dirt ramp over SMUD easement at the toe of the levee by the parking lot.
Are there any requirements that the City contractor has to comply with in order to get the access via SMUD easement.

Thank you.

Ricky Chuck

From: Jan Ebert
Sent: Wednesday, January 08, 2014 2:37 PM
To: Erline Applegate (Erline.Applegate@smud.org); 'jack.graham@smud.org'; 'dbrown3@smud.org'
Cc: Ricky Chuck
Subject: RE: SMUD Easement on Levee for Guy West Bridge Project
Importance: High

Erline, Jack or David,

I am assuming that since the temporary dirt ramp does not cause any concern for the SMUD Easement on the Levee (see chain of emails below) we will not need an Agreement between SMUD and the City for this Project?

Please let me know.
Thanks,

JAN EBERT
Real Property Agent
City of Sacramento
Real Estate Services Section
5730 24th Street, Bldg 4
Sacramento CA 95822

Ph: (916) 808-1968
Fax: (916) 808-8250
Email: jebert@cityofsacramento.org

From: Erline Applegate [mailto:Erline.Applegate@smud.org]
Sent: Tuesday, August 27, 2013 4:17 PM
To: Jan Ebert
Subject: FW: SMUD Easement on Levee for Guy West Bridge Project

Hi Jan,

Please see the email chain below advising that the temporary dirt ramp does not cause any concern.

Thanks,

Erline

Erline Applegate, SR/WA
Land Specialist - Real Estate Services
Grid Assets

6201 S Street, Mailstop B-304, Sacramento, CA 95817
w.916-732-5908 | c.916-996-2509 | erline.applegate@smud.org

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Powering forward.
Together.

From: Jack Graham
Sent: Tuesday, August 27, 2013 4:13 PM
To: Erline Applegate
Subject: FW: SMUD Easement on Levee for Guy West Bridge Project

Here's David's response.

Jack Graham
Engineering Designer
T & D Line Design - Grid Assets
4401 Bradshaw Road, Sacramento, CA 95827
Mailing Address: Attn: Jack Graham, MS: EA105, P.O. Box 15830, Sacramento, CA 95852
desk: 916-732-6643, email: jack.graham@smud.org

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Powering forward.
Together.

From: David Brown P.E.
Sent: Monday, August 12, 2013 8:57 AM
To: Jack Graham
Cc: Gary Shimizu
Subject: FW: SMUD Easement on Levee for Guy West Bridge Project

Jack,

Based on the present KMP-4 loading, this temporary dirt ramp doesn't cause any concern.

Thank You,

David L. Brown P.E.
Principal Distribution System Engineer
Distribution System Engineering
6001 S Street, Mailstop D104, Sacramento, CA 95817
w.916-732-6660 | dbrown3@smud.org

SMUD™
Powering forward.
Together.

From: Jack Graham
Sent: Wednesday, August 07, 2013 4:37 PM
To: David Brown P.E.
Subject: SMUD Easement on Levee for Guy West Bridge Project

Hi David,

The Guy West bridge will be undergoing painting and some mechanical renovation work beginning next year. In order to get the heavy equipment to this location the contractor is proposing constructing a temporary dirt ramp, see my attached drawing. This ramp will result in approx. 15' of dirt over our KMP4 circuit, see drawing. The construction is planned to take 6 months, spring to fall '14. Once construction is completed the dirt ramp will be removed. I know additional dirt over our underground conductors decrease the capacity of the conductors. Do you have any concerns regarding this plan?

Jack Graham
Engineering Designer
T & D Line Design - Grid Assets
4401 Bradshaw Road, Sacramento, CA 95827
Mailing Address: Attn: Jack Graham, MS: EA105, P.O. Box 15830, Sacramento, CA 95852
desk: 916-732-6643, email: jack.graham@smud.org

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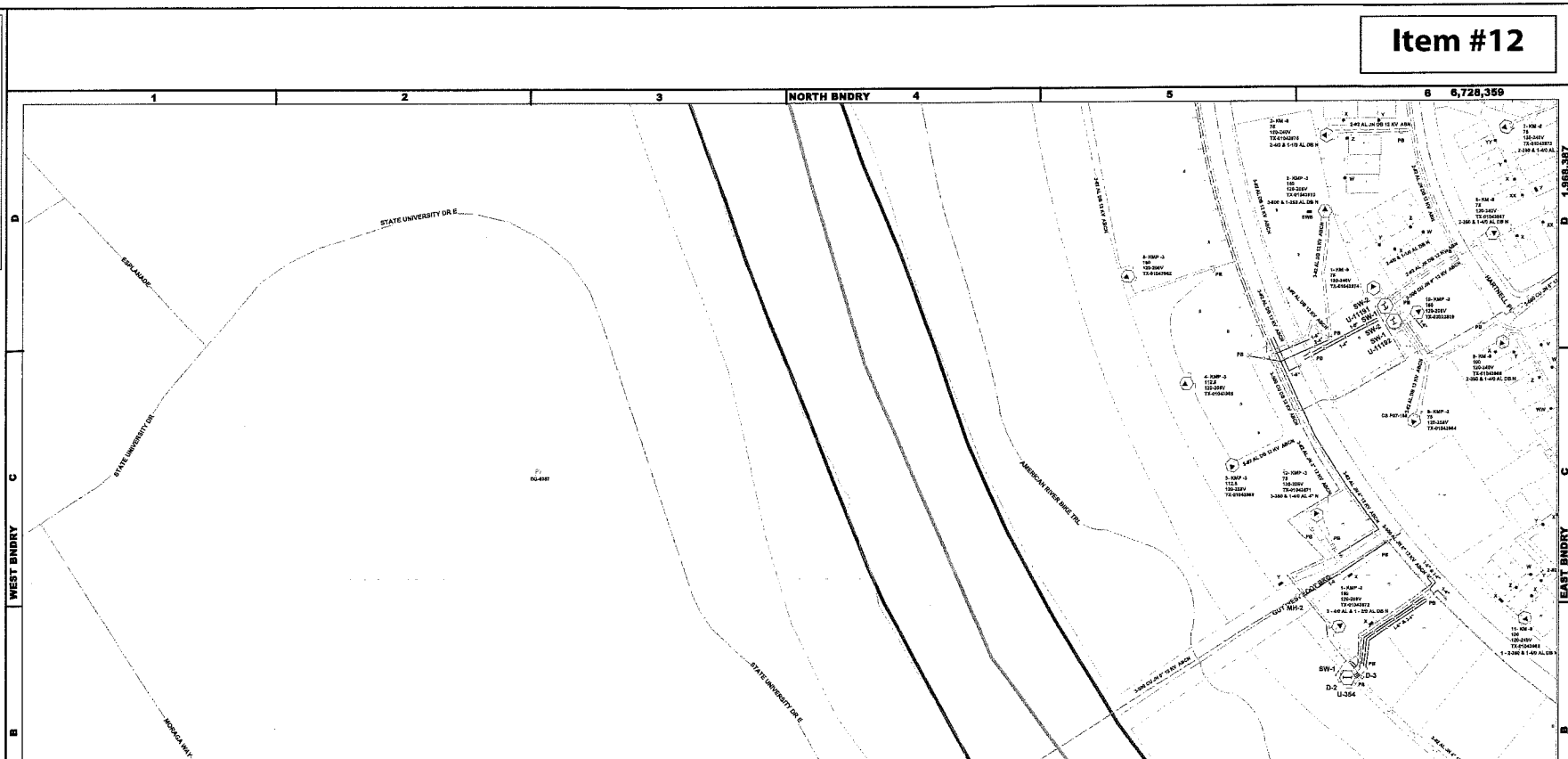
Together.

DESIGN RECORD MAP

SMUD
SACRAMENTO MUNICIPAL UTILITY DISTRICT

Item #12



GIS Plot

4/16/2013 3:28:30 PM

326/164

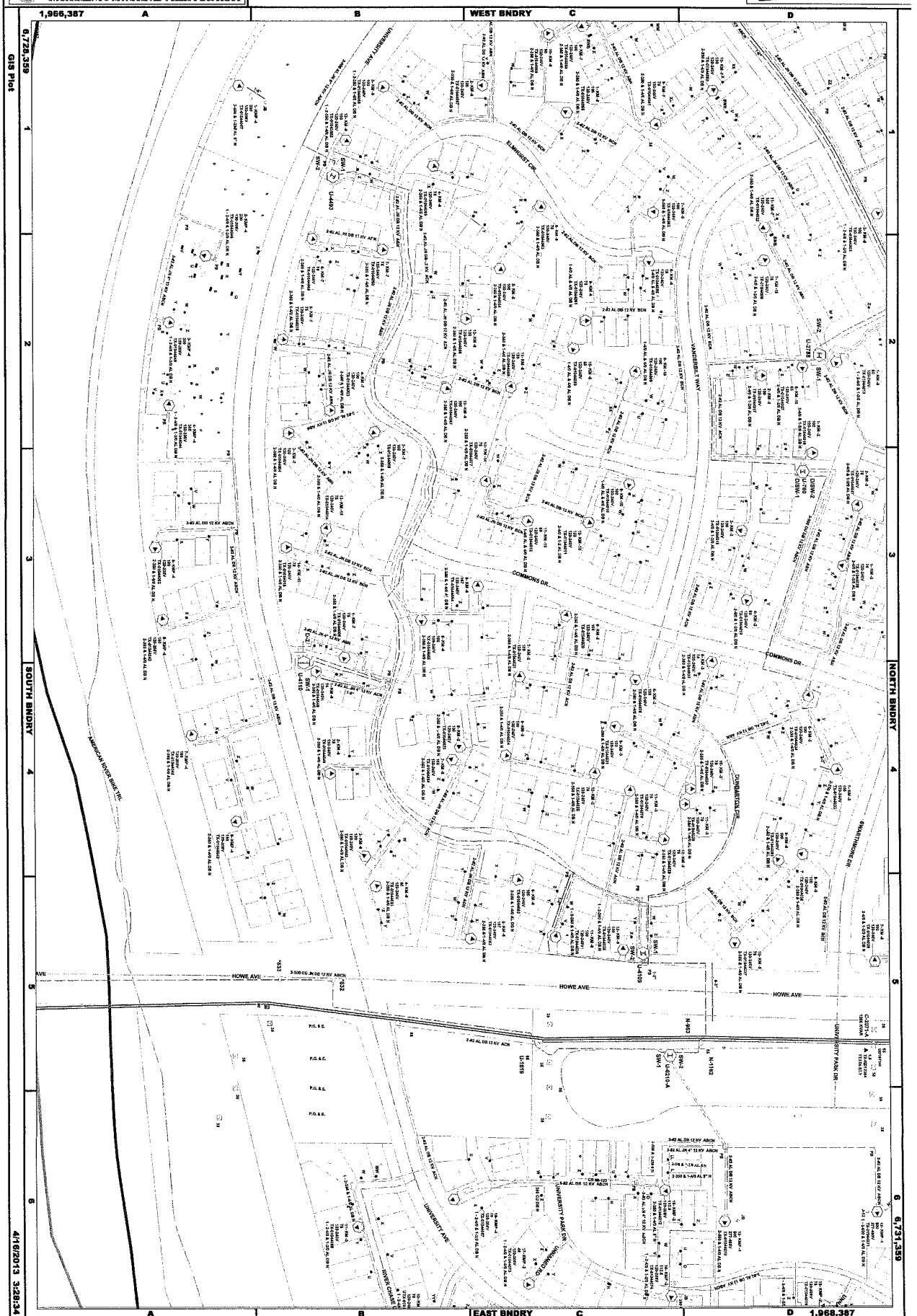
W-104

SCALE:
1" = 100'

THIS PRINT IS A GUIDE WHICH SHOWS THE APPROXIMATE LOCATION OF SMUD FACILITIES. SMUD ACCEPTS NO RESPONSIBILITY FOR ITS COMPLETE ACCURACY OR FOR RECENT CHANGES. MEASUREMENTS AND SCALE ARE APPROXIMATE. IF ACTUAL DEPTH & LOCATION ARE REQUIRED PLEASE CONTACT UNDERGROUND SERVICE ALERT (800) 642-2444 48 HOURS IN ADVANCE BEFORE EXCAVATING AT LOCATIONS WHERE SMUD HAS UNDERGROUND FACILITIES INDICATED.

SMUD
SACRAMENTO MUNICIPAL UTILITY DISTRICT

DESIGN RECORD MAP



THIS PRINT IS A GUIDE WHICH SHOWS THE APPROXIMATE LOCATION OF SMUD FACILITIES. SMUD ACCEPTS NO RESPONSIBILITY FOR ITS COMPLETE ACCURACY OR FOR RECENT CHANGES. MEASUREMENTS AND SCALE ARE APPROXIMATE. IF ACTUAL DEPTH & LOCATION ARE REQUIRED PLEASE CONTACT UNDERGROUND SERVICE ALERT (800) 642-2444 48 HOURS IN ADVANCE BEFORE EXCAVATING AT LOCATIONS WHERE SMUD HAS UNDERGROUND FACILITIES INDICATED.

SCALE: 1" = 100'

W-104

326/167

Item 13

PG&E File # 13-024 Plat # 2526-35 TBM #

Date Customer Plans Received 1-18-13

NOTE: Please incorporate the gas and/or electric facilities from the attached plat maps into your plans. Check your plans for conflicts. It is the responsibility of the agency or developer to pothole existing facilities if needed to determine if there are any conflicts. An Application for Gas Service is required and you must allow 6 to 8 weeks to remedy any conflicts. If any pipe coating is damaged during excavation, please contact Gas Maintenance & Operations in your County and we will send someone to repair the damaged pipe wrap.

Sacramento County	(916) 386-5153
Solano County	(707) 440-5759
Yolo County	(530) 661-5157

_____ NOTE: No gas facilities within your project site.

__/__ NOTE: No PG&E electric facilities within your project site.

_____ If you have any questions regarding conflicts with our existing facilities or regarding new service to your project, you can contact me at

Name	Address	Phone
Don Hendricks	5555 Florin-Perkins Rd. Sacramento 95826	916-386-5469

__/__ If you have any mapping questions you can contact

Pete Miskovich	5555 Florin-Perkins Rd. Sacramento 95826	916-386-5429

__LS__ It appears that highlighted gas facilities located within your project may require special construction equipment weight limits when working over or near these facilities. Please contact our office at (916) 386-5546 to review these equipment weight restrictions.

_____ PG&E has overhead electric transmission facilities, which are covered by easements within the project boundaries. Land use is restricted within the easements. Please contact our Land Department and provide a complete set of plans so we may consider a consent agreement.

Sacramento and Yolo Counties (530) 889-5089
Solano and El Dorado Counties (530) 889-3160

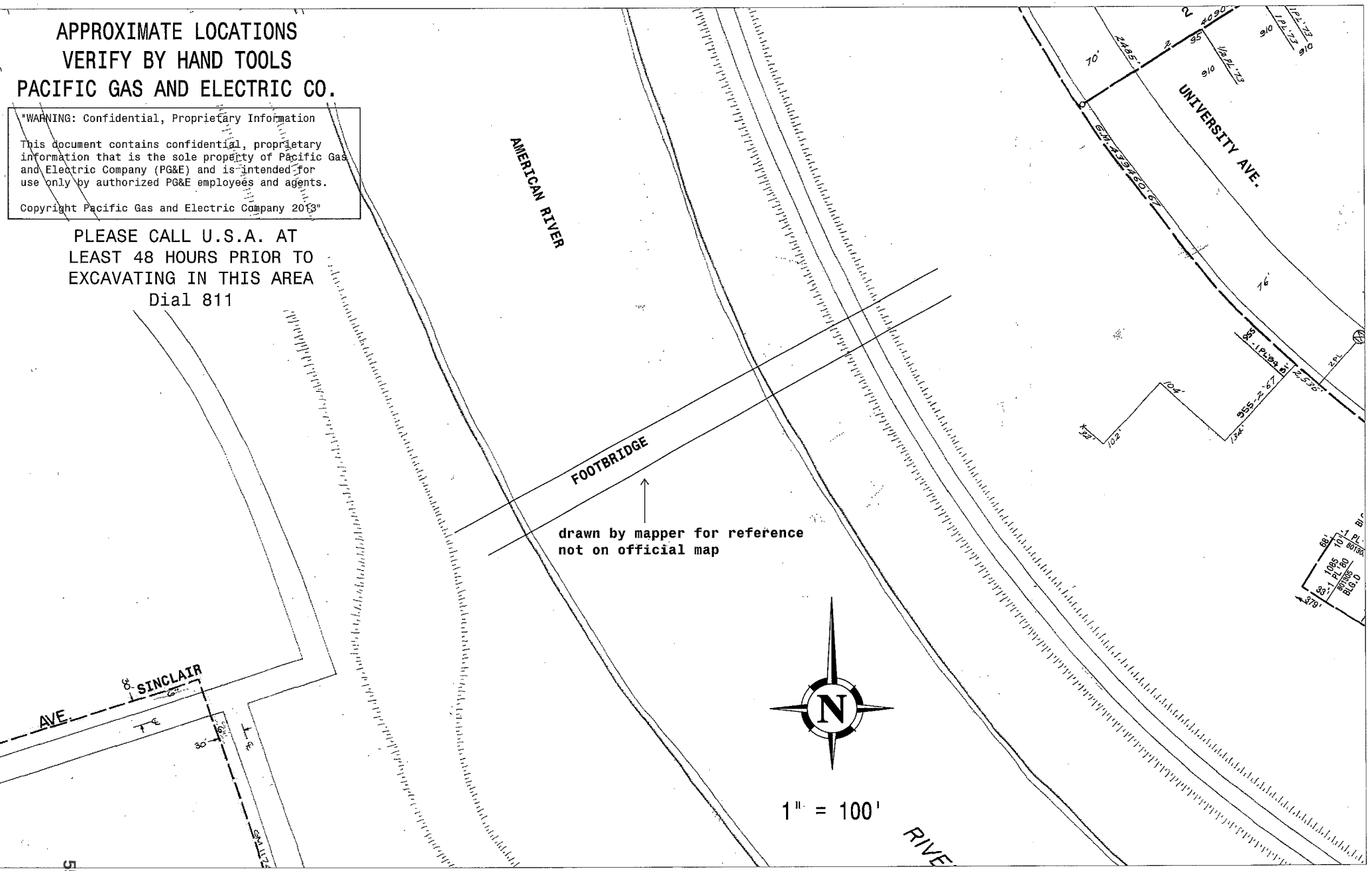
APPROXIMATE LOCATIONS
VERIFY BY HAND TOOLS
PACIFIC GAS AND ELECTRIC CO.

"WARNING: Confidential, Proprietary Information

This document contains confidential, proprietary information that is the sole property of Pacific Gas and Electric Company (PG&E) and is intended for use only by authorized PG&E employees and agents.

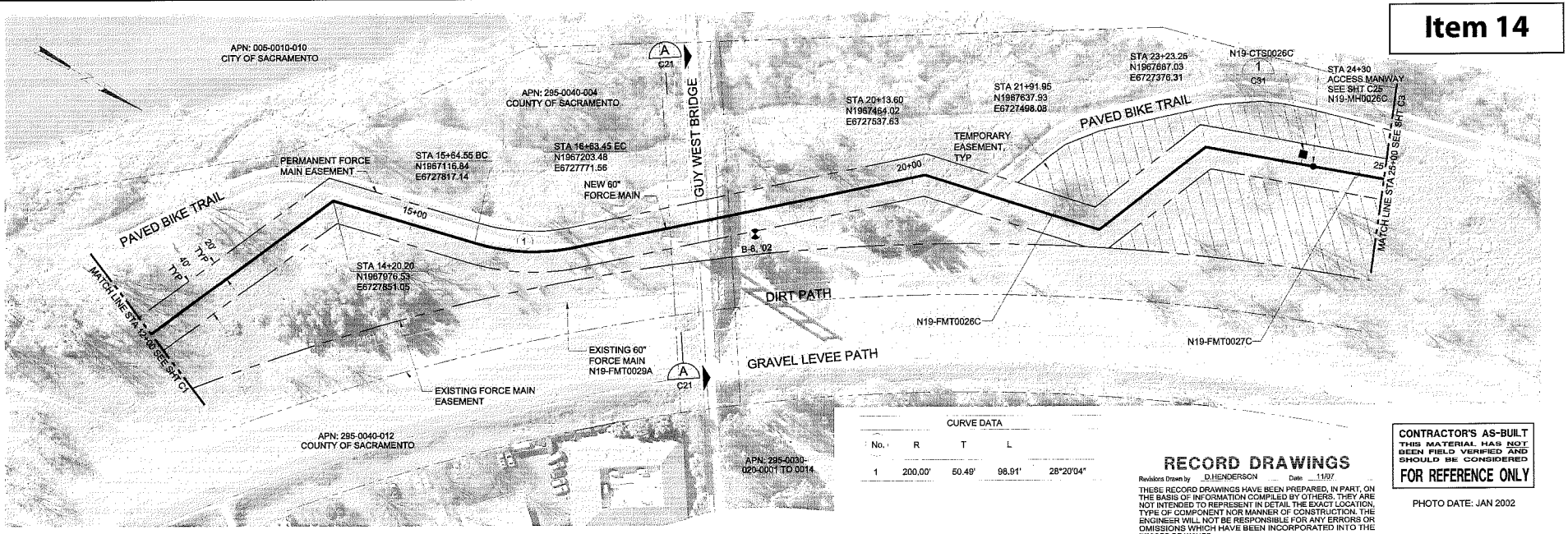
Copyright Pacific Gas and Electric Company 2013"

PLEASE CALL U.S.A. AT
LEAST 48 HOURS PRIOR TO
EXCAVATING IN THIS AREA
Dial 811



2526-J6
ADDRESSED TO ELMHURST CIRCLE
UNIVERSITY AVE
2526-J5
WARNING: Confidential, Proprietary Information
Copyright Pacific Gas and Electric Company 2014

Item 14



CURVE DATA

No.	R	T	L	
1	200.00'	50.49'	98.91'	28°20'04"

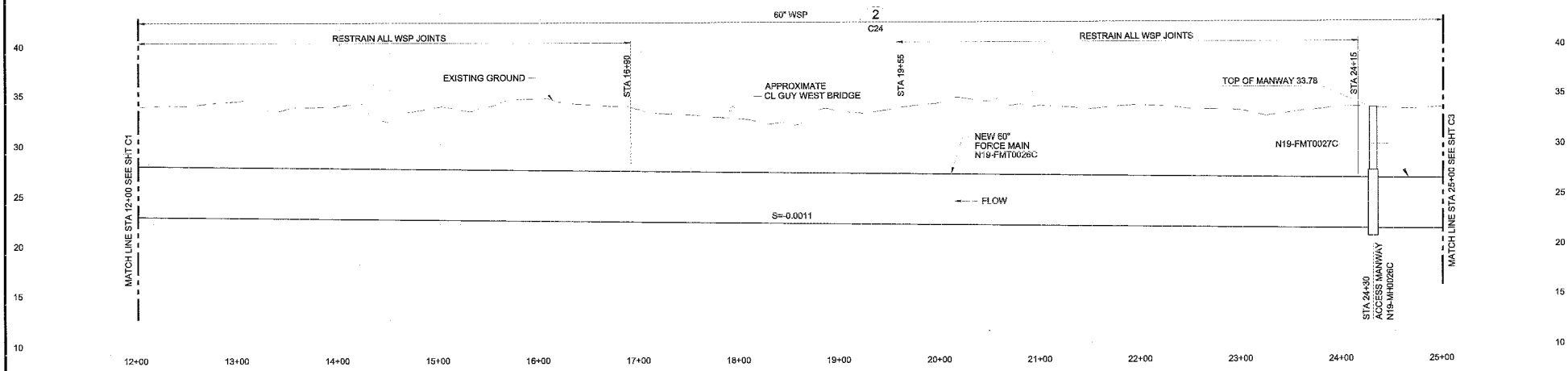
RECORD DRAWINGS

Revisions Drawn by D.HENDERSON Date 11/07

THESE RECORD DRAWINGS HAVE BEEN PREPARED, IN PART, ON THE BASIS OF INFORMATION COMPILED BY OTHERS. THEY ARE NOT INTENDED TO REPRESENT IN DETAIL THE EXACT LOCATION, TYPE OF COMPONENT NOR MANNER OF CONSTRUCTION. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE BEEN INCORPORATED INTO THE RECORD DRAWINGS.

CONTRACTOR'S AS-BUILT
THIS MATERIAL HAS NOT BEEN FIELD VERIFIED AND SHOULD BE CONSIDERED
FOR REFERENCE ONLY

PHOTO DATE: JAN 2002



REV.	DESCRIPTION	BY	DATE

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SRCSD
CH2MHILL

DEPARTMENT OF WATER QUALITY
SEWER SYSTEM ENGINEERING
AND DESIGN

SUBMITTED _____ DATE _____
RECEIVED _____ DATE _____

APPROVED FOR BIDDING

PLAN AND PROFILE
STA 12+00 TO STA 25+00
ARDEN FORCE MAIN

SHEET

REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF CH2MHILL AND IS NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT WRITTEN AUTHORIZATION OF CH2M HILL.

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REVISION	DESCRIPTION	BY	APP	DATE

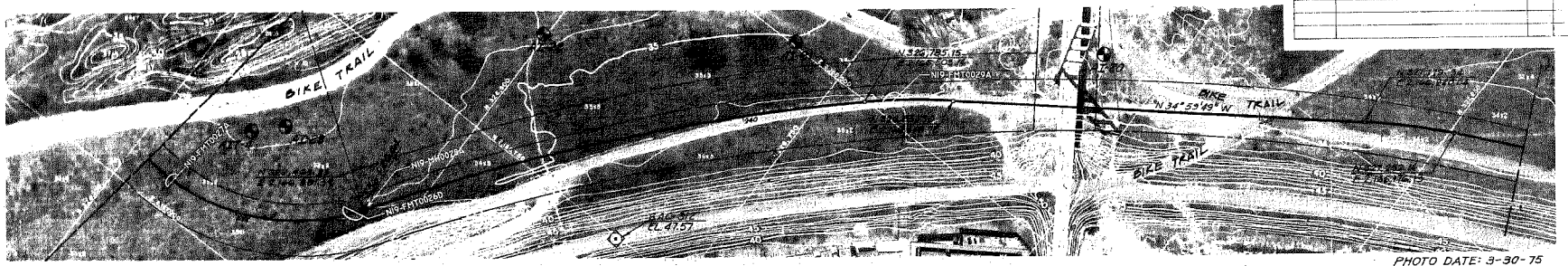
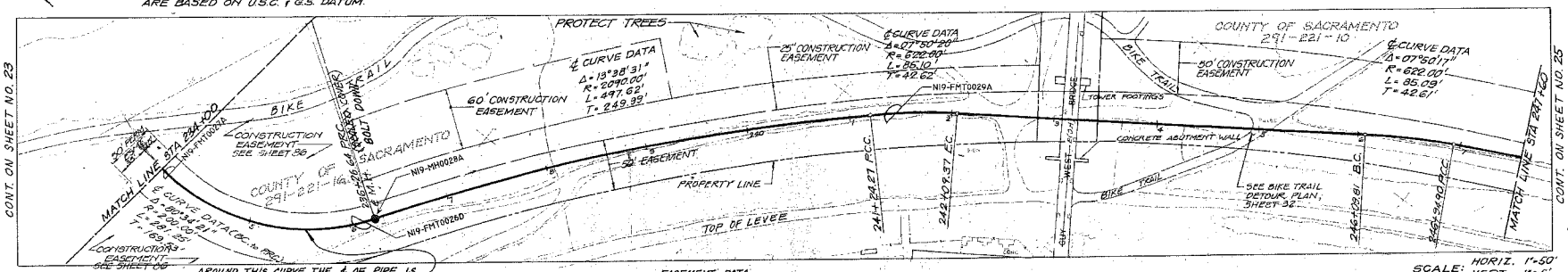
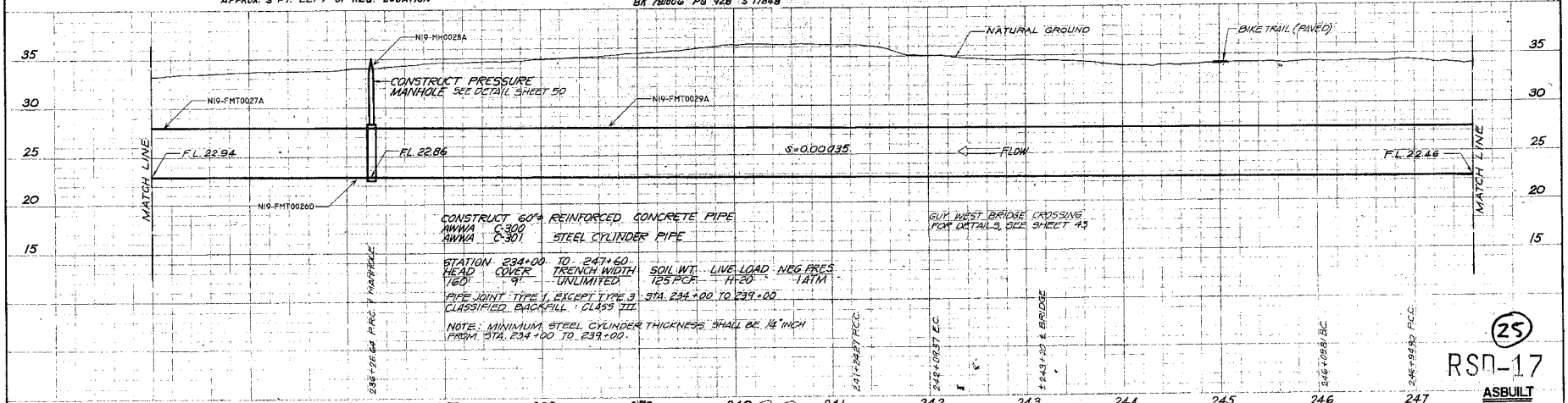


PHOTO DATE: 3-30-75

NOTE: ALL ALIGNMENT DATA, DISTANCES AND COORDINATES ARE GROUND, BASED ON AN ORIGIN AT SAC TIG AT FRUITRIDGE ROAD & ELK GROVE-FLORIN ROAD. ELEVATIONS ARE BASED ON U.S.C. & G.S. DATUM.





(25)

RSD-17

ASBUILT

SCALE AS SHOWN DATE SEPT. 77 FILE J330A	SACRAMENTO AREA CONSULTANTS A JOINT VENTURE 725 S STREET SACRAMENTO CALIFORNIA 95814	DESIGN CS&GB. DRAWN AT. CHECKED TAS	SUBMITTED APPROVED APPROVED Sacramento Area Consultants	SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT OF SACRAMENTO COUNTY, CALIFORNIA	RECOMMENDED DATE APPROVED DATE Water Quality Division APPROVED DATE City of Sacramento	NORTHEAST INTERCEPTOR SYSTEM ARDEN INTERCEPTOR DISTRICT FILE RSD-17	PLAN & PROFILE STA. 234+00 TO 247+60 SCHEDULE "B"	SHEET NUMBER 24 OF 86 DRAWING NUMBER 24

S/N# 10023569 RSD-17

RECORDING REQUESTED BY
AND FOR THE BENEFIT OF

CITY OF SACRAMENTO

NO FEE DOCUMENT
Govt Code 27383

WHEN RECORDED MAIL TO

CITY OF SACRAMENTO
Real Estate Services
5730 24th Street, Building 4
Sacramento, California 95822

Item 15

SPACE ABOVE THIS LINE FOR RECORDER'S USE

NO TRANSFER TAX DUE per R&T Code 11922
Grantee is a Government Agency

ACQE-11-53-04 — RES File
005-0010-008 — Portion of APN
_____ — Agreement #

EASEMENT FOR PUBLIC PURPOSES

This Easement for Public Purposes is entered into by and between the Trustees of the **California State University,** hereinafter called Trustees, acting by and through its duly delegated agent and the **CITY OF SACRAMENTO, a municipal corporation,** hereinafter called Grantee.

Trustee, pursuant to the provisions of Section 89048 of the Education Code of the State of California, and in consideration of the provisions hereinafter set forth and the goodwill and public benefit the easement provides, hereby grant unto Grantee, it's successors and assigns an easement for the purposes of construction, use, repair, rehabilitation and maintenance of the Guy West Bridge in the property, together with associated uses on, over, across, and under all that real property situated in the City of Sacramento, County of Sacramento, State of California, described as follows:

SEE ATTACHED LEGAL DESCRIPTION MARKED EXHIBIT 'A'
AND DIAGRAMED IN THE CORRESPONDING PLAT MAP ATTACHED AS EXHIBIT 'B'

THE PROVISIONS ON THE SECOND PAGE HEREOF CONSTITUTE A PART OF THIS EASEMENT.

Trustees of the California State University

Dated: _____

By: _____
Print Name: _____
Title: _____

City of Sacramento, a municipal corporation

Dated: 2/6/2014

By: _____
John Dangberg, Assistant City Manager
For: John F. Shirey, City Manager

Attested By: _____
Wendy Klock-Johnson
Assistant City Clerk
02/07/2014

"Approved as to form - City Attorney"

2014-0082
Title: Guy West Bridge Restoration
Other Party: California State University

ACKNOWLEDGMENT

State of California

County of SACRAMENTO }

On February 6, 2014 before me, Ilee Muller, Notary Public,

personally appeared John Dangberg,

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.

Signature: _____

ILEE MULLER
Commission # 1905071
Notary Public - California
Sacramento County
My Comm. Expires Sep 23, 2014

Description of Attached Document(s): **Easement for Public Purposes**

PROVIDED, this Grant of Easement is subject to the following terms and conditions:

1. This Grant is subject to existing contracts, leases, licenses, easements, encumbrances, and claims which may affect said real property and the use of the word "Grant" herein shall not be construed as a covenant against the existence of any thereof.

2. Grantee waives all claims against Trustees, its officers, agents, and employees, for loss or damage caused by, arising out of, or in any way connected with the exercise of this Easement, and Grantee agrees to save harmless, indemnify, and defend Trustees, its officers, agents, and employees, from any and all loss, damage or liability which may be suffered or incurred by Trustees, its officers, agents, and employees caused by, arising out of, or in any way connected with exercise by Grantee of the rights hereby granted, except those arising out of the sole negligence of Trustees.

3. Except for emergencies, Grantee shall provide to Trustees adequate advance written notice of its entering the easement, and coordinate with Trustees all authorized activity in the easement in a manner agreeable to Trustees.

4. Trustees reserves the right to use said real property in any manner, provided such use does not unreasonably interfere with Grantee's rights hereunder.

5. Trustees reserves the right to require Grantee, at Trustees' expense, to remove and relocate all improvements placed by Grantee upon said real property, upon determination by Trustees that the same interfere with future development of Trustees' property. Within 180 days after Trustees' written notice and demand for removal and relocation of the improvements, Grantee shall remove and relocate the improvements to a feasible location on the property of State, as designated by Trustees and Trustees shall furnish Grantee with an easement in such new location, on the same terms and conditions as herein stated, all without cost to Grantee, and Grantee thereupon shall reconvey to Trustees the Easement herein granted.

6. This Easement shall terminate in the event Grantee fails for a continuous period of 18 months to use the Easement for the purposes herein granted. Upon such termination, Grantee shall forthwith upon service of written demand, deliver to Trustees a quitclaim deed, to its right, title and interest hereunder, and shall, on Trustees' request, without cost to Trustees and within 90 days from written demand by Trustees remove all improvements or other property placed by or for Grantee upon Trustees' real property and restore the premises as nearly as possible to the same condition they were in prior to the installation of the facilities authorized by this Easement. In the event Grantee should fail to restore the premises in accordance with such request, Trustees may do so at the risk of Grantee, and all costs of such removal and restoration shall be paid by Grantee upon demand.

EXHIBIT "A"
APN: 005-0010-008
EASEMENT

All that certain real property situated in the City of Sacramento, County of Sacramento, State of California, described as follows:

All those portions of that certain 294.19 acre tract of land designated "Property of Hattie Belle Jackson, Bertha Glenn White Poe and Others" on that certain Record of Survey filed in Book 4 of Surveys, Map 26 in the office of the Recorder of said County, described as follows:

Parcel 1

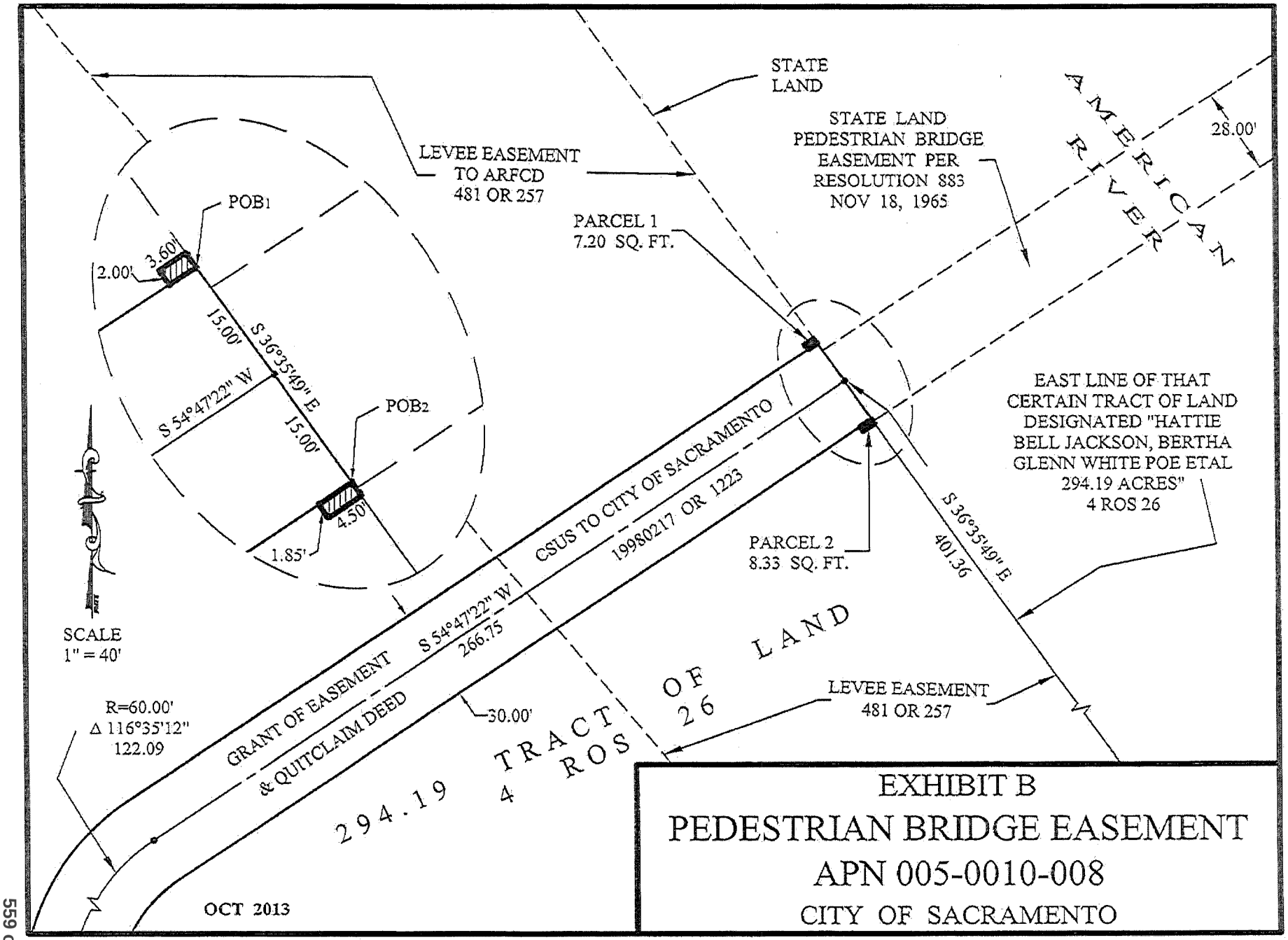
A strip of land the uniform width of 2.00 feet, the southeasterly line of which is described as follows:

Beginning at a point on the east line of said 294.19 acre tract of land being also the most northerly corner of that certain strip of land 30 feet in width described in the "Agreement and Grant of Easement and Quitclaim Deed" as recorded in Book 19980217 Official Record, Book 1223 in the office of the Recorder of said County which bears North 36°35'49" West, 15.00 feet from the centerline of said strip; thence from said **Point of Beginning** along the northwesterly line of said strip of land South 54°47'22" West, 3.60 feet, containing 7.20 square feet more or less.

Parcel 2

A strip of land the uniform width of 1.85 feet, the northwesterly line of which is described as follows:

Beginning at a point on the east line of said 294.19 acre tract of land being also the most easterly corner of that certain strip of land 30 feet in width described in the "Agreement and Grant of Easement and Quitclaim Deed" as recorded in Book 19980217 Official Record, Book 1223 in the office of the Recorder of said County which bears South 36°35'49" East, 15.00 feet from the centerline of said strip; thence from said **Point of Beginning** along the southeasterly line of said strip of land South 54°47'22" West, 4.50 feet, containing 8.33 square feet more or less.


STATE
LAND
STATE LAND
PEDESTRIAN BRIDGE
EASEMENT PER
RESOLUTION 883
NOV 18, 1965
AMERICAN
RIVER
28.00'
LEVEE EASEMENT
TO ARFCD
481 OR 257
POB1
PARCEL 1
7.20 SQ. FT.
2.00'
3.60'
15.00'
S 36°35'49" E
S 54°47'22" W
15.00'
POB2
4.50'
1.85'
EAST LINE OF THAT
CERTAIN TRACT OF LAND
DESIGNATED "HATTIE
BELL JACKSON, BERTHA
GLENN WHITE POE ETAL
294.19 ACRES"
4 ROS 26
CSUS TO CITY OF SACRAMENTO
19980217 OR 1223
PARCEL 2
8.33 SQ. FT.
S 36°35'49" E
401.36
SCALE
1" = 40'
GRANT OF EASEMENT
& QUITCLAIM DEED
S 54°47'22" W
266.75
30.00'
R=60.00'
Δ 116°35'12"
122.09
294.19 TRACT OF LAND
4 ROS 26
LEVEE EASEMENT
481 OR 257
OCT 2013
EXHIBIT B
PEDESTRIAN BRIDGE EASEMENT
APN 005-0010-008
CITY OF SACRAMENTO

APPENDIX B – AMENDMENTS TO THE STATE STANDARD SPECIFICATIONS

AMENDMENTS ISSUE DATE: 10-19-12

SECTION 0 GLOBAL REVISIONS
(Issued 01-20-12)

Global revisions are changes to contract documents not specific to a section of the Standard Specifications. In each contract document at each occurrence, interpret the following terms as shown:

Term	Interpretation	Conditions
AC	HMA	1. Where AC means asphalt concrete 2. Except where existing AC is described
Asphalt concrete	Hot mix asphalt	Except where existing asphalt concrete is described
Class 1 concrete	Concrete containing not less than 675 pounds of cementitious material per cubic yard	--
Class 2 concrete	Concrete containing not less than 590 pounds of cementitious material per cubic yard	--
Class 3 concrete	Concrete containing not less than 505 pounds of cementitious material per cubic yard	--
Class 4 concrete	Concrete containing not less than 420 pounds of cementitious material per cubic yard	--
Clause providing an option to use either a class concrete or minor concrete	Use minor concrete	--
Clause referring to a delay as a right-of-way delay	Delay under Section 8-1.09, "Delays"	--
Contact joint	Construction joint	--
Controlling operation	Controlling activity	--
Engineer's Estimate	Verified Bid Item List	--
Engineering fabrics	Geosynthetics	--
Notice to Contractors	Notice to Bidders	--
Partial payments	Progress payments	Except in Section 9-1.07D, "Mobilization"
PCC pavement	Concrete pavement	Except where existing PCC pavement is described
Portland cement concrete pavement	Concrete pavement	Except where existing portland cement concrete pavement is described
Project information	Supplemental project information	Except in "Contract Project Information Signs"
Reference to a working day or non–working day under Section 8-1.06, "Time of Completion"	Working day as defined in Section 1-4.02, "Glossary"	--
Section 9-1.015	Section 9-1.01C	--
Section 86, "Signal, Lighting and Electrical Systems"	Section 86, "Electrical Systems"	--
Section 86-2.08, "Conductors"	Section 86-2.08, "Conductors and Cables"	--
Section 86-5.01A(5), "Installation Details"	Section 86-5.01A(4),	--

	"Installation Details"	
Section 86-6.05, "Sign Lighting Fixtures—Mercury"	Section 86-6.05, "Induction Sign Lighting Fixtures"	--
Time extension due to an unanticipated event not caused by either party or an issue involving a third party under Section 8-1.07, "Liquidated Damages"	Non–working day	--
Time extension due to an act of the Engineer or of the Department not contemplated by the contract	Time adjustment under Section 8-1.09B, "Time Adjustments"	--
Weakened plane joint	Contraction joint	--

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SECTION 1 DEFINITIONS AND TERMS
(Issued 06-20-12)

Replace Section 1 with:
SECTION 1 GENERAL
1-1 GENERAL

1-1.01 GENERAL

Section 1 includes general rules of interpretation.

The Department is gradually standardizing the style and language of the specifications. The new style and language includes:

1. Use of:

    1.1. Imperative mood
    1.2. Introductory modifiers
    1.3. Conditional clauses

2. Elimination of:

    2.1. Language variations
    2.2. Definitions for industry-standard terms
    2.3. Redundant specifications
    2.4. Needless cross-references

The use of this new style does not change the meaning of a specification not yet using this style.

Sections 1 through 9 include general specifications applicable to every contract unless specified as applicable under certain conditions.

Sections 10 through 15 include specifications for general construction applicable to every contract unless specified as applicable under certain conditions.

The specifications are written to the Bidder before award and the Contractor after. Before award, interpret sentences written in the imperative mood as starting with "The Bidder must" and interpret "you" as "the Bidder" and "your" as "the Bidder's." After award, interpret sentences

written in the imperative mood as starting with "The Contractor must" and interpret "you" as "the Contractor" and "your" as "the Contractor's."

Omission of "a," "an," and "the" is intentional. These articles have been omitted in some specifications for streamlining purposes.

Unless an object or activity is specified to be less than the total, the quantity or amount is all of the object or activity.

A plural term includes the singular.

All items in a list apply unless the items are specified as choices.

Headings are included for the purposes of organization and referencing. Inclusion of a heading with no related content, "Reserved," or "Not Used" does not indicate that no specification exists for that subject; applicable specifications may be covered in a general or referenced specification.

1-2 REFERENCES

1-2.01 REFERENCES

Where Standard Specifications refer to the special provisions to describe the work, interpret the reference as a reference to the Bid Item List, the special provisions, or both.

Interpret a reference to a section of the Standard Specifications as a reference to the Standard Specifications as revised by any amendment, special provision, or both.

A reference within parentheses to a law or regulation is included in the contract for convenience only and is not a comprehensive listing of related laws and regulations. Lack of a reference does not indicate no related laws or regulations exist.

Where the version of a referenced document is not specified, use the current version in effect on the date of Notice to Bidders.

A reference to a subsection includes the section's general specifications of which the subsection is a part.

A code not specified as a Federal code is a California code.

1-3 ABBREVIATIONS AND MEASUREMENT UNITS

1-3.01 ABBREVIATIONS

Abbreviations

Abbreviation	Meaning
AAN	American Association of Nurserymen
AASHTO	American Association of State Highway and Transportation Officials
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AMA	archaeological monitoring area
ANSI	American National Standards Institute
APHA	American Public Health Association
API	American Petroleum Institute
AREMA	American Railway Engineering and Maintenance-of-Way Association
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWG	American Wire Gage
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
CIH	Certified Industrial Hygienist
DBE	Disadvantaged Business Enterprise
DVBE	Disabled Veteran Business Enterprise
EIA	Electronic Industries Alliance
ESA	environmentally sensitive area
ETL	Electrical Testing Laboratories
(F)	final pay item
FHWA	Federal Highway Administration
IEEE	Institute of Electrical and Electronics Engineers
ITE	Institute of Transportation Engineers
NEC	National Electrical Code
NETA	National Electrical Testing Association, Inc.
NEMA	National Electrical Manufacturers Association
PLAC	permit, license, agreement, certification, or any combination of these
RFI	request for information
SSPC	The Society for Protective Coatings
TIA	time impact analysis
UL	Underwriters' Laboratories Inc.

1-3.02 MEASUREMENT UNITS

Measurement Units

Symbols as used in the specifications	Symbols as used in the Bid Item List	Meaning
A	—	amperes
	ACRE	acre
	CF	cubic foot
	CY	cubic yard
--	EA	each
g	--	gram
ksi	--	kips per square inch
	GAL	gallon
h	H	hour
	LB	pound
--	LS	lump sum
	LF	linear foot
	LNMI	lane mile
	MFBM	thousand foot board measure
	MI	mile
	MSYD	thousand station yard
Ω	--	ohm
pcf	--	pounds per cubic foot
s	--	second
	STA	100 feet
	SQFT	square foot
	SQYD	square yard
	TAB	tablet
ton	TON	2,000 pounds
V	--	volt
W	--	watt
--	WDAY	working day

1-4 DEFINITIONS

1-4.01 GENERAL

Interpret terms as defined in the contract documents. A construction-industry term not defined in the contract documents has the meaning defined in Means Illustrated Construction Dictionary, Condensed Version, Second Edition.

1-4.02 GLOSSARY

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

archaeological monitoring area: Area within, near, or straddling the project limits where access is allowed, but work is subject to archaeological monitoring.

archaeological resources: Remains of past human activity, including historic and prehistoric material (e.g., tools and tool fragments, hearth and food remains, structural remains, and human remains).

acceptance: Formal written acceptance by the Director of an entire contract that has been completed in all respects in accordance with the plans and specifications and any modifications to them previously approved.

base: Layer of specified material of planned thickness placed immediately below the pavement or surfacing.

basement material: Material in excavation or embankments underlying the lowest layer of subbase, base, pavement, surfacing, or other specified layer to be placed.

bid item: Specific work unit for which the bidder provides a price.

Bid Item List: List of bid items and the associated quantities.

Bid Item List, verified: Bid Item List with verified prices. The Contract Proposal of Low Bidder at the Department's Web site is the verified Bid Item List.

bridge: Structure, with a bridge number, that carries a utility facility, or railroad, highway, pedestrian or other traffic, over a water course or over or under or around any obstruction.

building-construction contract: Contract that has "building construction" on the cover of the Notice to Bidders and Special Provisions.

business day: Day on the calendar except Saturday or holiday.

California Manual on Uniform Traffic Control Devices: The California Manual on Uniform Traffic Control Devices for Streets and Highways (California MUTCD) is issued by the Department of Transportation and is the Federal Highway Administration's MUTCD 2003 Edition, as amended for use in California.

Certified Industrial Hygienist: Industrial hygienist certified in comprehensive practice by the American Board of Industrial Hygiene.

conduit: Pipe or tube in which smaller pipes, tubes, or electrical conductors are inserted or are to be inserted.

contract: Written and executed contract between the Department and the Contractor.

contract bonds: Security for the payment of workers and suppliers furnishing materials, labor, and services and for guaranteeing the Contractor's work performance.

contract item: Bid item.

Contractor: Person or business or its legal representative entering into a contract with the Department for performance of the work.

culvert: Structure, other than a bridge, that provides an opening under a roadway for drainage or other purposes.

day: 24 consecutive hours running from midnight to midnight; calendar day.

deduction: Amount of money permanently taken from progress payment and final payment. Deductions are not retentions under Pub Cont Code § 7107.

Department: Department of Transportation as defined in St & Hwy Code § 20 and authorized in St & Hwy Code § 90; its authorized representatives.

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

Director: Department's Director.

Disabled Veteran Business Enterprise: Business certified as a DVBE by the Office of Small Business and DVBE Services, Department of General Services.

Disadvantaged Business Enterprise: Disadvantaged Business Enterprise as defined in 49 CFR 26.5.

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

Engineer: Department's Chief Engineer acting either directly or through properly authorized agents; the agents acting within the scope of the particular duties delegated to them.

environmentally sensitive area: Area within, near, or straddling the project limits where access is prohibited or limited to protect environmental resources.

Federal-aid contract: Contract that has a Federal-aid project number on the cover of the Notice to Bidders and Special Provisions.

fixed costs: 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.

frontage road: Local street or road auxiliary to and located generally on the side of an arterial highway for service to abutting property and adjacent areas and for control of access.

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 that is reserved for and secured for use in constructing the roadway and its appurtenances.

holiday:

1. Every Sunday
2. January 1st, New Year's Day
3. 3rd Monday in January, Birthday of Martin Luther King, Jr.
4. February 12th, Lincoln's Birthday
5. 3rd Monday in February, Washington's Birthday
6. March 31st, Cesar Chavez Day
7. Last Monday in May, Memorial Day
8. July 4th, Independence Day
9. 1st Monday in September, Labor Day
10. 2nd Monday in October, Columbus Day
11. November 11th, Veterans Day
12. 4th Thursday in November, Thanksgiving Day
13. Day after Thanksgiving Day
14. December 25th, Christmas Day

If January 1st, February 12th, March 31st, July 4th, November 11th, or December 25th falls on a Sunday, the Monday following is a holiday. If November 11th falls on a Saturday, the preceding Friday is a holiday. Interpret "legal holiday" as "holiday."

idle equipment: Equipment:

1. On the job site at the start of a delay
2. Idled because of the delay
3. Not operated during the delay

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

Information Handout: Supplemental project information furnished to bidders as a handout.

laboratory: Laboratory authorized by the Department to test materials.

liquidated damages: Amount prescribed in the specifications, pursuant to the authority of Pub Cont Code § 10226, to be paid to the State or to be deducted for each day's delay in completing the whole or any specified portion of the work beyond the time allowed in the specifications.

listed species: Any species listed as threatened or endangered under (1) Federal Endangered Species Act of 1973, 16 USC §1531 et seq., (2) California Endangered Species Act, Fish & Game Code §§ 2050–2115.5, (3) or both.

material shortage: Shortage of raw or produced material that is area-wide and caused by an unusual market condition, except if any of the following occurs:

1. Shortage relates to a produced, nonstandard material
2. Supplier's and the Contractor's priority for filling an order differs
3. Event outside the U.S. for a material produced outside the U.S.

median: Portion of a divided highway separating the traveled ways for traffic in opposite directions including inside shoulders.

mobilization: Preparatory work that must be performed or costs incurred before starting work on the various items on the job site (Pub Cont Code § 10104).

Notice to Bidders: Document that provides a general work description, bidder and bid specifications, and the time and location the Department receives bids.

paleontological resources: Fossils and the deposits they are found in. Fossils are evidence of ancient life preserved in sediments and rock. Examples of paleontological resources are remains of (1) animals, (2) animal tracks, (3) plants, and (4) other organisms. Archaeological resources are not paleontological and fossils found within an archaeological resource are generally considered archaeological resources, not paleontological resources.

pavement: Uppermost layer of material placed on the traveled way or shoulders. This term is used interchangeably with surfacing.

permitted biological activities: Monitoring, surveying, or other practices that require a take permit and project specific permission from U.S. Fish and Wildlife Service or NOAA Fisheries or a take permit or Memorandum of Understanding with Department of Fish and Game.

plans: Official project plans and Standard Plans, profiles, typical cross sections, working drawings and supplemental drawings, or reproductions thereof, approved by the Engineer, which show the location, character, dimensions and details of the work to be performed. These documents are to be considered as a part of the plans.

In the above definition, the following terms are defined as follows:

Standard Plans: Standard Plans issued by the Department.

project plans: Specific details and dimensions peculiar to the work supplemented by the Standard Plans insofar as the same may apply.

protective radius: Minimum distance between construction activities and regulated species.

regulated species: Any species protected by one or any combination of the following:

1. Federal Endangered Species Act of 1973, 16 USC §1531 et seq.
2. California Endangered Species Act, Fish & Game Code §§2050–2115.5
3. Fish & Game Code §§1600–1616
4. National Environmental Policy Act, 42 USC §4321 et seq.
5. California Environmental Quality Act, Pub Res Code § 21000 et.seq.
6. Other law or regulation that governs activities that affect species or their habitats.

roadbed: Area between the intersection of the upper surface of the roadway and the side slopes or curb lines. The roadbed rises in elevation as each increment or layer of subbase, base, surfacing or pavement is placed. Where the medians are so wide as to include areas of undisturbed land, a divided highway is considered as including 2 separate roadbeds.

roadway: Highway portion included between the outside lines of sidewalks, or curbs, slopes, ditches, channels, waterways, and including all the appertaining structures, and other features necessary to proper drainage and protection.

routine biological activities: Biological monitoring, surveying, or other activity that does not require a take permit from the U.S. Fish and Wildlife Service or NOAA Fisheries or a take permit or Memorandum of Understanding with Department of Fish and Game.

service-approved biologist: Biologist whose activities must be approved by a state or federal agency as provided in PLACs.

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

small tool: Tool or piece of equipment not listed in Labor Surcharge and Equipment Rental Rates that has a replacement value of $500 or less.

special provisions: Specific clauses setting forth conditions or requirements peculiar to the work and supplementary to these Standard Specifications. The Department's publication titled "Labor Surcharge And Equipment Rental Rates" is part of the special provisions.

specifications: Directions, provisions, and requirements contained in these Standard Specifications, Amendments to the Standard Specifications, and the special provisions. Where the term "these specifications" or "these Standard Specifications" is used in this book, it means the provisions set forth in this book.

State: State of California, including its agencies, departments, or divisions, whose conduct or action is related to the work.

Structure Design: Offices of Structure Design of the Department.

subbase: Layer of specified material of planned thickness 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.

substructure: Bridge portions below the bridge seats, tops of piers, haunches of rigid frames, or below the spring lines of arches. Backwalls and parapets of abutments and wingwalls of bridges are portions of the substructure.

superstructure: Bridge portion except the bridge substructure.

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

surfacing: Uppermost layer of material placed on the traveled way, or shoulders. This term is used interchangeably with pavement.

take: Legal definition regarding harm to listed species as defined in 16 USC §1532 and Fish & Game Code § 86.

take permit: Permit granted by the US Fish and Wildlife Service or by the NOAA Fisheries that allows take of federal listed species under 16 USC §1539 or by the Department of Fish & Game that allows take of state listed species under to Fish & Game Code § 2081.

traffic lane: Portion of a traveled way for the movement of a single line of vehicles.

traveled way: Portion of the roadway for the movement of vehicles, exclusive of shoulders.

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

withhold: Money temporarily or permanently taken from progress payment. Withholds are not retentions under Pub Cont Code § 7107.

work: All the work specified, indicated, shown or contemplated in the contract to construct the improvement, including all alterations, amendments, or extensions to it made by contract change order or other written orders of the Engineer.

working day: Time measure unit for work progress. A working day is any day except:

1. Saturdays and holidays

2. A day when you cannot perform work on the controlling activity for at least 50 percent of the day with at least 50 percent of the normal labor and equipment due to any of the following:

    2.1. Adverse weather-related conditions that cause you to dismiss the crew
    2.2. Maintaining traffic under the contract
    2.3. The Engineer's direction to suspend the controlling activities for reasons unrelated to your performance
    2.4. An unanticipated event not caused by either party such as:

        2.4.1. Act of God (Pub Cont Code § 7105)
        2.4.2. Act of a public enemy
        2.4.3. Epidemic
        2.4.4. Fire
        2.4.5. Flood
        2.4.6. Governor-declared state of emergency
        2.4.7. Landslide
        2.4.8. Quarantine restriction

    2.5. An issue involving a third-party, including:

        2.5.1. Industry or area-wide labor strike
        2.5.2. Material shortage
        2.5.3. Freight embargo
        2.5.4. Jurisdictional requirement of a law enforcement agency
        2.5.5. Workforce labor dispute of a utility or non-highway facility owner resulting in a utility or non-highway facility reconstruction not described and not solely for the Contractor's convenience

1-5 DISTRICTS

District Composition and Office Addresses

District	Counties	Location Address	Mailing Address
1	Del Norte (DN), Humboldt (Hum), Lake (Lak), Mendocino (Men)	1656 UNION ST EUREKA, CA	PO BOX 3700 EUREKA CA 95502
2	Lassen (Las), Modoc (Mod), Plumas (Plu), Shasta (Sha), Siskiyou (Sis), Tehama (Teh), Trinity (Tri)	1657 RIVERSIDE DR REDDING, CA	PO BOX 496073 REDDING CA 96049-6073
3	Butte (But), Colusa (Col), El Dorado (ED), Glenn (Gle), Nevada (Nev), Placer (Pla), Sacramento (Sac), Sierra (Sie), Sutter (Sut), Yolo (Yol), Yuba (Yub)	703 B ST MARYSVILLE, CA	703 B ST MARYSVILLE CA 95901
4	Alameda (Ala), Contra Costa (CC), Marin (Mrn), Napa (Nap), San Francisco (SF), San Mateo (SM), Santa Clara (SCl), Solano (Sol), Sonoma (Son)	111 GRAND AVE OAKLAND, CA	PO BOX 23660 OAKLAND CA 94623-0660
5	Monterey (Mon), San Benito (SBt), San Luis Obispo (SLO), Santa Barbara (SB), Santa Cruz (SCr)	50 HIGUERA ST SAN LUIS OBISPO, CA	50 HIGUERA ST SAN LUIS OBISPO CA 93401-5415
6	Fresno (Fre), Kern (Ker), Kings (Kin), Madera (Mad), Tulare (Tul)	1352 W. OLIVE AVE FRESNO, CA	PO BOX 12616 FRESNO CA 93728-2616
7	Los Angeles (LA), Ventura (Ven)	100 S. MAIN ST LOS ANGELES	100 S MAIN ST LOS ANGELES CA 90012
8	Riverside (Riv), San Bernardino (SBd)	464 W 4TH ST SAN BERNARDINO, CA	464 W 4TH ST SAN BERNARDINO CA 92401-1400
9	Inyo (Iny), Mono (Mno)	500 S MAIN ST BISHOP, CA	500 S MAIN ST BISHOP CA 93514-3423
10	Alpine (Alp), Amador (Ama), Calaveras (Cal), Mariposa (Mpa), Merced (Mer), San Joaquin (SJ), Stanislaus (Sta), Tuolumne (Tuo)	1976 E CHARTER WAY STOCKTON, CA	PO BOX 2048 STOCKTON CA 95201
11	Imperial (Imp), San Diego (SD)	4050 TAYLOR ST SAN DIEGO, CA	4050 TAYLOR ST SAN DIEGO CA 92110-2737
12	Orange (Ora)	3347 MICHELSON DR STE 100 IRVINE, CA	3347 MICHELSON DR STE 100 IRVINE CA 92612-0661

A project with work in District 1, 2, or 3 is a North Region project. For Districts 1, 2, and 3, interpret each reference to the district office as the North Region office. The North Region office address is the District 3 address.

1-6 WEB SITES, ADDRESSES, AND TELEPHONE NUMBERS

Web Sites, Addresses, and Telephone Numbers

Agency, Department Unit, or Reference	Web Site	Address	Telephone No.
Bidders' Exchange	www.dot.ca.gov/hq/esc/oe/bidex	MSC 26 BIDDERS' EXCHANGE DEPARTMENT OF TRANSPORTATION 1727 30TH ST SACRAMENTO CA 95816-7005	(916) 227-6259
Department	www.dot.ca.gov		
Department of General Services, Office of Small Business and DVBE Services	www.pd.dgs.ca.gov/smbus/default.htm	OFFICE OF SMALL BUSINESS AND DVBE SERVICES DEPARTMENT OF GENERAL SERVICES 707 3RD ST WEST SACRAMENTO CA 95605-2811	(800) 559-5529 (916) 375-4940
Department of Industrial Relations	www.dir.ca.gov		
Department of Industrial Relations, Division of Apprenticeship Standards		455 GOLDEN GATE AVENUE SAN FRANCISCO, CA 94102	
Division of Accounting, Office of External Accounts Payable	http://www.dot.ca.gov/hq/asc/oap/payments/contact.htm#conpets1	MAJOR CONSTRUCTION PAYMENT AND INFORMATION UNIT OFFICE OF EXTERNAL ACCOUNTS PAYABLE DIVISION OF ACCOUNTING DEPARTMENT OF TRANSPORTATION P.O. BOX 168043 SACRAMENTO, CA 95816-8043	(916) 227-9013
Office Engineer		MSC 43 OFFICE ENGINEER DEPARTMENT OF TRANSPORTATION 1727 30TH ST SACRAMENTO CA 95816-7005	
Office Engineer–All Projects Currently Advertised	http://www.dot.ca.gov/hq/esc/oe/weekly_ads/all_advertised.php		
Offices of Structure Design, Documents Unit		MSC 9-4/4I DOCUMENTS UNIT OFFICES OF STRUCTURE DESIGN DEPARTMENT OF TRANSPORTATION 1801 30TH ST SACRAMENTO CA 95816-7006	(916) 227-0716
Publication Distribution Unit		PUBLICATION UNIT DEPARTMENT OF TRANSPORTATION 1900 ROYAL OAKS DRIVE SACRAMENTO CA 95815-3800	

Transportation Laboratory		MATERIALS AND ENGINEERING TESTING SERVICES AND GEOTECHNICAL SERVICES DEPARTMENT OF TRANSPORTATION 5900 FOLSOM BLVD SACRAMENTO CA 95819-4612	(916) 227-7000
Department's Pre-Qualified Products List	http://www.dot.ca.gov/hq/esc/approved_products_list		

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SECTION 2 PROPOSAL REQUIREMENTS AND CONDITIONS
(Issued 01-20-12)

Replace Section 2 with:

SECTION 2 BIDDING

2-1.01 GENERAL

Section 2, "Bidding," 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. Submit a bid
2. Subcontract for a part of the work
3. Supply materials

2-1.03 BID DOCUMENTS

2-1.03A General

Standard Specifications and Standard Plans may be viewed at the Department's Web site and may be purchased at the Publication Distribution Unit.

Special provisions, Amendments to the Standard Specifications, and project plans may be viewed at the Bidders' Exchange. To obtain bid books, submit a request to the Bidders' Exchange. For an informal-bid contract, you may also obtain special provisions, Amendments to the Standard Specifications, and project plans at the Bidders' Exchange.

2-1.03B Supplemental Project Information

Logs of test borings attached to the project plans are supplemental project information. The Department makes other supplemental information available as specified in the special provisions.

If an Information Handout or cross sections are available:

1. You may view them at the Office Engineer–All Projects Currently Advertised Web site

2. For an informal-bid contract, you may obtain them at the Bidders' Exchange street address

If rock cores are available for inspection, you may view them by sending a request to Coreroom@dot.ca.gov.

If other supplemental project information is available for inspection, you may view it by phoning in a request.

Make your request at least 7 days before viewing. Include in your request:

1. District-County-Route
2. Contract number
3. Viewing date
4. Contact information, including telephone number.

For rock cores, also include the bridge number in your request.

If bridge as-built drawings are available:

1. For a project in District 1 through 6 or 10, you may request them from the Office of Structure Maintenance and Investigations, fax (916) 227-8357
2. For a project in District 7, 8, 9, 11, or 12, you may request them from the Office of Structure Maintenance and Investigations, fax (916) 227-8357, and they are available at the Office of Structure Maintenance and Investigations, Los Angeles, CA, telephone (213) 897-0877

As-built drawings may not show existing dimensions and conditions. Where new construction dimensions are dependent on existing bridge dimensions, verify the field dimensions and adjust dimensions of the work to fit existing conditions.

2-1.04–2-1.10 RESERVED

2-1.11 JOB SITE AND DOCUMENT EXAMINATION

Examine the job site and bid documents.

Bid submission is your acknowledgment that you have examined the job site and bid documents and are satisfied with:

1. General and local conditions to be encountered
2. Character, quality, and scope of work to be performed
3. Quantities of materials to be furnished
4. Character, quality, and quantity of surface and subsurface materials or obstacles
5. Requirements of the contract

2-1.12 BID DOCUMENT COMPLETION

2-1.12A General

Complete forms in the Bid book.

Except for the bid item number and the percentage of each item subcontracted, do not fax submittals.

2-1.12B Bid Item List and Bid Comparison

Submit a bid based on the work item quantities the Department shows in the Bid Item List.

For a lump sum based bid, the Department compares bids based on the total price.

For a unit price based bid, the Department compares bids based on the sum of the item totals.

For a cost plus time based bid, the Department compares bids based on the sum of the item totals and the total bid for time. If your bid for time exceeds the number of working days described in the Notice to Bidders, your bid is nonresponsive.

2-1.12C Subcontractor List

In the Subcontractor List, list each subcontractor to perform work in an amount in excess of 1/2 of 1 percent of the total bid or $10,000, whichever is greater (Pub Cont Code § 4100 et seq.)

The Subcontractor List must show the name, address, and work portions to be performed by each subcontractor listed. Show work portion by bid item number, description, and percentage of each bid item subcontracted.

On the Subcontractor List you may either submit each subcontracted bid item number and corresponding percentage with your bid or fax these numbers and percentages to (916) 227-6282 within 24 hours after bid opening. Failure to do so results in a nonresponsive bid.

2-1.13 BIDDER'S SECURITY

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

1. Cash
2. Cashier's check
3. Certified check
4. Bidder's bond signed by a surety insurer who is licensed in California

Make checks and bonds payable to the Department of Transportation.

If using a bidder's bond, you may use the form in the Bid book. If you do not use the form in the Bid book, use a form containing the same information.

2-1.14 BID SUBMITTAL

Submit your bid:

1. Under sealed cover
2. Marked as a bid
3. Identifying the contract number and the bid opening date

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

2-1.15 BID WITHDRAWAL

An authorized 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.

After the bid opening time, you cannot withdraw a bid.

2-1.16 BID OPENING

The Department publicly opens and reads bids at the time and place described in the Notice to Bidders.

2-1.17 BID REJECTION

The Department may reject:

1. All bids
2. A nonresponsive bid

2-1.18 BID RELIEF

The Department may grant bid relief under Pub Cont Code § 5100 et seq. Submit any request for bid relief to the Office Engineer. For Relief of Bid Request form, go to:

http://www.dot.ca.gov/hq/esc/oe/contractor_info/relief.pdf

2-1.19 SUBMITTAL FAILURE HISTORY

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

2-1.20 BID RIGGING

Section 2-1.20, "Bid Rigging," applies to a Federal-aid contract.

The U.S. Department of Transportation (DOT) provides a toll-free hotline to report bid rigging activities. Use the hotline to report bid rigging, bidder collusion, and other fraudulent activities. The hotline number is (800) 424-9071. The service is available Monday through Friday between 11:00 a.m. and 8:00 p.m. and is confidential and anonymous. The hotline is part of the DOT's effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General.

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SECTION 3 AWARD AND EXECUTION OF CONTRACT
(Issued 10-19-12)

Replace Section 3 with:

SECTION 3 CONTRACT AWARD AND EXECUTION

3-1.01 SCOPE

Section 3, "Contract Award and Execution," includes specifications related to contract award and execution.

3-1.02 CONTRACT AWARD

Submit any bid protest to the Office Engineer.

If the Department awards the contract, the award is made to the lowest responsible bidder within the number of days shown in the following table:

Contract Award Period

Days (after bid opening)	Project Estimated Cost shown in the Notice to Bidders
30	< $200 million
60	≥ $200 million

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 (916) 227-6282 before 4:00 p.m. on 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

3-1.03 CONTRACT BONDS (PUB CONT CODE §§ 10221 AND 10222)

The successful bidder must furnish:

1. Payment bond to secure the claim payments of laborers, workers, mechanics, or materialmen providing goods, labor, or services under the contract. This bond must be equal to at least 100 percent of the total bid.
2. Performance bond to guarantee the faithful performance of the contract. This bond must be equal to at least 50 percent of the total bid.

The Department furnishes the successful bidder with the bond forms.

3-1.04 CONTRACTOR LICENSE

For a Federal-aid contract, the Bidder must be properly licensed (Pub Cont Code § 10164) from contract award through contract acceptance.

For a non-Federal-aid contract:

1. The Bidder must be properly licensed from bid opening through contract acceptance (Bus & Prof Code § 7028.15)
2. Joint venture bidders must obtain a joint venture license before contract award (Bus & Prof Code § 7029.1)

3-1.05 INSURANCE POLICIES

The successful bidder must submit:

1. Copy of its commercial general liability policy and its excess policy or binder until such time as a policy is available, including the declarations page, applicable endorsements, riders, and other modifications in effect at the time of contract execution. Standard ISO form No. CG 0001 or similar exclusions are allowed if not inconsistent with Section 7-1.12, "Indemnification and Insurance." Allowance of additional exclusions is at the discretion of the Department.
2. Certificate of insurance showing all other required coverages. Certificates of insurance, as evidence of required insurance for the auto liability and any other required policy, shall set forth deductible amounts applicable to each policy and all exclusions that are added by endorsement to each policy. The evidence of insurance shall provide that no

cancellation, lapse, or reduction of coverage will occur without 10 days prior written notice to the Department.

3. A declaration under the penalty of perjury by a CPA certifying the accountant has applied GAAP guidelines confirming the successful bidder has sufficient funds and resources to cover any self-insured retentions if the self-insured retention is over $50,000.

If the successful bidder uses any form of self-insurance for workers compensation in lieu of an insurance policy, it shall submit a certificate of consent to self-insure under Labor Code § 3700.

3-1.06 FORM FHWA-1273

For a federal-aid contract, form FHWA-1273 is included with the Contract form in the documents sent to the successful bidder for execution. Comply with its provisions. Interpret the training and promotion section as specified in section 7-1.50A.

3-1.07–3-1.08 RESERVED

3-1.09 CONTRACT EXECUTION

The successful bidder must sign the contract and return it, including the attached form FHWA-1273, to the Office Engineer along with:

1. Contract bonds
2. Documents identified in Section 3-1.05, "Insurance Policies"

For an informal-bid contract, the Office Engineer must receive these documents before the 5th business day after the bidder receives the contract. For all other contracts, the Office Engineer 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 execute the contract within the time specified (Pub Cont Code §§ 10181, 10182, and 10183).

The following is a copy of the Contract form:

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION
CONTRACT
DES-OE-0103A (REV 03/2010)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
CONTRACT NO. _____

This contract is entered into between the State of California's Department of Transportation and the Contractor named below:

_____
CONTRACTOR'S NAME

The parties agree to comply with the terms of the following exhibits that are by this reference made a part of this contract.

Exhibit A - Bid book dated _____

Exhibit B - Notice to Bidders and Special Provisions dated _____

Exhibit C - Project Plans approved _____

Exhibit D - Standard Specifications dated _____

Exhibit E - Standard Plans dated

Exhibit F - Addenda

Exhibits A, B, C, and F are those exhibits identified with the same contract number as this contract.

This contract has been executed by the following parties:

CONTRACTOR

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

BY *(Authorized Signature)*	DATE SIGNED *(Do not type)*
PRINTED NAME AND TITLE OF PERSON SIGNING	
FEDERAL EMPLOYER IDENTIFICATION NUMBER	LICENSE NUMBER

DEPARTMENT OF TRANSPORTATION

BY *(Authorized Signature)*	DATE SIGNED *(Do not type)*
PRINTED NAME AND TITLE OF PERSON SIGNING	

This contract has been certified as complying with the State Contract Act:

BY *(Authorized Signature)*	DATE SIGNED *(Do not type)*
PRINTED NAME AND TITLE OF PERSON SIGNING	

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

3-1.10 BIDDERS' SECURITIES

The Department keeps the securities of the 1st, 2nd, and 3rd low bidders until the contract has been executed. The other bidders' securities, other than bidders' bonds, are returned upon determination of the 1st, 2nd, and 3rd low bidders, and their bidders' bonds are of no further effect (Pub Cont Code § 10184).

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SECTION 4 SCOPE OF WORK
(Issued 06-05-09)

Add to Section 4-1.01:

Nothing in the specifications voids the Contractor's public safety responsibilities.

Add:

4-1.015 PROJECT DESCRIPTION

Construct the work described in the special provisions and on project plans and by the bid items. The special provisions, project plans, and bid item descriptions set forth the specifications that apply.

Replace Section 4-1.03 with:

4-1.03 CHANGES

4-1.03A General

The Department may make changes within the scope of work and add extra work. The Engineer describes the changes and extra work, the payment basis, and any time adjustment in a Contract Change Order.

A Contract Change Order is approved when the Department signs the Contract Change Order.

Submit detailed cost data for a payment adjustment for:

1. Request for a payment adjustment for a bid item
2. Payment adjustment resulting from a change of more than 25 percent in the bid item's quantity if requested

If ordered, start the work before receipt of an approved Contract Change Order.

You may protest a Contract Change Order.

4-1.03B Increased or Decreased Quantities

The Department adjusts payment for changed quantities and eliminated items under Section 9-1.05, "Changed Quantity Payment Adjustments."

4-1.03C Changes in Character of Work

The Department adjusts payment for an item if:

1. An ordered plan or specification change materially changes the character of a work item from that on which the bid price was based
2. The unit cost of the changed item differs when compared to the unit cost of that item under the original plans and specifications
3. No approved Contract Change Order addresses the payment

The Department adjusts the payment under Section 9-1.06, "Work-Character Changes."

4-1.03D Extra Work

The Department classes new and unforeseen work as extra work if the Engineer determines that the work is not covered by any of the various items for which there is a bid price or by combinations of those items. If portions of this work are covered by some of the various items for which there is a bid price or combinations of those items, the remaining portion of the work will be classed as extra work. Extra work also includes work specifically designated as extra work in the plans or specifications.

Add:

4-1.035 VALUE ENGINEERING

4-1.035A General

Reserved

4-1.035B Value Engineering Change Proposal

You may submit a VECP to reduce any of the following:

1. Total cost of construction
2. Construction activity duration
3. Traffic congestion

Before preparing a VECP, meet with the Engineer to discuss:

1. Proposal concept
2. Permit issues
3. Impact on other projects
4. Project impacts, including traffic, schedule, and later stages
5. Peer reviews
6. Overall proposal merits
7. Review times required by the Department and other agencies

The VECP must not impair the project's essential functions or characteristics, such as:

1. Service life
2. Operation economy
3. Maintenance ease
4. Desired appearance

5. Design and safety

The VECP must include:

1. Description of the contract specifications and drawing details for performing the work and the proposed changes.
2. Itemization of contract specifications and drawing details that would be changed.
3. Detailed cost estimate for performing the work under the existing contract and under the proposed change. Determine the estimates under Section 9-1.03, "Force Account Payment."
4. Deadline for the Engineer to decide on the changes.
5. Bid items affected and resulting quantity changes.

The Department is not required to consider a VECP. If a VECP is similar to a change in the plans or specifications being considered by the Department at the time the proposal is submitted or if the proposal is based on or similar to drawings or specifications adopted by the Department before Contract award, the Department does not accept the VECP and may make these changes without VECP payments.

Until the Department approves a change order incorporating the VECP or parts of it, continue to perform the work under the contract. If the Department does not approve a change order before the deadline stated in the VECP or other date you subsequently stated in writing, the VECP is rejected. The Department does not adjust time or payment for a rejected VECP.

The Department decides whether to accept a VECP and the estimated net construction-cost savings from adopting the VECP or parts of it.

The Department may require you to accept a share of the investigation cost as a condition of reviewing a VECP. After written acceptance, the Department considers the VECP and deducts the agreed cost.

If the Department accepts the VECP or parts of it, the Department issues a change order that:

1. Incorporates changes in the contract necessary to implement the VECP or the parts adopted
2. Includes the Department's acceptance conditions
3. States the estimated net construction-cost savings resulting from the VECP
4. Obligates the Department to pay you 50 percent of the estimated net savings

In determining the estimated net construction-cost savings, the Department excludes your VECP preparation cost and the Department's VECP investigation cost, including parts paid by you.

If a VECP providing for a reduction in working days is accepted by the Department, 50 percent of the reduction is deducted from contract time.

If a VECP providing for a reduction in traffic congestion or avoiding traffic congestion is accepted by the Department, the Department pays 60 percent of the estimated net savings in construction costs attributable to the VECP. Submit detailed traffic handling comparisons between the existing contract and the proposed change, including estimates of the traffic volumes and congestion.

The Department may apply an accepted VECP for general use on other contracts.

If an accepted VECP is adopted for general use, the Department pays only the contractor who first submitted the VECP and only to the contracts awarded to that contractor before the submission of the accepted VECP.

If the Department does not adopt a general-use VECP, an identical or similar submitted proposal is eligible for acceptance.

4-1.035C Value Analysis Workshop

Section 4-1.035C, "Value Analysis Workshop," applies to a non-building-work contract with a total bid of over $5 million.

You may request a value analysis workshop by submitting a request after contract approval.

The Department offers a value analysis workshop to:

1. Identify value enhancing opportunities
2. Consider changes to the contract that will reduce the total cost of construction, construction activity duration, or traffic congestion without impairing the essential functions specified for a VECP in Section 4-1.035B, "Value Engineering Change Proposal."

If the request is authorized, you and the Engineer:

1. Schedule a value analysis workshop
2. Select a facilitator and workshop site
3. Agree to other workshop administrative details

The workshop must be conducted under the methods described in the Department's Value Analysis Team Guide available at:

http://www.dot.ca.gov/hq/oppd/value/

The facilitator must be a certified value specialist as recognized by the Society of American Value Engineers.

The Department reimburses you for 1/2 of the workshop cost. The workshop cost is the sum of the workshop-facilitator cost and the workshop-site cost. The Department determines the workshop cost based on the facilitator and workshop-site invoice prices minus any available or offered discounts. The Department does not pay you for any other associated costs.

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SECTION 5 CONTROL OF WORK
(Issued 06-01-11)

Add:

5-1.005 GENERAL

Failure to comply with any specification part is a waiver of your right to an adjustment of time and payment related to that part.

After contract approval, submit documents and direct questions to the Engineer. Orders, approvals, authorizations, and requests to the Contractor are by the Engineer.

The Engineer furnishes the following in writing:

1. Approvals
2. Authorizations
3. Certifications
4. Decisions
5. Notifications
6. Orders
7. Responses

The Contractor must furnish the following in writing:

1. Assignments
2. Notifications
3. Proposals
4. Reports
5. Requests, including RFIs, sequentially numbered
6. Subcontracts
7. Test results

The Department rejects a form if it has any error or any omission.
Convert foreign language documents to English.
Use contract administration forms available at the Department's Web site.
If the last day for submitting a document falls on a Saturday or holiday, it may be submitted on the next business day with the same effect as if it had been submitted on the day specified.

Add to 5-1.01:

Failure to enforce a contract provision does not waive enforcement of any contract provision.

Add:

5-1.011 PROTESTS

You may protest an Engineer's decision by submitting an RFI under Section 5-1.145, "Requests for Information."

Add:

5-1.012 PARTNERING

5-1.012A General

The Department strives to work cooperatively with all contractors; partnering is our way of doing business. The Department encourages project partnering among the project team, made up of significant contributors from the Department and the Contractor, and their invited stakeholders.

For a project with a total bid greater than $1 million, professionally facilitated project partnering is encouraged.

For a project with a total bid greater than $10 million, professionally facilitated project partnering is required.

In implementing project partnering, you and the Engineer manage the contract by:

1. Using early and regular communication with involved parties
2. Establishing and maintaining a relationship of shared trust, equity, and commitment
3. Identifying, quantifying, and supporting attainment of mutual goals
4. Developing strategies for using risk management concepts
5. Implementing timely communication and decision making
6. Resolving potential problems at the lowest possible level to avoid negative impacts
7. Holding periodic partnering meetings and workshops as appropriate to maintain partnering relationships and benefits throughout the life of the project
8. Establishing periodic joint evaluations of the partnering process and attainment of mutual goals

Partnering does not void any contract part.

The Department's "Field Guide to Partnering on Caltrans Construction Projects" current at the time of bid is available to the project team as reference. This guide provides structure, context, and clarity to the partnering process requirements. This guide is available at the Department's Partnering Program website:

http://www.dot.ca.gov/hq/construc/partnering.html

In implementing project partnering, the project team must:

1. Create a partnering charter that includes:

    1.1. Mutual goals, including core project goals and may also include project-specific goals and mutually supported individual goals.
    1.2. Partnering maintenance and close-out plan.
    1.3. Dispute resolution plan that includes a dispute resolution ladder and may also include use of facilitated dispute resolution sessions.
    1.4. Team commitment statement and signatures.

2. Participate in monthly partnering evaluation surveys to measure progress on mutual goals and may also measure short-term key issues as they arise.
3. Evaluate the partnering facilitator on Forms CEM-5501 and CEM-5502. The Engineer provides the evaluation forms to the project team and collects the results. The Department makes evaluation results available upon request. Facilitator evaluations must be completed:

    3.1. At the end of the initial partnering workshop on Form CEM-5501.
    3.2. At the end of the project close-out partnering workshop on Form CEM-5502.

4. Conduct a project close-out partnering workshop.
5. Document lessons learned before contract acceptance.

5-1.012B Partnering Facilitator, Workshops, and Monthly Evaluation Surveys

The Engineer sends you a written invitation to enter into a partnering relationship after contract approval. Respond within 15 days to accept the invitation and request the initial and additional partnering workshops. After the Engineer receives the request, you and the Engineer cooperatively:

1. Select a partnering facilitator that offers the service of a monthly partnering evaluation survey with a 5-point rating and agrees to follow the Department's "Partnering Facilitator Standards and Expectations" available at the Department's Partnering Program website
2. Schedule initial partnering workshop
3. Determine initial workshop site and duration
4. Agree to other workshop administrative details

Additional partnering workshops and sessions are encouraged throughout the life of the project as determined necessary by you and the Engineer, recommended quarterly.

5-1.012C Training in Partnering Skills Development

For a project with a total bid of $25 million or greater, training in partnering skills development is required.

For a project with a total bid between $10 million and $25 million, training in partnering skills is optional.

You and the Engineer cooperatively schedule the training session and select a professional trainer, training site, and 1 to 4 topics from the following list to be covered in the training:

1. Active Listening
2. Building Teams
3. Change Management
4. Communication
5. Conflict Resolution
6. Cultural Diversity
7. Dealing with Difficult People
8. Decision Making
9. Effective Escalation Ladders
10. Emotional Intelligence
11. Empathy
12. Ethics
13. Facilitation Skills
14. Leadership
15. Partnering Process and Concepts
16. Project Management
17. Project Organization
18. Problem Solving
19. Running Effective Meetings
20. Time Management
21. Win-Win Negotiation

Before the initial partnering workshop, the trainer conducts a 1-day training session in partnering skills development for the Contractor's and the Engineer's representatives. This training session must be a separate session from the initial partnering workshop and must be conducted locally. The training session must be consistent with the partnering principles under the Department's "Field Guide to Partnering on Caltrans Construction Projects."

Send at least 2 representatives to the training session. One of these must be your assigned representative as specified in Section 5-1.06, "Superintendence," of the Standard Specifications.

5-1.012D Payment

The Department pays you for:

1. 1/2 of partnering workshops and sessions based on facilitator and workshop site cost
2. 1/2 of monthly partnering evaluation survey service cost
3. Partnering skills development trainer and training site cost

The Department determines the costs based on invoice prices minus any available or offered discounts. The Department does not pay markups on these costs.

The Department does not pay for wages, travel expenses, or other costs associated with the partnering workshops and sessions, monthly partnering evaluation surveys, and training in partnering skills development.

Add:

5-1.015 RECORDS

5-1.015A General

Reserved

5-1.015B Record Retention

Retain project records from bid preparation through:

1. Final payment
2. Resolution of claims, if any

For at least 3 years after the later of these, retain cost records, including records of:

1. Bid preparation
2. Overhead
3. Payrolls
4. Payments to suppliers and subcontractors
5. Cost accounting

Maintain the records in an organized way in the original format, electronic and hard copy, conducive to professional review and audit.

5-1.015C Record Inspection, Copying, and Auditing

Make your records available for inspection, copying, and auditing by State representatives for the same time frame specified under Section 5-1.015B, "Record Retention." The records of subcontractors and suppliers must be made available for inspection, copying, and auditing by State representatives for the same period. Before contract acceptance, the State representative notifies the Contractor, subcontractor, or supplier 5 business days before inspection, copying, or auditing.

If an audit is to start more than 30 days after contract acceptance, the State representative notifies the Contractor, subcontractor, or supplier when the audit is to start.

5-1.015D Cost Accounting Records

Maintain cost accounting records for the project distinguishing between the following work cost categories:

1. Work performed based on bid item prices
2. Work performed by change order other than extra work. Distinguish this work by:

    2.1. Bid item prices
    2.2. Force account
    2.3. Agreed price

3. Extra work. Distinguish extra work by:

    3.1. Bid item prices
    3.2. Force account
    3.3. Agreed price
    3.4. Specialist billing

4. Work performed under potential claim records
5. Overhead
6. Subcontractors, suppliers, owner-operators, and professional services

Cost accounting records must include:

1. Final cost code lists and definitions
2. Itemization of the materials used and corresponding vendor's invoice copies
3. Direct cost of labor
4. Equipment rental charges
5. Workers' certified payrolls
6. Equipment:

    6.1. Size
    6.2. Type
    6.3. Identification number
    6.4. Hours operated

5-1.015E Extra Work Bills

Maintain separate records for costs of work performed by change order.

Within 7 days after performing the work, submit extra work bills using the Department's Internet extra work billing system.

The Contractor submitting and the Engineer approving an extra work bill using the Internet force account work billing system is the same as each party signing the bill.

The Department provides billing system:

1. Training within 30 days of your written request
2. Accounts and user identification to your assigned representatives after a representative has received training

Each representative must maintain a unique password.

Replace Section 5-1.04 with:

5-1.04 CONTRACT COMPONENTS

A component in one contract part applies as if appearing in each. The parts are complementary and describe and provide for a complete work.

If a discrepancy exists:

1. The governing ranking of contract parts in descending order is:

    1.1. Special provisions
    1.2. Project plans
    1.3. Revised Standard Plans
    1.4. Standard Plans
    1.5. Amendments to the Standard Specifications
    1.6. Standard Specifications
    1.7. Supplemental project information

2. Written numbers and notes on a drawing govern over graphics
3. A detail drawing governs over a general drawing
4. A detail specification governs over a general specification
5. A specification in a section governs over a specification referenced by that section

If a discrepancy is found or confusion arises, request correction or clarification.

Add:

5-1.055 SUBCONTRACTING

5-1.055A General

No subcontract releases you from the contract or relieves you of your responsibility for a subcontractor's work.

If you violate Pub Cont Code § 4100 et seq., the Department may exercise the remedies provided under Pub Cont Code § 4110. The Department may refer the violation to the Contractors State License Board as provided under Pub Cont Code § 4111.

Except for a building-construction non-federal-aid contract, perform work equaling at least 30 percent of the value of the original total bid with your employees and with equipment owned or rented by you, with or without operators.

Each subcontract must comply with the contract.

The Department encourages you to include a dispute resolution process in each subcontract.

Each subcontractor must have an active and valid State contractor's license with a classification appropriate for the work to be performed (Bus & Prof Code, § 7000 et seq.).

Submit copies of subcontracts upon request.

Before subcontracted work starts, submit a Subcontracting Request form.

Do not use a debarred contractor; a current list of debarred contractors is available at the Department of Industrial Relations' Web site.

Upon request, immediately remove and not again use a subcontractor who fails to prosecute the work satisfactorily.

Replace Section 5-1.07 with:

5-1.07 LINES AND GRADES

The Engineer places stakes and marks under Chapter 12, "Construction Surveys," of the Department's Surveys Manual.

Submit your request for Department-furnished stakes:

1. On a Request for Construction Stakes form. Ensure:

    1.1. Requested staking area is ready for stakes
    1.2. You use the stakes in a reasonable time

2. A reasonable time before starting an activity using the stakes

Establish priorities for stakes and note priorities on the request.

Preserve stakes and marks placed by the Engineer. If the stakes or marks are destroyed, the Engineer replaces them at the Engineer's earliest convenience and deducts the cost.

Replace Section 5-1.10 with:

5-1.10 EQUIPMENT

Clearly stencil or stamp at a clearly visible location on each piece of equipment except hand tools an identifying number and:

1. On compacting equipment, its make, model number, and empty gross weight that is either the producer's rated weight or the scale weight
2. On meters and on the load-receiving element and indicators of each scale, the make, model, serial number, and producer's rated capacity

Submit a list:

1. Describing each piece of equipment
2. Showing its identifying number

Upon request, submit producer's information that designates portable vehicle scale capacities.

For proportioning materials, use measuring devices, material plant controllers, and undersupports complying with Section 9-1.01B, "Weighing Equipment and Procedures."

Measuring devices must be tested and approved under California Test 109 in the Department's presence by any of the following:

1. County Sealer of Weights and Measures
2. Scale Service Agency
3. Division of Measurement Standards Official

The indicator over-travel must be at least 1/3 of the loading travel. The indicators must be enclosed against moisture and dust.

Group measuring system dials such that the smallest increment for each indicator can be read from the location at which proportioning is controlled.

Replace Section 5-1.116 with:

5-1.116 DIFFERING SITE CONDITIONS (23 CFR 635.109)

5-1.116A Contractor's Notification

Promptly notify the Engineer if you find either of the following:

1. Physical conditions differing materially from either of the following:

    1.1. Contract documents
    1.2. Job site examination

2. Physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract

Include details explaining the information you relied on and the material differences you discovered.

If you fail to notify the Engineer promptly, you waive the differing site condition claim for the period between your discovery of the differing site condition and your notification to the Engineer.

If you disturb the site after discovery and before the Engineer's investigation, you waive the differing site condition claim.

5-1.116B Engineer's Investigation and Decision

Upon your notification, the Engineer investigates job site conditions and:

1. Notifies you whether to resume affected work
2. Decides whether the condition differs materially and is cause for an adjustment of time, payment, or both

You may protest the Engineer's decision.

Replace Section 5-1.14 with:

5-1.14 COST REDUCTION INCENTIVE

Comply with Section 4-1.035B, "Value Engineering Change Proposal."

Add:

5-1.145 REQUESTS FOR INFORMATION

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

The Engineer responds to the RFI within 5 days. Proceed with the work unless otherwise ordered. You may protest the Engineer's response by:

1. Submitting an Initial Potential Claim Record within 5 days after receipt of the Engineer's response
2. Complying with Section 5-1.146, "Potential Claims and Dispute Resolution"

Add:

5-1.146 POTENTIAL CLAIMS AND DISPUTE RESOLUTION

5-1.146A General

Minimize and mitigate impacts of potentially claimed work or event.

For each potential claim, assign an identification number determined by chronological sequencing and the 1st date of the potential claim.

Use the identification number for each potential claim on the:

1. Initial Potential Claim Record
2. Supplemental Potential Claim Record
3. Full and Final Potential Claim Record

Failure to comply with this procedure is:

1. Waiver of the potential claim and a waiver of the right to a corresponding claim for the disputed work in the administrative claim procedure
2. Bar to arbitration (Pub Cont Code § 10240.2)

5-1.146B Initial Potential Claim Record

Submit an Initial Potential Claim Record within 5 days of the Engineer's response to the RFI or within 5 days from the date when a dispute arises due to an act or failure to act by the Engineer. The Initial Potential Claim Record establishes the claim nature and circumstances. The claim nature and circumstances must remain consistent.

The Engineer responds within 5 days of the date of the Initial Potential Claim Record. Proceed with the potentially claimed work unless ordered.

Within 20 days of a request, provide access to the project records determined necessary by the Engineer to evaluate the potential claim.

5-1.146C Supplemental Potential Claim Record

Within 15 days of submitting the Initial Potential Claim Record, submit a Supplemental Potential Claim Record including:

1. Complete nature and circumstances causing the potential claim or event
2. Contract specifications supporting the basis of a claim
3. Estimated claim cost and an itemized breakdown of individual costs stating how the estimate was determined
4. TIA

The Engineer evaluates the Supplemental Potential Claim Record and furnishes you a response within 20 days of submittal. If the estimated cost or effect on the scheduled completion date changes, update the Supplemental Potential Claim Record information as soon as the change is recognized and submit this information.

5-1.146D Full and Final Potential Claim Record

Notify the Engineer within 10 days of the completion date of the potentially claimed work. The Engineer approves this completion date or notifies you of a revised date.

Within 30 days of the completion of the potentially claimed work, submit a Full and Final Potential Claim Record including:

1. A detailed factual account of the events causing the potential claim, including:

    1.1. Necessary dates
    1.2. Locations
    1.3. Work items affected by the potential claim

2. The Contract documents supporting the potential claim and a statement of the reasons these parts support entitlement
3. If a payment adjustment is requested, an itemized cost breakdown. Segregate costs into the following categories:

    3.1. Labor, including:

        3.1.1. Individuals
        3.1.2. Classifications
        3.1.3. Regular and overtime hours worked
        3.1.4. Dates worked

    3.2. Materials, including:

        3.2.1. Invoices
        3.2.2. Purchase orders
        3.2.3. Location of materials either stored or incorporated into the work
        3.2.4. Dates materials were transported to the job site or incorporated into the work

    3.3. Equipment, including:

        3.3.1. Detailed descriptions, including make, model, and serial number
        3.3.2. Hours of use
        3.3.3. Dates of use
        3.3.4. Equipment rates at the rental rate listed in Labor Surcharge and Equipment Rental Rates in effect when the affected work related to the claim was performed

4. If a time adjustment is requested:

    4.1. Dates for the requested time.
    4.2. Reasons for a time adjustment.
    4.3. Contract documentation supporting the requested time adjustment.
    4.4. TIA. The TIA must demonstrate entitlement to a time adjustment.

5. Identification and copies of your documents and copies of communications supporting the potential claim, including certified payrolls, bills, cancelled checks, job cost reports, payment records, and rental agreements
6. Relevant information, references, and arguments that support the potential claim

The Department does not consider a Full and Final Potential Claim Record that does not have the same nature, circumstances, and basis of claim as those specified on the Initial Potential Claim Record and Supplemental Potential Claim Record.

The Engineer evaluates the information presented in the Full and Final Potential Claim Record and furnishes you a response within 30 days of its receipt unless the Full and Final Potential Claim Record is submitted after Contract acceptance; in which case, a response may not be furnished. The Engineer's receipt of the Full and Final Potential Claim Record must be evidenced by postal return receipt or the Engineer's written receipt if delivered by hand.

5-1.146E Dispute Resolution

Comply with Section 5-1.15, "Dispute Resolution."

Add:

5-1.15 DISPUTE RESOLUTION

5-1.15A General

Section 5-1.15, "Dispute Resolution," applies to a contract with 100 or more working days.

The dispute resolution process is not a substitute for the submitting an RFI or a potential claim record.

5-1.15B Dispute Resolution Advisor

Section 5-1.15B, "Dispute Resolution Advisor," applies to a contract with a total bid from $3 million to $10 million.

A dispute resolution advisor, hereinafter referred to as "DRA," is chosen by the Department and the Contractor to assist in the resolution of disputes.

The DRA shall be established by the Department and the Contractor within 30 days of contract approval.

The Department and the Contractor shall each propose 3 potential DRA candidates. Each potential candidate shall provide the Department and the Contractor with their disclosure statement. The disclosure statement shall include a resume of the potential candidate's experience and a declaration statement describing past, present, anticipated, and planned relationships with all parties involved in this contract.

The Department and the Contractor shall select one of the 6 nominees to be the DRA. If the Department and the Contractor cannot agree on one candidate, the Department and the Contractor shall each choose one of the 3 nominated by the other. The final selection of the DRA will be decided by a coin toss between the two candidates.

The Department and the Contractor shall complete and adhere to the Dispute Resolution Advisor Agreement. No DRA meeting shall take place until the Dispute Resolution Advisor Agreement has been signed by all parties, unless all parties agree to sign it at the first meeting.

If DRA needs outside technical services, technical services shall be preapproved by both the Department and the Contractor.

DRA recommendations are nonbinding.

The Contractor shall not use the DRA for disputes between subcontractors or suppliers that have no grounds for a lawsuit against the Department.

DRA replacement is selected in the same manner as the original selection. The appointment of a replacement DRA will begin promptly upon determination of the need for replacement. The Dispute Resolution Advisor Agreement shall be amended to reflect the change of the DRA.

Failure of the Contractor to participate in selecting DRA will result in the withhold of 25 percent of the estimated value of all work performed during each estimate period that the Contractor fails to comply. DRA withholds will be released for payment on the next monthly progress payment following the date that the Contractor has provided assistance in choosing the DRA and no interest will be due the Contractor.

The State and the Contractor shall bear the costs and expenses of the DRA equally.

The DRA shall be compensated at an agreed rate of $1,500 per day for time spent per meeting either at the start of the project or for a dispute. A member serving on more than one State DRA or Dispute Resolution Board, regardless the number of meetings per day shall not be paid more than the agreed rate per day. The agreed rate shall be considered full compensation for on-site time, travel expenses, transportation, lodging, time for travel, and incidentals for each day or portion thereof that the DRA is at an authorized DRA meeting.

No additional compensation will be made for time spent by the DRA to review and research activities outside the official DRA meetings unless that time, such as time spent evaluating and preparing recommendations on specific issues presented to the DRA, has been specifically agreed to in advance by the State and Contractor. Time away from the project that has been specifically agreed to in advance by the Department and the Contractor will be compensated at an agreed rate of $150 per hour. The agreed amount of $150 per hour shall include all incidentals including expenses for telephone, fax, and computer services.

The State will provide conference facilities for DRA meetings at no cost to the Contractor.

The Contractor shall make direct payments to the DRA for participation in authorized meetings and approved hourly rate charges from invoices submitted.

The State will reimburse the Contractor for the State's share of the costs.

There will be no markups applied to expenses associated with the DRA, either by the DRA or by the Contractor when requesting payment of the State's share of DRA expenses. Regardless of the DRA recommendation, neither party will be entitled to reimbursement of DRA costs from the other party.

The Contractor shall submit extra work bills and include invoices with original supporting documents for reimbursement of the State's share.

The cost of technical services will be borne equally by the State and Contractor. There will be no markups for these costs.

A copy of the "Dispute Resolution Advisor Agreement" to be executed by the Contractor, State and the DRA is as follows:

Form CEM 6206 Rev (04-06-07)

DISPUTE RESOLUTION ADVISOR AGREEMENT

_____
(Contract Identification)

Contract No. _____

THIS DISPUTE RESOLUTION ADVISOR AGREEMENT, hereinafter called "AGREEMENT", made and entered into this _____ day of _____, _____, between the State of California, acting through the California Department of Transportation and the Director of Transportation, hereinafter called the "STATE," _____ hereinafter called the "CONTRACTOR," and _____, the Dispute Resolution Advisor, hereinafter called the "DRA."

WITNESSETH, that

WHEREAS, the STATE and the CONTRACTOR, hereinafter called the "parties," are now engaged in the construction on the State Highway project referenced above; and

WHEREAS, the Standard Specifications for the above referenced contract provides for the establishment and operation of the DRA to assist in resolving disputes; and

WHEREAS, the DRA is composed of one person, chosen by the CONTRACTOR and the STATE;

NOW THEREFORE, in consideration of the terms, conditions, covenants, and performance contained herein, or attached and incorporated and made a part hereof, the STATE, the CONTRACTOR, and the DRA hereto agree as follows:

SECTION I DESCRIPTION OF WORK

To assist in the timely resolution of disputes between the parties, the contract provides for the establishment and the operation of the DRA. The DRA is to fairly and impartially consider disputes placed before it and provide recommendations for resolution of these disputes to the parties. The DRA shall provide recommendations based on the facts related to the dispute, the contract and applicable laws and regulations. The DRA shall perform the services necessary to participate in the DRA's actions as designated in Section III, Scope of Work.

SECTION II DRA QUALIFICATIONS

The DRA shall be knowledgeable in the type of construction and contract documents anticipated by the contract and shall have completed training through the Dispute Review Board Foundation. In addition, it is desirable for the DRA to have served on several State Dispute Resolution Boards (DRB).

No DRA shall have prior direct involvement in this contract. No DRA shall have a financial interest in this contract or parties thereto, including but not limited to the CONTRACTOR, subcontractors, suppliers, consultants, and legal and business services, within a period 6 months prior to award and during this contract. Exceptions to above are compensation for services on

this or other DRAs and DRBs or retirement payments or pensions received from a party that are not tied to, dependent on or affected by the net worth of the party.

The DRA shall fully disclose all direct or indirect professional or personal relationships with all key members of the contract.

SECTION III SCOPE OF WORK

The Scope of Work of the DRA includes, but is not limited to, the following:

A. PROCEDURES

The DRA shall meet with the parties at the start of the project to establish procedures that will govern the conduct of its business and reporting procedures in conformance with the requirements of the contract and the terms of this AGREEMENT. The DRA established procedures shall only be implemented upon approval by the parties. Subsequent meetings shall be held only to hear disputes between the parties.

The DRA shall not meet with, or discuss contract issues with individual parties.

The State shall provide the DRA with the contract and all written correspondence regarding the dispute between the parties and, if available, the Contractor's supplemental potential claim record, and the Engineer's response to the supplemental potential claim record.

The parties shall not call the DRA who served on this contract as a witness in arbitration proceedings, which may arise from this contract.

The DRA shall have no claim against the STATE or the CONTRACTOR, or both, from claimed harm arising out of the parties' evaluations of the DRA's opinions.

B. DISPUTE MEETING

The term "dispute meeting" as used in this subsection shall refer to both the informal and traditional dispute meeting processes, unless otherwise noted.

If the CONTRACTOR requests a dispute meeting with the DRA, the Contractor must simultaneously notify the STATE. Upon being notified of the need for a dispute meeting, the DRA shall review and consider the dispute. The DRA shall determine the time and location of the dispute meeting with due consideration for the needs and preferences of the parties, while recognizing the importance of a speedy resolution to the dispute.

Dispute meetings shall be conducted at any location that would be convenient and provide required facilities and access to necessary documentation.

Only the STATE's Area Construction Engineer, Resident Engineer, and Structure Representative and the CONTRACTOR's or subcontractor's, Superintendent or Project Manager may present information at a dispute meeting. There shall be no participation of persons who are not directly involved in the contract or who do not have direct knowledge of the dispute. The exception to this is technical services, as described below:

> The DRA, with approval of the parties, may obtain technical services necessary to adequately review the disputes presented, including audit, geotechnical, schedule analysis and other services. The parties' technical staff may supply those services as appropriate. The cost of technical services, as agreed to by the parties, shall be borne equally by the two parties as specified in an approved contract change order. The CONTRACTOR shall not be entitled to markups for the payments made for these services.

At the dispute meeting the DRA may ask questions, seek clarification, and request further clarification of data presented by either of the parties as may be necessary to assist in making a

fully informed recommendation. However, the DRA shall refrain from expressing opinions on the merits of statements on matters under dispute during the parties' presentations. Each party will be given ample time to fully present its position, make rebuttals, provide relevant documents, and respond to DRA questions and requests.

There shall be no testimony under oath or cross-examination, during DRA dispute meetings. There shall be no reporting of the procedures by a shorthand reporter or by electronic means. Documents and verbal statements shall be received by the DRA in conformance with the rules and regulations established at the first meeting between the DRA and parties. These established rules and regulations need not comply with prescribed legal laws of evidence.

Failure to attend a dispute meeting by either of the parties shall be conclusively considered by the DRA as indication that the non-attending party considers all written documents and correspondence submitted as their entire and complete argument. The claimant shall discuss the dispute, followed by the other party. Each party shall then be allowed one or more rebuttals at the meeting until all aspects of the dispute are thoroughly covered.

1. TRADITIONAL DISPUTE MEETING:

The following procedure shall be used for the traditional dispute meeting:

a. Within 5 days after receiving the STATE's written response to the CONTRACTOR's supplemental potential claim record, the CONTRACTOR shall refer the dispute to the DRA, if the CONTRACTOR wishes to further pursue the dispute. The CONTRACTOR shall make the referral in writing to the DRA, simultaneously copied to the STATE. The written dispute referral shall describe the disputed matter in individual discrete segments, so that it will be clear to both parties and the DRA what discrete elements of the dispute have been resolved, and which remain unresolved, and shall include an estimate of the cost of the affected work and impacts, if any, on project completion.

b. The parties shall each be afforded an opportunity to be present and to be heard by the DRA, and to offer evidence. Either party furnishing written evidence or documentation to the DRA must furnish copies of such information to the other party a minimum of 10 days prior to the date the DRA is scheduled to convene the meeting for the dispute. Either party shall produce such additional evidence as the DRA may deem necessary to reach an understanding and a determination of the dispute. The party furnishing additional evidence shall furnish copies of such additional evidence to the other party at the same time the evidence is provided to the DRA. The DRA shall not consider evidence not furnished in conformance with the terms specified herein.

c. Upon receipt by the DRA of a written referral of a dispute, the DRA shall convene to review and consider the dispute. The dispute meeting shall be held no later than 25 days after receipt of the written referral unless otherwise agreed to by all parties.

d. The DRA shall furnish a written report to both parties. The DRA may request clarifying information of either party within 5 days after the DRA dispute meeting. Requested information shall be submitted to the DRA within 5 days of the DRA request. The DRA shall complete its report and submit it to the parties within 10 days of the DRA dispute meeting, except that time extensions may be granted at the request of the DRA with the written concurrence of both parties. The report shall summarize the facts considered, the contract language, law or regulation viewed by the DRA as pertinent to the dispute, and the DRA's interpretation and philosophy in arriving at its conclusions and recommendations and, if appropriate, recommends

guidelines for determining compensation. The DRA's written opinion shall stand on its own, without attachments or appendices.

e. Within 10 days after receiving the DRA's report, both parties shall respond to the DRA in writing signifying that the dispute is either resolved or remains unresolved. Failure to provide the written response within the time specified, or a written rejection of the DRA's recommendation or response to a request for reconsideration presented in the report by either party, shall conclusively indicate that the party(s) failing to respond accepts the DRA recommendation. Immediately after responses have been received from both parties, the DRA shall provide copies of both responses to the parties simultaneously. Either party may request clarification of elements of the DRA's report from the DRA prior to responding to the report. The DRA shall consider any clarification request only if submitted within 5 days of receipt of the DRA's report, and if submitted simultaneously in writing to both the DRA and the other party. Each party may submit only one request for clarification for any individual DRA report. The DRA shall respond, in writing, to requests for clarification within 5 days of receipt of such requests.
f. Either party may seek a reconsideration of the DRA's recommendation. The DRA shall only grant reconsideration based upon submission of new evidence and if the request is submitted within the 10 day time limit specified for response to the DRA's written report. Each party may submit only one request for reconsideration regarding an individual DRA recommendation.
g. If the parties are able to settle their dispute with the aid of the DRA's report, the STATE and CONTRACTOR shall promptly accept and implement the settlement of the parties. If the parties cannot agree on compensation within 30 days of the acceptance by both parties of the settlement, either party may request the DRA to make a recommendation regarding compensation.

2. INFORMAL DISPUTE MEETING

An informal dispute meeting shall be convened, only if, the parties and the DRA agree that this dispute resolution process is appropriate to settle the dispute.
The following procedure shall be used for the informal dispute meeting:

a. The parties shall furnish the DRA with one copy of pertinent documents requested by the DRA that are or may become necessary for the DRA to perform its function. The party furnishing documents shall furnish such documents to the other party at the same time the document is provided to the DRA.
b. After the dispute meeting has concluded, the DRA shall deliberate in private the same day, until a response to the parties is reached or as otherwise agreed to by the parties.
c. The DRA then verbally delivers its recommendation with findings to the parties.
d. After the recommendation is presented, the parties may ask for clarifications.
e. Occasionally the DRA, on complex issues, may be unable to formulate a recommendation based on the information given at a dispute meeting. However, the DRA may provide the parties with advice on strengths and weaknesses of their prospective positions, in the hope of the parties reaching settlement.
f. If the parties are able to settle their dispute with the aid of the DRA's opinion, the STATE and CONTRACTOR shall promptly accept and implement the settlement of the parties.
g. The DRA will not be bound by its oral recommendation in the event that a dispute is later heard by the DRA in a traditional dispute meeting.

Unless the dispute is settled, use of the informal dispute meeting does not relieve the parties of their responsibilities under Section 5-1.15B, "Dispute Resolution Advisor," of the Standard Specifications or Subsection, "Traditional Dispute Meeting," of this AGREEMENT. There will be no extension of time allowed for the process to permit the use of the informal dispute meeting, unless otherwise agreed to by the parties.

SECTION IV TIME FOR BEGINNING AND COMPLETION

Once established, the DRA shall be in operation until the day the Director accepts the contract. The DRA shall not begin work under the terms of this AGREEMENT until authorized in writing by the STATE or as agreed to by the parties.

SECTION V PAYMENT

The DRA shall be compensated at an agreed rate of $1,500 per day for time spent per meeting, either at the start of the project or for a dispute. A member serving on more than one State DRA or DRB, regardless the number of meetings per day, shall not be paid more than the agreed rate per day. The agreed rate shall be considered full compensation for onsite time, travel expenses, transportation, lodging, time for travel and incidentals for each day, or portion thereof that the DRA is at an authorized DRA meeting. No additional compensation will be made for time spent by the DRA to review and research activities outside the official DRA meetings unless that time, (such as time spent evaluating and preparing recommendations on specific issues presented to the DRA), has been specifically agreed to in advance by the parties. Time away from the project, which has been specifically agreed to in advance by the parties, will be compensated at an agreed rate of $150 per hour. The agreed amount of $150 per hour shall include all incidentals including expenses for telephone, fax, and computer services. The State will provide administrative services such as conference facilities to the DRA.

A. PAYMENT PROCESSING

The CONTRACTOR shall make direct payments to the DRA for their participation in authorized meetings and approved hourly rate charges, from invoices submitted by the DRA, and technical services.

The DRA may submit invoices to the CONTRACTOR for partial payment for work performed and services rendered for their participation in authorized meetings not more often than once per month during the progress of the work. The invoices shall be in a format approved by the parties and accompanied by a general description of activities performed during that billing period. Payment for hourly fees, at the agreed rate, shall not be paid to the DRA until the amount and extent of those fees are approved by the STATE and CONTRACTOR.

B. INSPECTION OF COSTS RECORDS

The DRA and the CONTRACTOR shall keep available for inspection by representatives of the STATE and the United States, for a period of 3 years after final payment, the cost records and accounts pertaining to this AGREEMENT. If any litigation, claim, or audit arising out of, in connection with, or related to this contract is initiated before the expiration of the 3-year period, the cost records and accounts shall be retained until such litigation, claim, or audit involving the records is completed.

SECTION VI ASSIGNMENT OF TASKS OF WORK

The DRA shall not assign the work of this AGREEMENT.

SECTION VII TERMINATION OF DRA

The DRA may resign after providing not less than 15 days written notice of the resignation to the STATE and CONTRACTOR. The DRA may be terminated, by either party, for failing to fully comply at all times with all required employment or financial disclosure conditions of DRA membership in conformance with the terms of the contract and this AGREEMENT. Each party shall document the need for replacement and substantiate the replacement request in writing to the other party and the DRA.

SECTION VIII LEGAL RELATIONS

The parties hereto mutually understand and agree that the DRA in the performance of duties is acting in the capacity of an independent agent and not as an employee of either party.

No party to this AGREEMENT shall bear a greater responsibility for damages or personal injury than is normally provided by Federal or State of California Law.

Notwithstanding the provisions of this contract that require the CONTRACTOR to indemnify and hold harmless the STATE, the parties shall jointly indemnify and hold harmless the DRA from and against all claims, damages, losses, and expenses, including but not limited to attorney's fees, arising out of and resulting from the findings and recommendations of the DRA.

SECTION IX CONFIDENTIALITY

The parties hereto mutually understand and agree that all documents and records provided by the parties in reference to issues brought before the DRA, which documents and records are marked "Confidential - for use by the DRA only," shall be kept in confidence and used only for the purpose of resolution of subject disputes, and for assisting in development of DRA findings and recommendations; that such documents and records will not be utilized or revealed to others, except to officials of the parties who are authorized to act on the subject disputes, for any purposes, during the life of this AGREEMENT. Upon termination of this AGREEMENT, said confidential documents and records, and all copies thereof, shall be returned to the parties who furnished them to the DRA. However, the parties understand that such documents may be subsequently discoverable and admissible in court or arbitration proceedings unless a protective order has been obtained by the party seeking further confidentiality.

SECTION X DISPUTES

Disputes between the parties arising out of the work or other terms of this AGREEMENT that cannot be resolved by negotiation and mutual concurrence between the parties or through the administrative process provided in the contract shall be resolved by arbitration as provided in Section 9-1.10, "Arbitration," of the Standard Specifications. Disputes between the DRA and the parties that cannot be resolved by negotiation and mutual concurrence shall be resolved in the appropriate forum.

SECTION XI VENUE, APPLICABLE LAW, AND PERSONAL JURISDICTION

In the event that any party, including the DRA, deems it necessary to institute arbitration proceedings to enforce any right or obligation under this AGREEMENT, the parties hereto agree that such action shall be initiated in the Office of Administrative Hearings of the State of California. The parties hereto agree that all questions shall be resolved by arbitration by application of California law and that the parties to such arbitration shall have the right of appeal from such decisions to the Superior Court in conformance with the laws of the State of

California. Venue for the arbitration shall be Sacramento or any other location as agreed to by the parties.

SECTION XII FEDERAL REVIEW AND REQUIREMENTS

On Federal-Aid contracts, the Federal Highway Administration shall have the right to review the work of the DRA in progress, except for private meetings or deliberations of the DRA.

Other Federal requirements in this agreement shall only apply to Federal-Aid contracts.

SECTION XIII CERTIFICATION OF CONTRACTOR, DRA, AND STATE

IN WITNESS WHEREOF, the parties hereto have executed this AGREEMENT as of the day and year first above written.

DRA

By: _____

Title: _____

CONTRACTOR

By: _____

Title: _____

CALIFORNIA DEPARTMENT
OF TRANSPORTATION

By: _____

Title: _____

5-1.15C Dispute Resolution Board

Section 5-1.15C, "Dispute Resolution Board," applies to a contract with a total bid of over $10 million.

The Dispute Resolution Board, hereinafter referred to as "DRB," is a three member board established by the Department and Contractor to assist in the resolution of disputes.

The DRB shall be established by the Department and the Contractor within 45 days after contract approval.

The DRB shall consist of one member selected by the Department and approved by the Contractor, one member selected by the Contractor and approved by the Department, and a third member selected by the first 2 members and approved by both the Department and the Contractor.

The Department and Contractor shall provide the other written notification for approval of the name of their DRB nominee along with the nominee's disclosure statement.

Disclosure statements shall include a resume of the nominee's experience and a declaration statement describing past, present, anticipated, and planned relationships with all parties involved in this contract. Objections to nominees shall be based on a specific breach or violation of nominee responsibilities or on nominee qualifications. The Department or the Contractor may, on a one-time basis, object to the other's nominee without specifying a reason and this person shall not be selected for the DRB. Another person shall then be nominated within 15 days.

The 2 DRB members shall proceed with the selection of the third DRB member immediately after receiving written notification from the Department of their selection. The 2 DRB members shall provide their recommendation simultaneously to the parties within 15 days. The third member shall provide disclosure statement to the first 2 DRB members, to the Department, and the Contractor. The professional experience of the third DRB member shall complement that of the first 2 DRB members. The third DRB member shall be subject to mutual approval of the Department and the Contractor. If the 2 DRB members cannot agree on the third nominee, they shall submit a list of nominees to the Department and the Contractor for final selection and approval.

If the Department and the Contractor cannot agree on the third DRB member, or if the first 2 DRB members are unable to agree upon a recommendation, the Department and the Contractor shall select 6 names from the current list of arbitrators certified by the Public Works Contract Arbitration Committee created by Article 7.2 of the State Contract Act. The 2 DRB members shall then select one of the 6 names by a blind draw.

The 3 DRB members shall appoint one member as a chairperson to provide leadership for the DRB's activities. The chairperson shall be approved by the Department and the Contractor. In the event of an impasse, the third DRB member shall become the chairperson.

The Department and Contractor shall complete and adhere to the Dispute Resolution Board Agreement. No DRB meeting shall take place until the Dispute Resolution Board Agreement has been signed by all parties, unless all parties agree to sign it at the first meeting.

If the DRB needs outside technical services, technical services shall be preapproved by both the Department and the Contractor.

DRB recommendations are nonbinding.

The Contractor shall not use the DRB for disputes between the subcontractors or suppliers that have no grounds for a lawsuit against the Department.

DRB member replacements are selected in the same manner as the original selection. The appointment of a replacement DRB member will begin promptly upon determination of the need for replacement. The Dispute Resolution Board Agreement shall be amended to reflect the change in the DRB.

Failure of the Contractor to participate in establishing the DRB will result in the withholding of 25 percent of the estimated value of all work performed during each estimate period that the Contractor fails to comply. DRB withholds will be released for payment on the next monthly progress payment following the date that the Contractor has provided assistance in establishing the DRB and no interest will be due the Contractor.

The Department and the Contractor shall bear the costs and expenses of the DRB equally.

Each DRB member shall be compensated at an agreed rate of $1,500 per day for time spent per meeting either at the start of the project, for scheduled progress, or dispute meetings. A member serving on more than one Department DRB or Dispute Resolution Advisor (DRA), regardless of the number of meetings per day shall not be paid more than the agreed rate per day. The agreed rate shall be considered full compensation for on-site time, travel expenses, transportation, lodging, time for travel, and incidentals for each day or portion thereof that the DRB member is at an authorized DRB meeting.

No additional compensation will be made for time spent by DRB members in review and research activities outside the official DRB meetings unless that time, such as time spent evaluating and preparing recommendations on specific issues presented to the DRB, has been specifically agreed to in advance by the Department and Contractor. Time away from the project, which has been specifically agreed to in advance by the Department and Contractor, will be compensated at an agreed rate of $150 per hour. The agreed amount of $150 per hour shall include all incidentals including expenses for telephone, fax, and computer services.

The Department will provide conference facilities for DRB meetings at no cost to the Contractor.

The Contractor shall make direct payments to each DRB member for their participation in authorized meetings and approved hourly rate charges from invoices submitted by each DRB member.

The Department will reimburse the Contractor for the Department's share of the costs.

There will be no markups applied to expenses connected with the DRB, either by the DRB members or by the Contractor when requesting payment of the Department's share of DRB expenses. Regardless of the DRB recommendation, neither party shall be entitled to reimbursement of DRB costs from the other party.

The Contractor shall submit extra work bills and include evidence of every payment to each DRB member in the form of a cancelled check or bank statement within 30 days of payment.

The cost of technical services requested by the DRB will be borne equally by the State and Contractor. There will be no markups for these costs.

A copy of the "Dispute Resolution Board Agreement" to be executed by the Department, Contractor, and the 3 DRB members after approval of the contract follows:

Form CEM 6202 Rev (10/22/2008)

DISPUTE RESOLUTION BOARD AGREEMENT

_____
(Contract Identification)

Contract No. _____

THIS DISPUTE RESOLUTION BOARD AGREEMENT, hereinafter called "AGREEMENT", made and entered into this _____ day of _____, _____, between the State of California, acting through the California Department of Transportation and the Director of Transportation, hereinafter called the "STATE," _____ _____ hereinafter called the "CONTRACTOR," and the Dispute Resolution Board, hereinafter called the "DRB" consisting of the following members:

_____,
(DRB Member)

_____,
(DRB Member)

and _____
(DRB Chairperson)

WITNESSETH, that

WHEREAS, the STATE and the CONTRACTOR, hereinafter called the "parties," are now engaged in the construction on the State Highway project referenced above; and

WHEREAS, the Standard Specifications for the above referenced contract provides for the establishment and operation of the DRB to assist in resolving disputes; and

WHEREAS, the DRB is composed of three members, one selected by the STATE, one selected by the CONTRACTOR, and the third member selected by the other two members and approved by the parties; and

NOW THEREFORE, in consideration of the terms, conditions, covenants, and performance contained herein, or attached and incorporated and made a part hereof, the STATE, the CONTRACTOR, and the DRB members hereto agree as follows:

SECTION I DESCRIPTION OF WORK

To assist in the timely resolution of disputes between the parties, the contract provides for the establishment and the operation of the DRB. The DRB is to fairly and impartially consider disputes placed before it and provide recommendations for resolution of these disputes to the parties. The DRB shall provide recommendations based on the facts related to the dispute, the contract and applicable laws and regulations. The DRB shall perform the services necessary to participate in the DRB's actions as designated in Section III, Scope of Work.

SECTION II DRB QUALIFICATIONS

DRB members shall be knowledgeable in the type of construction and contract documents anticipated by the contract and shall have completed training through the Dispute Review Board Foundation.

No DRB member shall have prior direct involvement in this contract. No DRB member shall have a financial interest in this contract or parties thereto, including but not limited to the CONTRACTOR, subcontractors, suppliers, consultants, and legal and business services, within a period 6 months prior to award and during this contract. Exceptions to above are compensation for services on this or other DRBs and DRAs or retirement payments or pensions received from a party that are not tied to, dependent on or affected by the net worth of the party.

DRB members shall fully disclose all direct or indirect professional or personal relationships with all key members of the contract.

SECTION III SCOPE OF WORK

The scope of work of the DRB includes, but is not limited to, the following:

A. PROCEDURES

The DRB shall establish procedures that will govern the conduct of its business and reporting procedures in conformance with the requirements of the contract and the terms of this AGREEMENT. The DRB established procedures shall only be implemented upon approval of the parties.

The DRB Chairperson shall schedule progress and dispute meetings and any other DRB activities.

The parties shall not call on any of the DRB members, who served on this contract, as a witness in arbitration proceedings, which may arise from this contract.

DRB members shall have no claim against the STATE or the CONTRACTOR, or both, from claimed harm arising out of the parties' evaluations of the DRB's opinions.

During progress or dispute meetings, DRB members shall refrain from expressing opinions on the merits of statements on matters under dispute or potential dispute. Opinions of DRB members expressed in private sessions shall be kept strictly confidential. Individual DRB members shall not meet with, or discuss contract issues with individual parties. Discussions regarding the project between the DRB members and the parties shall be in the presence of all three members and both parties. Individual DRB members shall not undertake independent investigations of any kind pertaining to disputes or potential disputes, except with the knowledge of both parties and as expressly directed by the DRB Chairperson.

B. PROGRESS MEETINGS

DRB members shall visit the project site and meet with representatives of the parties to keep abreast of construction activities and to develop familiarity with the work in progress. Scheduled progress meetings shall be held at or near the project site. The DRB shall meet at least once at the start of the project, and at least once every 4 months thereafter. The frequency, exact time, and duration of additional site visits and progress meetings shall be as recommended by the DRB and approved by the parties consistent with the construction activities or matters under consideration and dispute. Scheduled progress meetings may be waived, if the parties are in agreement, when the only work remaining is plant establishment work. Each meeting shall consist of a round table discussion and a field inspection of the work being performed on the contract, if necessary. Each meeting shall be attended by representatives of both parties. The agenda shall generally be as follows:

1. Meeting opened by the DRB Chairperson.
2. Remarks by the STATE's representative.
3. A description by the CONTRACTOR's representative of work accomplished since the last meeting; the current schedule status of the work; and a forecast for the coming period.
4. An outline by the STATE's representative of the status of the work as the STATE views it.
5. An outline by the CONTRACTOR's representative of potential problems and a description of proposed solutions.
6. A brief description by the CONTRACTOR's and the STATE's representative of potential claims and disputes that have surfaced since the last meeting.
7. A summary by the STATE's representative, the CONTRACTOR's representative, or the DRB of the status of past potential claims and disputes.

The STATE's representative will prepare minutes of all progress meetings and circulate them for revision and approval by all concerned within 10 days of the meeting.

C. DISPUTE MEETING

The term "dispute meeting" as used in this subsection shall refer to both the informal and traditional dispute meeting processes, unless otherwise noted.

Either the STATE or the CONTRACTOR may request a dispute meeting with the DRB. The requesting party shall simultaneously notify the other party of each dispute meeting request. Upon being notified of the need for a dispute meeting, the DRB shall review and consider the dispute. The DRB shall determine the time and location of the dispute meeting with due consideration for the needs and preferences of the parties, while recognizing the importance of a speedy resolution to the dispute.

Dispute meetings shall be conducted at any location that would be convenient and provide required facilities and access to necessary documentation.

No DRB dispute meeting shall take place later than 30 days prior to acceptance of the contract.

Only the STATE's Area Construction Engineer, Resident Engineer, and Structure Representative and the CONTRACTOR's or subcontractor's, Superintendent or Project Manager may present information at a dispute meeting. There shall be no participation of persons who are not directly involved in the contract or who do not have direct knowledge of the dispute. The exception to this is technical services, as described below:

> The DRB, with approval of the parties, may obtain technical services necessary to adequately review the disputes presented, including audit, geotechnical, schedule analysis and other services. The parties' technical staff may supply those services as appropriate. The cost of technical services, as agreed to by the parties, shall be borne equally by the two parties as specified in an approved contract change order. The CONTRACTOR shall not be entitled to markups for the payments made for these services.

At the dispute meeting the DRB may ask questions, seek clarification, and request further clarification of data presented by either of the parties as may be necessary to assist in making a fully informed recommendation. However, the DRB shall refrain from expressing opinions on the merits of statements on matters under dispute during the parties' presentations. The claimant shall discuss the dispute, followed by the other party. Each party shall then be allowed one or

more rebuttals at the meeting until all aspects of the dispute are thoroughly covered. Each party will be given ample time to fully present its position, make rebuttals, provide relevant documents, and respond to DRB questions and requests.

There shall be no testimony under oath or cross-examination, during DRB dispute meetings. There shall be no reporting of the procedures by a shorthand reporter or by electronic means. Documents and verbal statements shall be received by the DRB in conformance with the procedures established at the first meeting between the DRB and the parties. These established procedures need not comply with prescribed legal laws of evidence.

Failure to attend a dispute meeting by either of the parties shall be conclusively considered by the DRB as indication that the non-attending party considers all written documents and correspondence submitted as their entire and complete argument.

After dispute meetings are concluded, the DRB shall meet in private and reach a conclusion supported by two or more members. Private sessions of the DRB may be held at a location other than the job site or by electronic conferencing as deemed appropriate, in order to expedite the process.

The DRB shall make every effort to reach a unanimous decision.

1. TRADITIONAL DISPUTE MEETING:

The following procedure shall be used for the traditional dispute meeting:

a. Within 21 days after receiving the STATE's written response to the CONTRACTOR's supplemental potential claim record, the CONTRACTOR shall refer the dispute to the DRB if the CONTRACTOR wishes to further pursue the dispute. The CONTRACTOR shall make the referral in writing to the DRB, simultaneously copied to the STATE. The written dispute referral shall describe the disputed matter in individual discrete segments, so that it will be clear to both parties and the DRB what discrete elements of the dispute have been resolved, and which remain unresolved, and shall include an estimate of the cost of the affected work and impacts, if any, on project completion.

b. The parties shall each be afforded an opportunity to be present and to be heard by the DRB, and to offer evidence. Either party furnishing written evidence or documentation to the DRB must furnish copies of such information to the other party a minimum of 15 days prior to the date the DRB is scheduled to convene the meeting for the dispute. Either party shall produce such additional evidence as the DRB may deem necessary to reach an understanding and a determination of the dispute. The party furnishing additional evidence shall furnish copies of such additional evidence to the other party at the same time the evidence is provided to the DRB. The DRB shall not consider evidence not furnished in conformance with the terms specified herein.

c. Upon receipt by the DRB of a written referral of a dispute, the DRB shall convene to review and consider the dispute. The dispute meeting shall be held no earlier than 30 days and no later than 60 days after receipt of the written referral unless otherwise agreed to by all parties.

d. The DRB may request clarifying information of either party within 10 days after the dispute meeting. Requested information shall be submitted to the DRB within 10 days of the DRB request.

e. The DRB shall furnish a written report to the parties with its conclusion(s) and recommendation(s). The DRB shall complete its report, including minority opinion, if any, and submit it to the parties within 30 days of the dispute meeting, except that time extensions may be granted at the request of the DRB with the written concurrence of the parties. The report shall summarize the facts considered, the contract language, law or

regulation viewed by the DRB as pertinent to the dispute, and the DRB's interpretation and reasoning in arriving at its conclusion(s) and recommendation(s) and, if appropriate, recommends guidelines for determining compensation. The DRB's written opinion shall stand on its own, without attachments or appendices. The DRB Chairperson shall furnish a copy of the written recommendation report to the DRB Coordinator, Division of Construction, MS 44, P.O. Box 942874, Sacramento, CA 94274.

f. Within 30 days after receiving the DRB's report, the parties shall respond to the DRB in writing signifying that the dispute is either resolved or remains unresolved. Failure to provide the written response within the time specified, or a written rejection of the DRB's recommendation or a written response requesting the DRB reconsider their recommendation, shall conclusively indicate that the party(s) failing to respond accepts the DRB recommendation. Immediately after responses have been received from both parties, the DRB shall provide copies of both responses to the parties simultaneously. Either party may request clarification of elements of the DRB's report from the DRB prior to responding to the report. The DRB shall consider any clarification request only if submitted within 10 days of receipt of the DRB's report, and if submitted simultaneously in writing to both the DRB and the other party. Each party may submit only one request for clarification for any individual DRB report. The DRB shall respond, in writing, to requests for clarification within 10 days of receipt of such requests.
g. Either party may seek a reconsideration of the DRB's recommendation. The DRB shall only grant reconsideration based upon submission of new evidence and if the request is submitted within the 30 day time limit specified for response to the DRB's written report. Each party may submit only one request for reconsideration regarding an individual DRB recommendation.
h. If the parties are able to settle their dispute with the aid of the DRB's report, the STATE and the CONTRACTOR shall promptly accept and implement the settlement of the parties. If the parties cannot agree on compensation within 60 days of the acceptance by both parties of the settlement, either party may request the DRB to make a recommendation regarding compensation.

2. INFORMAL DISPUTE MEETING

An informal dispute meeting shall be convened, only if, the parties and the DRB agree that this dispute resolution process is appropriate to settle the dispute.

The following procedure shall be used for the informal dispute meeting:

a. The parties shall furnish the DRB with one copy of pertinent documents requested by the DRB that are or may become necessary for the DRB to perform its function. The party furnishing documents shall furnish such documents to the other party at the same time the document is provided to the DRB.
b. After the dispute meeting has concluded, the DRB members shall deliberate in private the same day until a response to the parties is reached or as otherwise agreed to by the parties.
c. The DRB then verbally delivers its recommendation with findings, including minority opinion, if any, to the parties.
d. After the recommendation is presented, the parties may ask for clarifications.
e. Occasionally the DRB may be unable to formulate a recommendation based on the information given at a dispute meeting. However, the DRB may provide the parties with advice on strengths and weaknesses of their prospective positions, in the hope of the parties reaching settlement.

f. If the parties are able to settle their dispute with the aid of the DRB's opinion, the STATE and the CONTRACTOR shall promptly accept and implement the settlement of the parties.
g. The DRB will not be bound by its verbal recommendation in the event that a dispute is later heard by the DRB in a traditional dispute meeting.

Unless the dispute is settled, use of the informal dispute meeting does not relieve the parties of their responsibilities under Section 5-1.15C, "Dispute Resolution Board," of the Standard Specifications or subsection, "Traditional Dispute Meeting," of this AGREEMENT. There will be no extension of time allowed for the process to permit the use of the informal dispute meeting, unless otherwise agreed to by the parties.

SECTION IV TIME FOR BEGINNING AND COMPLETION

DRB members shall not begin work under the terms of this AGREEMENT, until authorized in writing by the STATE or as agreed to by the parties. Once established, the DRB shall be in operation until the Director accepts the contract. If the contract is terminated in accordance with Section 8-1.08, "Termination of Control," of the Standard Specifications, the DRB will be dissolved.

SECTION V PAYMENT

Each DRB member shall be compensated at an agreed rate of $1,500 per day for time spent per meeting, either at start of project, or a scheduled progress or a dispute meeting. A member serving on more than one State DRB or DRA, regardless of the number of meetings per day, shall not be paid more than the agreed rate per day. The agreed rate shall be considered full compensation for on site time, travel expenses, transportation, lodging, time for travel and incidentals for each day, or portion thereof that the DRB member is at an authorized DRB meeting. No additional compensation will be made for time spent by DRB member to review and research activities outside the official DRB meetings unless that time, such as time spent evaluating and preparing recommendations on specific issues presented to the DRB, has been specifically agreed to in advance by the parties. Time away from the project, which has been specifically agreed to in advance by the parties, will be compensated at an agreed rate of $150 per hour. The agreed amount of $150 per hour shall include all incidentals including expenses for telephone, fax, and computer services. The State will provide administrative services such as conference facilities to the DRB.

A. PAYMENT PROCESSING

The CONTRACTOR shall make direct payments to each DRB member for their participation in authorized meetings and approved hourly rate charges, from invoices submitted by each DRB member, and technical services.

DRB members may submit invoices to the CONTRACTOR for partial payment for work performed and services rendered for their participation in authorized meetings not more often than once per month during the progress of the work. The invoices shall be in a format approved by the parties and accompanied by a general description of activities performed during that billing period. Payment for hourly fees, at the agreed rate, shall not be paid to a DRB member until the amount and extent of those fees are approved by the STATE and the CONTRACTOR.

B. INSPECTION OF COSTS RECORDS

DRB members and the CONTRACTOR shall keep available for inspection by representatives of the STATE and the United States federal government, for a period of 3 years after final payment, the cost records and accounts pertaining to this AGREEMENT. If any litigation, claim, or audit arising out of, in connection with, or related to this contract is initiated before the expiration of the 3-year period, the cost records and accounts shall be retained until such litigation, claim, or audit involving the records is completed.

SECTION VI ASSIGNMENT OF TASKS OF WORK

DRB members shall not assign the work of this AGREEMENT.

SECTION VII TERMINATION OF A DRB MEMBER

DRB members may resign after providing not less than 15 days written notice of their resignation to the STATE and the CONTRACTOR. A DRB member may be terminated, by either party, for failing to comply at all times with all required employment or financial disclosure conditions of DRB membership in conformance with the terms of the contract and this AGREEMENT.

Service of a DRB member may be terminated at any time with not less than 15 days notice as follows:

A. The State may terminate service of the State appointed member.
B. The Contractor may terminate service of the Contractor appointed member.
C. Upon the written recommendation of the State and Contractor appointed members for the removal of the third member.
D. Upon resignation of a member.

When a member of the DRB is replaced, the replacement member shall be appointed in the same manner as the replaced member was appointed. The appointment of a replacement DRB member will begin promptly upon determination of the need for replacement and shall be completed within 15 days. Changes in either of the DRB members chosen by the 2 parties will not require re-selection of the third member, unless both parties agree to such re-selection in writing. The Dispute Resolution Board Agreement shall be amended to reflect the change of a DRB member.

Each party shall document the need for replacement and substantiate the replacement request in writing to the other party and DRB members.

SECTION VIII LEGAL RELATIONS

The parties hereto mutually understand and agree that each DRB member in the performance of duties is acting in the capacity of an independent agent and not as an employee of either party.

No party to this AGREEMENT shall bear a greater responsibility for damages or personal injury than is normally provided by Federal or State of California Law.

Notwithstanding the provisions of this contract that require the CONTRACTOR to indemnify and hold harmless the STATE, the parties shall jointly indemnify and hold harmless the DRB members from and against all claims, damages, losses, and expenses, including but not limited to attorney's fees, arising out of and resulting from the findings and recommendations of the DRB.

SECTION IX CONFIDENTIALITY

The parties hereto mutually understand and agree that all documents and records provided by the parties in reference to issues brought before the DRB, which documents and records are marked "Confidential - for use by the DRB only," shall be kept in confidence and used only for the purpose of resolution of subject disputes, and for assisting in development of DRB findings and recommendations; that such documents and records will not be utilized or revealed to others, except to officials of the parties who are authorized to act on the subject disputes, for any purposes, during the life of this AGREEMENT. Upon termination of this AGREEMENT, said confidential documents and records, and all copies thereof, shall be returned to the parties who furnished them to the DRB. However, the parties understand that such documents may be subsequently discoverable and admissible in court or arbitration proceedings unless a protective order has been obtained by the party seeking further confidentiality.

SECTION X DISPUTES

Disputes between the parties arising out of the work or other terms of this AGREEMENT, which cannot be resolved by negotiation and mutual concurrence between the parties, or through the administrative process provided in the contract, shall be resolved by arbitration as provided in Section 9-1.10, "Arbitration," of the Standard Specifications. Disputes between the DRB and either party, which cannot be resolved by negotiation and mutual concurrence, shall be resolved in the appropriate forum.

SECTION XI VENUE, APPLICABLE LAW, AND PERSONAL JURISDICTION

In the event that any party deems it necessary to institute arbitration proceedings to enforce any right or obligation under this AGREEMENT, the parties hereto agree that such action shall be initiated in the Office of Administrative Hearings of the State of California. The parties hereto agree that all questions shall be resolved by arbitration by application of California law and that the parties to such arbitration shall have the right of appeal from such decisions to the Superior Court in conformance with the laws of the State of California. Venue for the arbitration shall be Sacramento or any other location as agreed to by the parties.

SECTION XII FEDERAL REVIEW AND REQUIREMENTS

On Federal-Aid contracts, the Federal Highway Administration shall have the right to review the work of the DRB in progress, except for private meetings or deliberations of the DRB that do not become part of the project records.

Other Federal requirements in this agreement shall only apply to Federal-Aid contracts.

SECTION XIII CERTIFICATION OF CONTRACTOR, DRB, AND STATE

IN WITNESS WHEREOF, the parties hereto have executed this AGREEMENT as of the day and year first above written.

DRB MEMBER	DRB MEMBER
By: _____	By: _____

Title: _____ Title :_____

DRB CHAIRPERSON

By :_____

Title :_____

CONTRACTOR

By: _____

Title: _____

CALIFORNIA DEPARTMENT
OF TRANSPORTATION

By: _____

Title: _____

Add:

5-1.16–5-17 (BLANK)

Add:

5-1.18 PROPERTY AND FACILITY PRESERVATION

5-1.18A General

Preserve property and facilities, including:

1. Adjacent property
2. Department's instrumentation
3. ESAs
4. Lands administered by other agencies
5. Railroads and railroad equipment
6. Roadside vegetation not to be removed
7. Utilities
8. Waterways

Immediately report damage to the Engineer.

If you cause damage, you are responsible.

Install sheet piling, cribbing, bulkheads, shores, or other supports necessary to support existing facilities or support material carrying the facilities.

Dispose of temporary facilities when they are no longer needed.

If you damage plants not to be removed:

1. Dispose of them outside the right of way unless the Engineer allows you to reduce them to chips and spread the chips within the highway at locations designated by the Engineer
2. Replace them

Replace plants with plants of the same species.

Replace trees with 24-inch-box trees.

Replace shrubs with No. 15 container shrubs.

Replace ground cover plants with plants from flats. Replace Carpobrutus ground cover plants with plants from cuttings. Plant ground cover plants 1 foot on center.

If a plant establishment period is specified, replace plants before the start of the plant establishment period; otherwise, replace plants at least 30 days before Contract acceptance.

Water each plant immediately after planting and saturate the backfill soil around and below the roots or ball of earth around the roots of each plant. Water as necessary to maintain plants in a healthy condition until Contract acceptance.

The Department may make a temporary repair to restore service to a damaged facility.

If working on or adjacent to railroad property, do not interfere with railroad operations.

For an excavation on or affecting railroad property, submit work plans showing the system to be used to protect railroad facilities. Allow 65 days for the Engineer's review of the plans. Do not perform work based on the plans until the Engineer notifies you they are accepted.

5-1.18B Nonhighway Facilities (Including Utilities)

The Department may rearrange a nonhighway facility during the Contract. Rearrangement of a nonhighway facility includes installation, relocation, alteration, or removal of the facility.The

Department may authorize facility owners and their agents to enter the highway to perform rearrangement work for their facilities or to make connections or repairs to their property. Coordinate activities to avoid delays.

Notify the Engineer at least 3 business days before you contact the regional notification center under Govt Code § 4216 et seq. Failure to contact the notification center prohibits excavation.

Before starting work that could damage or interfere with underground infrastructure, locate the infrastructure described in the Contract, including laterals and other appurtenances, and determine the presence of other underground infrastructure inferred from visible facilities such as buildings, meters, or junction boxes.

Notify the Engineer if the infrastructure described in the Contract cannot be found. If after giving the notice, you find the infrastructure in a substantially different location than described, finding the infrastructure is paid for as extra work as specified in Section 4-1.03D, "Extra Work."

Underground infrastructure described in the Contract may be in different locations than described, and additional infrastructure may exist.

Upon discovering an underground main or trunk line not described in the Contract, immediately notify the Engineer and the infrastructure owner. The Engineer orders the locating and protecting of the infrastructure. The locating and protecting is paid for as extra work as specified in Section 4-1.03D, "Extra Work." If ordered, repair infrastructure damage. If the damage is not due to your negligence, the repair is paid for as extra work as specified in Section 4-1.03D, "Extra Work."

If necessary underground infrastructure rearrangement is not described in the Contract, the Engineer may order you to perform the work. The rearrangement is paid for as extra work as specified in Section 4-1.03D, "Extra Work."

If you want infrastructure rearrangement different from that described in the Contract:

1. Notify the Engineer
2. Make an arrangement with the infrastructure owner
3. Obtain authorization for the rearrangement
4. The Department does not adjust time or payment for rearrangement different from the Contract
5. Pay the infrastructure owner any additional cost

Immediately notify the Engineer of a delay due to the presence of main line underground infrastructure not described in the Contract or in a substantially different location or due to rearrangement different from the Contract. The Department pays for one of these delays in the same manner as specified for a right of way delay in Section 8-1.09, "Right of Way Delays."

^^

SECTION 6 CONTROL OF MATERIALS
(Issued 05-01-09)

Replace Section 6-1.05 with:

6-1.05 SPECIFIC BRAND OR TRADE NAME AND SUBSTITUTION

A reference to a specific brand or trade name establishes a quality standard and is not intended to limit competition. You may use a product that is equal to or better than the specified brand or trade name if approved.

Submit a substitution request within a time period that:

1. Follows Contract award
2. Allows 30 days for review
3. Causes no delay

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

1. Is of equal or better quality and suitability
2. Causes no delay in product delivery and installation

Add:

6-1.075 GUARANTEE

Guarantee the work remains free from substantial defects for 1 year after contract acceptance except for work parts for which you were relieved of maintenance and protection. Guarantee each of these relieved work parts for 1 year after the relief date.

The guarantee excludes damage or displacement caused by an event outside your control including:

1. Normal wear and tear
2. Improper operation
3. Insufficient maintenance
4. Abuse
5. Unauthorized change
6. Act of God

During the guarantee period, repair or replace each work portion having a substantial defect.

The Department does not pay for corrective work.

During corrective work activities, provide insurance coverage specified for coverage before contract acceptance.

The contract bonds must be in full force and effect until the later of:

1. Expiration of guarantee period
2. Completion of corrective work

If a warranty specification conflicts with Section 6-1.075, "Guarantee," comply with the warranty specification.

During the guarantee period, the Engineer monitors the completed work. If the Engineer finds work having a substantial defect, the Engineer lists work parts and furnishes you the list.

Within 10 days of receipt of the list, submit for authorization a detailed plan for correcting the work. Include a schedule that includes:

1. Start and completion dates
2. List of labor, equipment, materials, and any special services you plan to use
3. Work related to the corrective work, including traffic control and temporary and permanent pavement markings

The Engineer notifies you when the plan is authorized. Start corrective work and related work within 15 days of notice.

If the Engineer determines corrective work is urgently required to prevent injury or property damage:

1. The Engineer furnishes you a request to start emergency repair work and a list of parts requiring corrective work
2. Mobilize within 24 hours and start work
3. Submit a corrective work plan within 5 days of starting emergency repair work

If you fail to perform work as specified, the Department may perform the work and bill you.

In Section 6-1.08 delete the 2nd paragraph.

Add:

6-1.085 BUY AMERICA (23 CFR 635.410)

For a Federal-aid contract, furnish steel and iron materials to be incorporated into the work that are produced in the United States except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials [60 Fed Reg 15478 (03/24/1995)]
2. If the total combined cost of the materials does not exceed the greater of 0.1 percent of the total bid or $2,500, material produced outside the United States may be used

Production includes:

1. Processing steel and iron materials, including smelting or other processes that alter the physical form or shape (such as rolling, extruding, machining, bending, grinding, and drilling) or chemical composition
2. Coating application, including epoxy coating, galvanizing, and painting, that protects or enhances the value of steel and iron materials

For steel and iron materials to be incorporated into the work, submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications that certifies all production processes occurred in the United States except for the above exceptions.

Add:

6-1.087 BUY AMERICA (PUB RES CODE § 42703(d))

Furnish crumb rubber to be incorporated into the work that is produced in the United States and is derived from waste tires taken from vehicles owned and operated in the United States.

For crumb rubber to be incorporated into the work, submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance," of the Standard Specifications that certifies only crumb rubber manufactured in the United States and derived from waste tires taken from vehicles owned and operated in the United States is used.

In Section 6-2.01 delete the 4th paragraph.

In Section 6-2.01 replace the 7th paragraph with:

Upon the Contractor's written request, the Department tests materials from an untested local source. If satisfactory material from that source is used in the work, the Department does not charge the Contractor for the tests; otherwise, the Department deducts the test cost.

In Section 6-2.01 delete the 8th paragraph.

In Section 6-2.02 delete the 3rd paragraph.

In Section 6-2.02 in the 7th paragraph, replace the 2nd sentence with:

The Department deducts the charges for the removed material.

In Section 6-2.03 in the 3rd paragraph, replace the 5th sentence with:

No allowance or additional compensation will be made for lost time or for delay in completing the work due to moving the Contractor's plant from the designated mandatory source to the alternative mandatory source, other than a time adjustment as specified in Section 8-1.09, "Delays."

In Section 6-3.01 delete the 4th paragraph.

In Section 6-3.01 in the 6th paragraph, delete the 1st sentence.

In Section 6-3.01 add:

As used in Section 6-3.01, "Testing," tests are tests to assure the quality and to determine the acceptability of the work.

The Department deducts costs of testing work found to be noncompliant.

^^

SECTION 7 LEGAL RELATIONS AND RESPONSIBILITY
(Issued 07-27-12)

Replace Section 7-1.01 with:

7-1.01 LAWS TO BE OBSERVED

Comply with laws, regulations, orders, decrees, and PLACs applicable to the project. Indemnify and defend the State against any claim or liability arising from the violation of a law, regulation, order, decree, or PLAC by you or your employees. Immediately report to the Engineer in writing a discrepancy or inconsistency between the contract and a law, regulation, order, decree, or PLAC.

In Section 7-1.01A replace the 1st clause with:

Work on the job site must comply with Labor Code §§ 1727 and 1770-1815 and 8 CA Code of Regs § 16000 et seq. Work includes roadside production and processing of materials.

In Section 7-1.01A(2) in the 1st paragraph, replace item 3 with:

3. Upon becoming aware of the subcontractor's failure to pay the specified prevailing rate of wages to the subcontractor's workers, the Contractor must diligently take corrective action to stop or rectify the failure, including withholding sufficient funds due the subcontractor for work performed on the public works project.

In Section 7-1.01A(2), replace the 2nd paragraph with:

Pursuant to Section 1775 of the Labor Code, the Division of Labor Standards Enforcement must notify the Contractor on a public works project within 15 days of the receipt by the Division of Labor Standards Enforcement of a complaint of the failure of a subcontractor on that public works project to pay workers the general prevailing rate of per diem wages. If the Division of Labor Standards Enforcement determines that employees of a subcontractor were not paid the general prevailing rate of per diem wages and if the Department did not withhold sufficient money under the contract to pay those employees the balance of wages owed under the general prevailing rate of per diem wages, the Contractor must withhold an amount of moneys due the subcontractor sufficient to pay those employees the general prevailing rate of per diem wages if requested by the Division of Labor Standards Enforcement. The Contractor must pay any money withheld from and owed to a subcontractor upon receipt of notification by the Division of Labor Standards Enforcement that the wage complaint has been resolved. If notice of the resolution of the wage complaint has not been received by the Contractor within 180 days of the filing of a valid notice of completion or acceptance of the public works project, whichever occurs later, the Contractor must pay all moneys withheld from the subcontractor to the Department. The Department withholds these moneys pending the final decision of an enforcement action.

In Section 7-1.01A(2) replace 7th paragraph with:

Changes in general prevailing wage determinations apply to the contract when the Director of Industrial Relations has issued them at least 10 days before advertisement (Labor Code § 1773.6 and 8 CA Code of Regs 16204).

In Section 7-1.01A(3) replace the 2nd paragraph with:

The Department withholds the penalties specified in subdivision (g) of Labor Code § 1776 for noncompliance with the requirements in Section 1776.

In Section 7-1.01A(3) replace the 4th paragraph with:

The Department withholds for delinquent or inadequate payroll records (Labor Code § 1771.5). If the Contractor has not submitted an adequate payroll record by the month's 15th day for the period ending on or before the 1st of that month, the Department withholds 10 percent of the monthly progress estimate, exclusive of mobilization. The Department does not withhold more than $10,000 or less than $1,000.

In Section 7-1.01A(3) delete the 5th paragraph.

Replace Section 7-1.01A(6) with:

7-1.01A(6) (Blank)

Replace Section 7-1.01A(7) with:

7-1.01A(7) (Blank)

Replace Section 7-1.01F with:

7-1.01F Environmental Stewardship

Comply with Section 14.

Replace Section 7-1.01I with:

7-1.01I (Blank)

In Section 7-1.02 in the 2nd paragraph, replace the 4th sentence with:

Trucks used to haul treated base, portland cement concrete, or hot mix asphalt shall enter onto the base to dump at the nearest practical entry point ahead of spreading equipment.

In Section 7-1.02 between the 4th and 5th paragraphs, add:

Loads imposed on existing, new, or partially completed structures shall not exceed the load carrying capacity of the structure or any portion of the structure as determined by AASHTO LRFD with interims and California Amendments, Design Strength Limit State II. The compressive strength of concrete (f'_c) to be used in computing the load carrying capacity shall be the smaller of the following:

1. Actual compressive strength at the time of loading

2. Value of f'_c shown on the plans for that portion of the structure or 2.5 times the value of f_c (extreme fiber compressive stress in concrete at service loads) shown on the plans for portions of the structure where no f'_c is shown

Replace Section 7-1.04 with:

7-1.04 PERMITS, LICENSES, AGREEMENTS, AND CERTIFICATIONS

7-1.04A General

Comply with PLACs. The Department makes PLAC changes under Section 4-1.03, "Changes."

7-1.04B Before Award

To make a change to a PLAC made available to you before award, submit the proposed change. The Department sends the proposed change to the appropriate authority for consideration.

7-1.04C After Award

Confirm with the Engineer which after-award PLACs are obtained by the Department and which are obtained by the Contractor.

To make a change to an after-award PLAC obtained by the Department, submit the proposed change. The Department sends the proposed change to the appropriate authority for consideration.

Obtain those PLACs to be issued to you and pay fees and costs associated with obtaining them. Submit copies of Contractor-obtained after-award PLACs for review.

In Section 7-1.06 in the 1st paragraph, add:

The Contractor's Injury and Illness Prevention Program shall be submitted to the Engineer. The program shall address the use of personal and company issued electronic devices during work. The use of entertainment and personal communication devices in the work zone shall not be allowed. Workers may use a communication device for business purposes in the work area, at a location where their safety and the safety of other workers and the traveling public is not compromised.

Replace Section 7-1.07 with:

7-1.07 Lead Compliance Plan

Section 7-1.07 applies if a bid item for a lead compliance plan is included in the Contract.

Prepare a work plan to prevent or minimize worker exposure to lead while managing and handling earth materials, paint system debris, traffic stripe residue, and pavement marking residue containing lead. Regulations containing specific Cal/OSHA requirements when working with lead include 8 CA Code of Regs § 1532.1.

The plan must contain the items listed in 8 CA Code of Regs § 1532.1(e)(2)(B). Before submittal, a CIH must sign and seal the plan. Submit the plan at least 7 days before starting any activity that presents the potential for lead exposure. The Engineer notifies you of the acceptability of the plan within 4 business days of receipt.

Before starting any activity that presents the potential for lead exposure to employees who have no prior training, including State employees, provide a safety training program to these employees that complies with 8 CA Code of Regs § 1532.1 and your lead compliance program.

Submit copies of air monitoring or job site inspection reports made by or under the direction of the CIH under 8 CA Code of Regs § 1532.1 within 10 days after the date of monitoring or inspection.

Supply personal protective equipment, training, and washing facilities required by your lead compliance plan for 5 State employees.

The contract lump sum price paid for lead compliance plan includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in preparing and implementing the plan as specified in this section.

Replace Section 7-1.08 with:

7-1.08 PUBLIC CONVENIENCE

Compliance with the provisions of this section does not relieve you of your responsibility for public safety.

Construction activities must not inconvenience the public or abutting property owners. Schedule and conduct work to avoid unnecessary inconvenience to the public and abutting property owners. Avoid undue delay in construction activities to reduce the public's exposure to construction.

Where possible, route traffic on new or existing paved surfaces.

Maintain convenient access to driveways, houses, and buildings. When the abutting property owner's access across the right of way line is to be eliminated or replaced under the contract, the existing access must not be closed until the replacement access facilities are usable. Construct temporary approaches to crossings and intersecting highways.

Provide a reasonably smooth and even surface for use by traffic at all time during excavation of roadways and construction of embankments. Before other grading activities, place fill at culverts and bridges to allow traffic to cross. If ordered, excavate roadway cuts in layers and construct embankments in partial widths at a time alternating construction from one side to the other and routing traffic over the side opposite the one under construction. Install or construct culverts on only 1/2 the width of the traveled way at a time; keep the traveled way portion being used by traffic open and unobstructed until the opposite side of the traveled way is ready for use by traffic.

Upon completion of rough grading or placing any subsequent layer, bring the surface of the roadbed to a smooth and even condition, free of humps and depressions and satisfactory for the use of the public.

After subgrade preparation for a specified layer of material has been completed, repair any damage to the roadbed or completed subgrade, including damage due to use by the public.

While subgrade and paving activities are underway, allow the public to use the shoulders. If half-width paving methods are used, allow the public to use the side of the roadbed opposite the one under construction. If enough width is available, keep open a passageway wide enough to accommodate at least 2 lanes of traffic at locations where subgrade and paving activities are underway. Shape shoulders or reshape subgrade as necessary to accommodate traffic during subgrade preparation and paving activities.

Apply water or dust palliative for the prevention or alleviation of dust nuisance.

Install signs, lights, flares, temporary railing (Type K), barricades and other facilities to direct traffic. Furnish flaggers whenever necessary to direct the movement of the public through or around the work.

You will be required to pay the cost of replacing or repairing all facilities installed under extra work for the convenience or direction or warning of the public which are lost while in your custody, or are damaged by your operations to such an extent as to require replacement or repair.

The Engineer may order or consent to your request to open a completed section of surfacing, pavement, or structure roadway surface for public use. You will not be compensated for any delay to your construction activities caused by the public. This does not relieve you from any other contractual responsibility.

Replace Section 7-1.09 with:

7-1.09 PUBLIC SAFETY

You are responsible to provide for public safety.

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

Control dust resulting from the work, inside and outside the right-of-way.

Move workers, equipment, and materials without endangering traffic.

Whenever your operations create a condition hazardous to the public, furnish, erect and maintain those fences, temporary railing, barricades, lights, signs, and other devices and take any other necessary protective measures to prevent damage or injury 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.

Provide flaggers whenever necessary to ensure that the public is given safe guidance through the work zone. Except as ordered, at locations where traffic is being routed through construction under one-way controls, move your equipment in compliance with the one-way controls.

Use of signs, lights, flags, or other protective devices must conform with the California MUTCD and as ordered. Signs, lights, flags or other protective devices must not obscure the visibility of, nor conflict in intent, meaning and function of either existing signs, lights and traffic control devices or any construction area signs or traffic control devices.

Keep existing traffic signals and highway lighting in operation. Other entities perform routine maintenance of these facilities during the work.

Cover signs that direct traffic to a closed area. Providing, maintaining, and removing the covers on construction area signs is paid as extra work under Section 4-1.03D, "Extra Work."

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.

Equipment must enter and leave the highway via existing ramps and crossovers and must move in the direction of public traffic. All movements of workmen and construction equipment on or across lanes open to public traffic must be performed in a manner that will not endanger the public. Your 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 traffic following an opportunity to slow down. When leaving a work area and entering a roadway carrying public traffic, your vehicles and equipment must yield to public traffic.

Immediately remove hauling spillage from roadway lanes or shoulders open to traffic. When hauling on roadways, trim loads and remove material from shelf areas to minimize spillage.

Notify the Engineer not less than 25 days and not more than 125 days before the anticipated start of an activity that will change the vertical or horizontal clearance available to public traffic, including shoulders.

If vertical clearance is temporarily reduced to 15.5 feet or less, place low clearance warning signs in accordance with the California MUTCD and as ordered. Signs must comply with the dimensions, color, and legend requirements of the California MUTCD and these specifications except that the signs must have black letters and numbers on an orange retroreflective background. W12-2P signs must be illuminated so that the signs are clearly visible.

Pave or provide full width continuous and cleared wood walks for pedestrian openings through falsework. Protect pedestrians from falling objects and curing water for concrete. Extend overhead protection for pedestrians not less than 4 feet beyond the edge of the bridge deck. Illuminate all pedestrian openings through falsework. Temporary pedestrian facilities must comply with the American with Disabilities Act of 1990 (ADA).

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

1. Creates a hazard to the public
2. Obstructs traffic control devices

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

Temporary facilities which could be a hazard to public safety if improperly designed shall comply with design requirements specified in the contract for those facilities or, if none are specified, with standard design criteria or codes appropriate for the facility involved. Working drawings and design calculations for the temporary facilities shall be prepared and signed by an engineer who is registered as a Civil Engineer in the State of California and shall be submitted to the Engineer for approval pursuant to Section 5-1.02, "Plans and Working Drawings." The submittals shall designate thereon the standard design criteria or codes used. Installation of the temporary facilities shall not start until the Engineer has reviewed and approved the drawings.

If you appear to be neglectful or negligent in furnishing warning devices and taking protective measures, the Engineer may direct your attention to the existence of a hazard and the necessary warning devices must be furnished and installed and protective measures taken by you. If the Engineer points out the inadequacy of warning devices and protective measures, that action on the part of the Engineer does not relieve you from your responsibility for public safety or abrogate the obligation to furnish and pay for these devices and measures.

Install temporary railing (Type K) or other approved protection system under the following conditions:

1. Excavations: Where the near edge of the excavation is within 15 feet from the edge of an open traffic lane
2. Temporarily Unprotected Permanent Obstacles: When the work includes the installation of a fixed 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 authorized, remove a portion of an existing protective railing at an obstacle and do not replace such railing completely the same day
3. Storage Areas: When material or equipment is stored within 15 feet of the edge of an open traffic lane and the storage is not otherwise prohibited by the provisions of these Standard Specifications and the special provisions
4. Height Differentials: When construction operations create a height differential greater than 0.15 feet within 15 feet of the edge of traffic lane

Temporary railing (Type K) does not need to be installed where excavations within 15 feet from edge of an open traffic lane are:

1. Covered with steel plates or concrete covers of adequate thickness to prevent accidental entry by traffic or the public
2. In side slopes, where the downhill slope is 4:1 (horizontal:vertical) or less unless a naturally occurring condition

3. Protected by existing barrier or railing

Offset the approach end of temporary railing (Type K) a minimum of 15 feet from the edge of an open traffic lane. Install the temporary railing on a skew toward the edge of the traffic lane of not more than one foot transversely to 10 feet longitudinally with respect to the edge of the traffic lane. If the 15-foot minimum offset cannot be achieved, the temporary railing must be installed on the 10 to 1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules must be installed at the approach end of the temporary railing.

Secure in place temporary railing (Type K) before starting work for which the temporary railing is required.

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

1. Work is off the traveled way but within 6 feet of the edge of traveled way, and approach speed is greater than 45 miles per hour
2. Work is off the traveled way but within 3 feet of the edge of traveled way, and approach speed is less than 45 miles per hour

Closure of the adjacent traffic lane is not required when:

1. Performing work behind a barrier
2. Paving, grinding, or grooving
3. Installing, maintaining, or removing traffic control devices except temporary railing (Type K)

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 line of cones or delineators is considered the edge of the traveled way.

If a traffic lane is closed with channelizers for excavation work, move the devices to the adjacent edge of the traveled way when not excavating. Space the devices the same 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.

Replace Section 7-1.11 with:

7-1.11 PRESERVATION OF PROPERTY

Comply with Section 5-1.18, "Property and Facility Preservation."

Replace Section 7-1.12 with:

7-1.12 INDEMNIFICATION AND INSURANCE

The Contractor's obligations regarding indemnification of the State of California and the requirements for insurance shall conform to the provisions in Section 3-1.05, "Insurance Policies," and Sections 7-1.12A, "Indemnification," and 7-1.12B, "Insurance," of this Section 7-1.12.

7-1.12A Indemnification

The Contractor shall defend, indemnify, and save harmless the State, including its officers, employees, and agents (excluding agents who are design professionals) from any and all claims, demands, causes of action, damages, costs, expenses, actual attorneys' fees, losses or liabilities, in law or in equity (Section 7-1.12A Claims) arising out of or in connection with the Contractor's performance of this contract for:

1. Bodily injury including, but not limited to, bodily injury, sickness or disease, emotional injury or death to persons, including, but not limited to, the public, any employees or agents of the Contractor, the State, or any other contractor; and
2. Damage to property of anyone including loss of use thereof; caused or alleged to be caused in whole or in part by any negligent or otherwise legally actionable act or omission of the Contractor or anyone directly or indirectly employed by the Contractor or anyone for whose acts the Contractor may be liable.

Except as otherwise provided by law, these requirements apply regardless of the existence or degree of fault of the State. The Contractor is not obligated to indemnify the State for Claims arising from conduct delineated in Civil Code Section 2782 and to Claims arising from any defective or substandard condition of the highway that existed at or before the start of work, unless this condition has been changed by the work or the scope of the work requires the Contractor to maintain existing highway facilities and the Claim arises from the Contractor's failure to maintain. The Contractor's defense and indemnity obligation shall extend to Claims arising after the work is completed and accepted if the Claims are directly related to alleged acts or omissions by the Contractor that occurred during the course of the work. State inspection is not a waiver of full compliance with these requirements.

The Contractor's obligation to defend and indemnify shall not be excused because of the Contractor's inability to evaluate liability or because the Contractor evaluates liability and determine that the Contractor is not liable. The Contractor shall respond within 30 days to the tender of any Claim for defense and indemnity by the State, unless this time has been extended by the State. If the Contractor fails to accept or reject a tender of defense and indemnity within 30 days, in addition to any other remedy authorized by law, the Department may withhold such funds the State reasonably considers necessary for its defense and indemnity until disposition has been made of the Claim or until the Contractor accepts or rejects the tender of defense, whichever occurs first.

With respect to third-party claims against the Contractor, the Contractor waives all rights of any type to express or implied indemnity against the State, its officers, employees, or agents (excluding agents who are design professionals).

Nothing in the Contract is intended to establish a standard of care owed to any member of the public or to extend to the public the status of a third-party beneficiary for any of these indemnification specifications.

7-1.12B Insurance

7-1.12B(1) General

Nothing in the contract is intended to establish a standard of care owed to any member of the public or to extend to the public the status of a third-party beneficiary for any of these insurance specifications.

7-1.12B(2) Casualty Insurance

The Contractor shall procure and maintain insurance on all of its operations with companies acceptable to the State as follows:

1. The Contractor shall keep all insurance in full force and effect from the beginning of the work through contract acceptance.
2. All insurance shall be with an insurance company with a rating from A.M. Best Financial Strength Rating of A- or better and a Financial Size Category of VII or better.
3. The Contractor shall maintain completed operations coverage with a carrier acceptable to the State through the expiration of the patent deficiency in construction statute of repose set forth in Code of Civil Procedure Section 337.15.

7-1.12B(3) Workers' Compensation and Employer's Liability Insurance

In accordance with Labor Code Section 1860, the Contractor shall secure the payment of worker's compensation in accordance with Labor Code Section 3700.

In accordance with Labor Code Section 1861, the Contractor shall submit to the Department the following certification before performing the work:

> I am aware of the provisions of Section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract.

Contract execution constitutes certification submittal.

The Contractor shall provide Employer's Liability Insurance in amounts not less than:

1. $1,000,000 for each accident for bodily injury by accident
2. $1,000,000 policy limit for bodily injury by disease
3. $1,000,000 for each employee for bodily injury by disease

If there is an exposure of injury to the Contractor's employees under the U.S. Longshoremen's and Harbor Workers' Compensation Act, the Jones Act, or under laws, regulations, or statutes applicable to maritime employees, coverage shall be included for such injuries or claims.

7-1.12B(4) Liability Insurance

7-1.12B(4)(a) General

The Contractor shall carry General Liability and Umbrella or Excess Liability Insurance covering all operations by or on behalf of the Contractor providing insurance for bodily injury liability and property damage liability for the following limits and including coverage for:

1. Premises, operations, and mobile equipment
2. Products and completed operations
3. Broad form property damage (including completed operations)
4. Explosion, collapse, and underground hazards
5. Personal injury
6. Contractual liability

7-1.12B(4)(b) Liability Limits/Additional Insureds

The limits of liability shall be at least the amounts shown in the following table:

Total Bid	For Each Occurrence[1]	Aggregate for Products/Completed Operation	General Aggregate[2]	Umbrella or Excess Liability[3]
≤$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

1. Combined single limit for bodily injury and property damage.
2. This limit shall apply separately to the Contractor's work under this contract.
3. The umbrella or excess policy shall contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.

The Contractor shall not require certified Small Business subcontractors to carry Liability Insurance that exceeds the limits in the table above. Notwithstanding the limits specified herein, at the option of the Contractor, the liability insurance limits for certified Small Business subcontractors of any tier may be less than those limits specified in the table. For Small Business subcontracts, "Total Bid" shall be interpreted as the amount of subcontracted work to a certified Small Business.

The State, including its officers, directors, agents (excluding agents who are design professionals), and employees, shall be named as additional insureds under the General Liability and Umbrella Liability Policies with respect to liability arising out of or connected with work or operations performed by or on behalf of the Contractor under this contract. Coverage for such additional insureds does not extend to liability:

1. Arising from any defective or substandard condition of the roadway which existed at or before the time the Contractor started work, unless such condition has been changed by the work or the scope of the work requires the Contractor to maintain existing roadway facilities and the claim arises from the Contractor's failure to maintain;
2. For claims occurring after the work is completed and accepted unless these claims are directly related to alleged acts or omissions of the Contractor that occurred during the course of the work; or
3. To the extent prohibited by Insurance Code Section 11580.04

Additional insured coverage shall be provided by a policy provision or by an endorsement providing coverage at least as broad as Additional Insured (Form B) endorsement form CG 2010, as published by the Insurance Services Office (ISO), or other form designated by the Department.

7-1.12B(4)(c) Contractor's Insurance Policy is Primary

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

7-1.12B(5) Automobile Liability Insurance

The Contractor shall carry automobile liability insurance, including coverage for all owned, hired, and nonowned automobiles. The primary limits of liability shall be not less than $1,000,000 combined single limit each accident for bodily injury and property damage. The umbrella or excess liability coverage required under Section 7-1.12B(4)(b) also applies to automobile liability.

7-1.12B(6) Policy Forms, Endorsements, and Certificates

The Contractor shall provide its General Liability Insurance under Commercial General Liability policy form No. CG0001 as published by the Insurance Services Office (ISO) or under a policy form at least as broad as policy form No. CG0001.

7-1.12B(7) Deductibles

The State may expressly allow deductible clauses, which it does not consider excessive, overly broad, or harmful to the interests of the State. Regardless of the allowance of exclusions or deductions by the State, the Contractor is responsible for any deductible amount and shall warrant that the coverage provided to the State is in accordance with Section 7-1.12B, "Insurance."

7-1.12B(8) Enforcement

The Department may assure the Contractor's compliance with its insurance obligations. Ten days before an insurance policy lapses or is canceled during the contract period, the Contractor shall submit to the Department evidence of renewal or replacement of the policy.

If the Contractor fails to maintain any required insurance coverage, the Department may maintain this coverage and withhold or charge the expense to the Contractor or terminate the Contractor's control of the work in accordance with Section 8-1.08, "Termination of Control."

The Contractor is not relieved of its 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 the Contractor for liability in excess of such coverage, nor do they preclude the State from taking other actions available to it, including the withholding of funds under this contract.

7-1.12B(9) Self-Insurance

Self-insurance programs and self-insured retentions in insurance policies are subject to separate annual review and approval by the State.

If the Contractor uses a self-insurance program or self-insured retention, the Contractor shall provide the State with the same protection from liability and defense of suits as would be afforded by first-dollar insurance. Execution of the contract is the Contractor's acknowledgement that the Contractor will be bound by all laws as if the Contractor were an insurer as defined under Insurance Code Section 23 and that the self-insurance program or self-insured retention shall operate as insurance as defined under Insurance Code Section 22.

Replace Section 7-1.125 with:

7-1.125 Legal Actions Against the Department

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

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

In Section 7-1.13 delete the 5th and 6th paragraphs.

Add:

7-1.50 FEDERAL LAWS FOR FEDERAL-AID CONTRACTS

7-1.50A General

Section 7-1.50, "Federal Laws for Federal-Aid Contracts," includes specifications required in a Federal-aid construction contract and applies to a Federal-aid contract.

A copy of form FHWA-1273 is included in Section 7-1.50B, "FHWA-1273." The training and promotion section of section II refers to training provisions as if they were included in the special provisions. The Department specifies the provisions in section 7-1.11D of the Standard Specifications. If a number of trainees or apprentices is required, the Department specifies the number in the special provisions. Interpret each FHWA-1273 clause shown in the following table as having the same meaning as the corresponding Department clause:

FHWA-1273 Nondiscrimination Clauses

FHWA-1273 section	FHWA-1273 clause	Department clause
Training and Promotion	In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision.	If section 7-1.11D applies, section 7-1.11D supersedes this subparagraph.
Records and Reports	If on-the-job training is being required by special provision, the contractor will be required to collect and report training data.	If the Contract requires on-the-job training, collect and report training data.

7-1.50B FHWA-1273

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under

this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are

applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor

will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b.(1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or

will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b.(1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

*****

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

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

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

7-1.50C Female and Minority Goals

To comply with Section II, "Nondiscrimination," of "Required Contract Provisions Federal-Aid Construction Contracts," the Department is including in Section 7-1.50C, "Female and Minority Goals," female and minority utilization goals for Federal-aid construction contracts and subcontracts that exceed $10,000.

The nationwide goal for female utilization is 6.9 percent.

The goals for minority utilization [45 Fed Reg 65984 (10/3/1980)] are as follows:

Minority Utilization Goals

	Economic Area	Goal (Percent)
174	Redding CA: Non-SMSA Counties: CA Lassen; CA Modoc; CA Plumas; CA Shasta; CA Siskiyou; CA Tehema	6.8
175	Eureka, CA Non-SMSA Counties: CA Del Norte; CA Humboldt; CA Trinity	6.6
176	San Francisco-Oakland-San Jose, CA: SMSA Counties: 7120 Salinas-Seaside-Monterey, CA CA Monterey 7360 San Francisco-Oakland CA Alameda; CA Contra Costa; CA Marin; CA San Francisco; CA San Mateo 7400 San Jose, CA CA Santa Clara, CA 7485 Santa Cruz, CA CA Santa Cruz 7500 Santa Rosa CA Sonoma 8720 Vallejo-Fairfield-Napa, CA CA Napa; CA Solano Non-SMSA Counties: CA Lake; CA Mendocino; CA San Benito	 28.9 25.6 19.6 14.9 9.1 17.1 23.2
177	Sacramento, CA: SMSA Counties: 6920 Sacramento, CA CA Placer; CA Sacramento; CA Yolo Non-SMSA Counties CA Butte; CA Colusa; CA El Dorado; CA Glenn; CA Nevada; CA Sierra; CA Sutter; CA Yuba	 16.1 14.3
178	Stockton-Modesto, CA: SMSA Counties: 5170 Modesto, CA CA Stanislaus 8120 Stockton, CA CA San Joaquin Non-SMSA Counties CA Alpine; CA Amador; CA Calaveras; CA Mariposa; CA Merced; CA Toulumne	 12.3 24.3 19.8
179	Fresno-Bakersfield, CA SMSA Counties: 0680 Bakersfield, CA CA Kern 2840 Fresno, CA CA Fresno Non-SMSA Counties: CA Kings; CA Madera; CA Tulare	 19.1 26.1 23.6
180	Los Angeles, CA: SMSA Counties:	

	0360 Anaheim-Santa Ana-Garden Grove, CA CA Orange 4480 Los Angeles-Long Beach, CA CA Los Angeles 6000 Oxnard-Simi Valley-Ventura, CA CA Ventura 6780 Riverside-San Bernardino-Ontario, CA CA Riverside; CA San Bernardino 7480 Santa Barbara-Santa Maria-Lompoc, CA CA Santa Barbara Non-SMSA Counties CA Inyo; CA Mono; CA San Luis Obispo	11.9 28.3 21.5 19.0 19.7 24.6
181	San Diego, CA: SMSA Counties 7320 San Diego, CA CA San Diego Non-SMSA Counties CA Imperial	 16.9 18.2

For each July during which work is performed under the contract, you and each non-material-supplier subcontractor with a subcontract of $10,000 or more must complete Form FHWA PR-1391 (Appendix C to 23 CFR 230). Submit the forms by August 15.

7-1.50D Training

Section 7-1.50D, "Training," applies if a number of trainees or apprentices is specified in the special provisions.

As part of your equal opportunity affirmative action program, provide on-the-job training to develop full journeymen in the types of trades or job classifications involved.

You have primary responsibility for meeting this training requirement.

If you subcontract a contract part, determine how many trainees or apprentices are to be trained by the subcontractor.

Include these training requirements in your subcontract.

Where feasible, 25 percent of apprentices or trainees in each occupation must be in their 1st year of apprenticeship or training.

Distribute the number of apprentices or trainees among the work classifications on the basis of your needs and the availability of journeymen in the various classifications within a reasonable recruitment area.

Before starting work, submit to the Department:

1. Number of apprentices or trainees to be trained for each classification
2. Training program to be used
3. Training starting date for each classification

Obtain the Department's approval for this submitted information before you start work. The Department credits you for each apprentice or trainee you employ on the work who is currently enrolled or becomes enrolled in an approved program.

The primary objective of Section 7-1.50D, "Training," is to train and upgrade minorities and women toward journeymen status. Make every effort to enroll minority and women apprentices or trainees, such as conducting systematic and direct recruitment through public and private sources likely to yield minority and women apprentices or trainees, to the extent they are available within a reasonable recruitment area. Show that you have made the efforts. In making these efforts, do not discriminate against any applicant for training.

Do not employ as an apprentice or trainee an employee:

1. In any classification in which the employee has successfully completed a training course leading to journeyman status or in which the employee has been employed as a journeyman
2. Who is not registered in a program approved by the US Department of Labor, Bureau of Apprenticeship and Training

Ask the employee if the employee has successfully completed a training course leading to journeyman status or has been employed as a journeyman. Your records must show the employee's answers to the questions.

In your training program, establish the minimum length and training type for each classification. The Department and FHWA approves a program if one of the following is met:

1. It is calculated to:

    1.1. Meet the your equal employment opportunity responsibilities
    1.2. Qualify the average apprentice or trainee for journeyman status in the classification involved by the end of the training period

2. It is registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training and it is administered in a way consistent with the equal employment responsibilities of federal-aid highway construction contracts

Obtain the State's approval for your training program before you start work involving the classification covered by the program.

Provide training in the construction crafts, not in clerk-typist or secretarial-type positions. Training is allowed in lower level management positions such as office engineers, estimators, and timekeepers if the training is oriented toward construction applications. Training is allowed in the laborer classification if significant and meaningful training is provided and approved by the division office. Off-site training is allowed if the training is an integral part of an approved training program and does not make up a significant part of the overall training.

The Department reimburses you 80 cents per hour of training given an employee on this contract under an approved training program:

1. For on-site training
2. For off-site training if the apprentice or trainee is currently employed on a federal-aid project and you do at least one of the following:

    2.1. Contribute to the cost of the training
    2.2. Provide the instruction to the apprentice or trainee
    2.3. Pay the apprentice's or trainee's wages during the off-site training period

3. If you comply with Section 7-1.50D, "Training"

Each apprentice or trainee must:

1. Begin training on the project as soon as feasible after the start of work involving the apprentice's or trainee's skill

2. Remain on the project as long as training opportunities exist in the apprentice's or trainee's work classification or until the apprentice or trainee has completed the training program

Furnish the apprentice or trainee:

1. Copy of the program you will comply with in providing the training
2. Certification showing the type and length of training satisfactorily completed

Maintain records and submit reports documenting your performance under Section 7-1.50D, "Training."

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SECTION 8 PROSECUTION AND PROGRESS
(Issued 06-05-09)

Replace Section 8 with:

SECTION 8 PROSECUTION AND PROGRESS

8-1.01 (BLANK)

8-1.02 ASSIGNMENT

No third-party agreement relieves you or your surety of your responsibility to complete the work. Do not sell, transfer, or otherwise dispose of any contract part without prior written consent from the Department.

If you assign the right to receive contract payments, the Department accepts the assignment upon the Engineer's receipt of a notice. Assigned payments remain subject to deductions and withholds described in the contract. The Department may use withheld payments for work completion whether payments are assigned or not.

8-1.025 PRECONSTRUCTION CONFERENCE

Attend a preconstruction conference with key personnel, including your assigned representative, at a time and location determined by the Engineer. Submit documents as required before the preconstruction conference. You may begin work before the preconstruction conference.

Be prepared to discuss the following topics and documents:

Topics	Document
Potential claim and dispute resolution	Potential claim forms
Contractor's representation	Assignment of Contractor's representative
DBE and DVBE	Final utilization reports
Equipment	Equipment list
Labor compliance and equal employment opportunity	Job site posters and benefit and payroll reports
Material inspection	Notice of Materials to be Used
Materials on hand	Request for Payment for Materials on Hand
Measurements	--
Partnering	Field Guide to Partnering on Caltrans Construction Projects
Quality control	QC plans
Safety	Injury and Illness Prevention Program and job site posters
Schedule	Baseline schedule and Weekly Statement of Working Days
Subcontracting	Subcontracting Request
Surveying	Survey Request
Traffic control	Traffic contingency plan and traffic control plans
Utility work	--
Weight limitations	--
Water pollution control	SWPPP or WPCP
Work restrictions	PLACs
Working drawings	--

8-1.03 BEGINNING OF WORK

Begin work within 15 days after receiving notice that the contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department. Submit a written notice 72 hours before beginning work. If the project has more than one location of work, submit a separate notice for each location.

You may begin work before receiving the notice of contract approval if you:

1. Deliver the signed contract, bonds, and evidence of insurance to the Department
2. Submit 72-hour notice
3. Obtain an encroachment permit from the Department
4. Are authorized by the Department to begin
5. Perform work at your own risk
6. Perform work under the contract

The Engineer does not count working days for days worked before contract approval.

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

If the contract does not get approved, leave the job site in a neat condition. If a facility has been changed, restore it to its former or equivalent condition at your expense.

The Department does not adjust time for beginning before the approval date.

8-1.04 PROGRESS SCHEDULE

8-1.04A General

Reserved

8-1.04B Critical Path Method Schedule

The following definitions apply to critical path method schedules:

activity: Task, event, or other project element on a schedule that contributes to completing the project. Activities have a description, start date, finish date, duration, and one or more logic ties.

baseline schedule: The initial schedule showing the original work plan beginning on the date of contract approval. This schedule shows no completed work to date and no negative float or negative lag to any activity.

controlling activity: Construction activity that extends the scheduled completion date if delayed.

critical path: Longest continuous chain of activities for the project that has the least amount of total float of all chains. In general, a delay on the critical path extends the scheduled completion date.

critical path method (CPM): Network based planning technique using activity durations and relationships between activities to calculate a schedule for the entire project.

revised schedule: Schedule that incorporates a proposed or past change to logic or activity durations.

scheduled completion date: Planned project completion date shown on the current schedule.

updated schedule: Current schedule developed from the accepted baseline and any subsequent accepted updated or revised schedules through regular monthly review to incorporate actual past progress.

Before or at the preconstruction conference, submit a CPM baseline schedule.

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

On each schedule, show:

1. Planned and actual start and completion date of each work activity, including applicable:

    1.1. Submittal development
    1.2. Submittal review and approval
    1.3. Material procurement
    1.4. Contract milestones and constraints
    1.5. Equipment and plant setup
    1.6. Interfaces with outside entities
    1.7. Erection and removal of falsework and shoring
    1.8. Test periods
    1.9. Major traffic stage change
    1.10. Final cleanup

2. Order that you propose to prosecute the work
3. Logical links between the time-scaled work activities
4. All controlling activities
5. Legible description of each activity
6. At least one predecessor and one successor to each activity, except for project start and project end milestones
7. Duration of not less than one working day for each activity
8. Start milestone date as the contract approval date

You may include changes on updated schedules that do not alter the critical path or extend the schedule completion date compared to the current schedule. Changes may include:

1. Adding or deleting activities
2. Changing activity constraints
3. Changing durations
4. Changing logic

If any proposed change in planned work results in altering the critical path or extending the scheduled completion date, submit a revised schedule within 15 days of the proposed change.

For each schedule submittal:

1. Submit a plotted original, time-scaled network diagram on a sheet of at least 8.5" x 11" with a title block and timeline
2. If a computer program is used to make the schedule, submit a read-only compact disc or diskette containing the schedule data. Label the compact disc or diskette with:

    2.1. Contract number
    2.2. CPM schedule number and date produced
    2.3. File name

If there is no contract item for progress schedule (critical path method), full compensation for this work is included in the contract prices paid for the items of work involved, and no additional compensation will be allowed therefor.

8-1.05 TEMPORARY SUSPENSION OF WORK

8-1.05A General

The Engineer may suspend work wholly or in part due to any of the following:

1. Conditions are unsuitable for work progress.
2. You fail to do any of the following:

    2.1. Fulfill the Engineer's orders.
    2.2. Fulfill a contract part.
    2.3. Perform weather-dependent work when conditions are favorable so that weather-related unsuitable conditions are avoided or do not occur.

Upon the Engineer's written order of suspension, suspend work immediately. Provide for public safety and a smooth and unobstructed passageway through the work zone during the suspension as specified in Sections 7-1.08, "Public Convenience," and 7-1.09, "Public Safety." Resume work when ordered.

8-1.05B Suspensions Unrelated to Contractor Performance

For a suspension unrelated to your performance, providing for a smooth and unobstructed passageway through the work during the suspension will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

The days during a suspension unrelated to your performance are non-working days.

8-1.05C Suspensions Related to Contractor Performance

For a suspension related to your performance, the Department may provide for a smooth and unobstructed passageway through the work during the suspension and deduct the cost from payments.

The days during a suspension related to your performance are working days.

8-1.06 TIME OF COMPLETION

The time to complete the work is specified in the special provisions.

The Engineer issues a Weekly Statement of Working Days by the end of the following week unless the contract is suspended for reasons unrelated to your performance.

The Weekly Statement of Working Days shows:

1. Working days and non–working days during the reporting week
2. Time adjustments
3. Work completion date computations, including working days remaining
4. Controlling activities

You may protest a Weekly Statement of Working Days.

8-1.07 LIQUIDATED DAMAGES

8-1.07A General

The Department specifies liquidated damages (Pub Cont Code § 10226). Liquidated damages, if any, accrue starting on the 1st day after the expiration of the working days through the day of contract acceptance except as specified in Sections 8-1.07B, "Failure to Complete Work Parts within Specified Times," and 8-1.07C, "Failure to Complete Work Parts by Specified Dates."

The Department withholds liquidated damages before the accrual date if the anticipated liquidated damages may exceed the value of the remaining work.

Liquidated damages for all work, except plant establishment, are:

Liquidated Damages		
Total Bid		Liquidated Damages per Day
From over	To	
$0	$50,000	$1,200
$50,000	$120,000	$1,500
$120,000	$1,000,000	$1,900
$1,000,000	$5,000,000	$3,000
$5,000,000	$10,000,000	$5,400
$10,000,000	$30,000,000	$8,300
$30,000,000	$100,000,000	$10,500
$100,000,000	$250,000,000	$28,500

If all work, except plant establishment, is complete and the total number of working days has expired, liquidated damages are $950 per day.

8-1.07B Failure to Complete Work Parts within Specified Times

The Department may deduct specified damages from payments for each day in completing a work part beyond the time specified for completing the work part.

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

Damages accrue starting the 1st day after a work part exceeds the specified time through the day the specified work part is complete.

8-1.07C Failure to Complete Work Parts by Specified Dates

The Department may deduct specified damages from payments for each day in completing a work part beyond the specified completion date for the work part.

Damages for untimely work part completion may not be equal to the daily amount specified as liquidated damages for the project as a whole, but the Department does not simultaneously assess damages for untimely work part completion and the whole work.

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

8-1.07D Director Days

If the work is not completed within the working days, the Director may grant director days if it serves the State's best interest.

By granting director days, the Director adds working days to the contract. The Director may either grant enough days to eliminate the liquidated damages or fewer. In the latter case, the Department deducts liquidated damages for the remaining overrun in contract time. The Director may deduct the Department's engineering, inspection, and overhead costs incurred during the period of extension granted as director days.

8-1.08 TERMINATION OF CONTROL

The Department may terminate your control of the work for failure to do any of the following (Pub Cont Code § 10253):

1. Supply an adequate workforce
2. Supply material as described
3. Pay subcontractors (Pub Cont Code §10262)
4. Prosecute the work as described in the contract

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

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

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

The Department may complete the work if the Department terminates your control or you abandon the project (Pub Cont Code § 10255). The Department determines the unpaid balance under Pub Cont Code § 10258 and the contract.

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

8-1.09 DELAYS

8-1.09A General

An excusable delay is a delay of a controlling activity beyond your control, not foreseeable when the work began such as:

1. Change in the work
2. Department action that is not part of the contract
3. Presence of an underground utility main not described in the contract or in a location different from that specified
4. Described facility reconstruction not reconstructed as described, by the utility owner by the date specified, unless the reconstruction is solely for your convenience
5. Department's failure to obtain timely access to the right-of-way
6. Department's failure to perform an action in the time specified

A critical delay is a delay that extends the schedule completion date.
To request a delay-related time or payment adjustment, submit an RFI.

8-1.09B Time Adjustments

For an excusable critical delay, the Department may make a time adjustment. The Engineer uses information from the schedule to evaluate requests for time adjustments.

If requesting an adjustment, submit a revised schedule showing the delay's effect on the controlling activity. If the delay has:

1. Occurred, submit records of dates and what work was performed during the delayed activity
2. Not occurred, submit the expected dates or duration of the delayed activity

If the Engineer requests, update the schedule to the last working day before the start of the delay.

8-1.09C Payment Adjustments

The Department may make a payment adjustment for an excusable delay that affects your costs.

Only losses for idle equipment, idle workers, and equipment moving or transporting are eligible for delay-related payment adjustments.

The Engineer determines payment for idle time of equipment in the same manner as determinations are made for equipment used in the performance of force account work under Section 9-1.03, "Force Account," with the following exceptions:

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 working hours during the delay, not to exceed 8 hours per day.
3. Delay days exclude non–working days.
4. Markups are not added.

The Engineer determines payment adjustment for idle workers under Section 9-1.03B, "Labor," but does not add markups.

The Engineer includes costs due to necessary extra equipment moving or transporting.

8-1.10 (BLANK)

8-1.11 TERMINATION OF CONTRACT

8-1.11A General

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

8-1.11B Relief from Responsibility for Work

On receiving a termination notice:

1. Stop work
2. Notify subcontractors and suppliers of the contract termination and stop contract-related work
3. Perform the Engineer-ordered work to secure the job site for termination
4. Remove equipment
5. If authorized, 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

8-1.11C Responsibility for Materials

On receiving a termination notice, protect unused material until:

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

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

8-1.11D Contract Acceptance after Termination

The Engineer recommends contract acceptance after determining completion of:

1. Contract work ordered to be completed before termination
2. Other work ordered to secure the project before termination
3. Material delivery and title transfer

The Department pays you under Section 9-1.08, "Payment After Contract Acceptance."

8-1.11E Payment Adjustment for Termination

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

1. Direct cost for the work:

1.1. Including mobilization, demobilization, securing the job site for termination, and losses from the sale of materials
1.2. Not including the cost of materials you keep, profit realized from the sale of materials, the cost of material damaged by an occurrence as defined in Section 7-1.165, "Damage by Storm, Flood, Tsunami or Earthquake," and other credits.

2. Cost of remedial work, as estimated by the Engineer, is not reimbursed.
3. Allowance for profit not to exceed 4 percent of the cost of the work. Prove a likelihood of having made a profit had the contract not been terminated.
4. Material handling costs for material returned to the vendor or disposed of as ordered.
5. Costs in determining the payment adjustment due to the termination, excluding attorney fees and litigation costs.

Termination of the contract does not relieve the surety of its obligation for any just claims arising out of the work performed.

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SECTION 9 MEASUREMENT AND PAYMENT
(Issued 03-11-10)

Replace Section 9 with:

SECTION 9 MEASUREMENT AND PAYMENT

9-1.01 MEASUREMENT OF QUANTITIES

9-1.01A General

The Department determines bid item quantities under U.S. customary units.

9-1.01B Weighing Equipment and Procedures

9-1.01B(1) General

The Engineer measures material quantities for payment with devices that comply with:

1. 4 CA Code of Regs § 4000 et seq.
2. Bus & Prof Code § 12001 et seq.

To determine the material payment quantities, use measuring devices that have been sealed by the Department of Food and Agriculture's Division of Measurement Standards or its designated representative.

If a device is not type approved by the Division of Measurement Standards, type approve it under California Test 109.

Notify the Engineer at least 1 business day in advance of equipment testing.

Use material plant controllers having elements affecting the data accuracy and delivery that have been sealed by the Engineer. Make these elements available to the Engineer for inspection. If the elements are adequate for use, the Engineer seals them. If security seal manipulation

occurs, stop material production. Do not resume production until the Engineer reinspects and reseals the device.

The Engineer measures material paid for by weight on Contractor-furnished sealed scales regularly inspected by the Department of Food and Agriculture's Division of Measurement Standards or its designated representative.

Obtain authorization of portable vehicle scale installations before sealing.

Proportioning scales must comply with Section 5-1.10, "Equipment."

9-1.01B(2) Equipment

Each scale must be long enough to fit an entire vehicle or a combination vehicle on the scale deck. The Department allows you to weigh a combination vehicle separately if you disconnect the vehicles.

Construct scale undersupports:

1. Using portland cement concrete containing at least 470 pounds of cement per cubic yard produced from commercial quality materials
2. Such that footing heights are at least 20 inches thick
3. With a bearing surface at least 30 inches wide and bearing pressure on the footing not over 4000 pounds per square foot

In constructing a scale:

1. Furnish drainage to prevent water from saturating the ground under the scale
2. Use bulkheads that prevent displacement
3. If shimming is necessary:

    3.1. Use securely attached metal shims or grout
    3.2 Do not use wedges to shim the supports
    3.3. Do not use shim material in excess of 3 inches

4. Install mechanical indicating elements level, plumb, and rigidly mounted on the concrete undersupports
5. For a hopper scale, rigidly attach hopper scale lever systems and mechanical indicating elements so no weight is lost from bending or support distortion

Each scale used to determine material payment quantities must be operated by a licensed weighmaster (Bus & Prof Code § 12700 et seq.).

Submit a public weighmaster's certificate or certified daily summary weigh sheets for each weighed material quantity. The Department may witness material weighing and check and compile the daily scale weight record.

Each vehicle operator must obtain weight or load slips from the weighmaster. Submit these records at the delivery point.

9-1.01B(3) Procedures

Daily, weigh empty vehicles used to haul material paid for by weight. Each vehicle must have a legible identification mark. The Department may verify material weight by having an empty and loaded vehicle weighed on any scale the Engineer designates.

For imported topsoil measured by volume, soil amendment, and mulch:

1. Each vehicle must allow a ready and accurate contents determination
2. Unless vehicles are of uniform capacity, each vehicle must have a legible identification mark showing its volume capacity
3. Load vehicles to at least the volume capacity
4. Level vehicle loads on arrival at the delivery point

If determining a quantity paid on a volume basis is impractical or if you request and the Engineer authorizes the request, the Engineer weighs the material and converts the result to a volume measurement. The Engineer determines the conversion factors and, if you agree, adopts this method of measurement.

9-1.01C Final Pay Items

The Department shows a bid item quantity as a final pay item for payment purposes only. For a final pay item, accept payment based on the verified Bid Item List quantity, regardless of actual quantity used unless dimensions are changed by the Engineer.

9-1.01D Quantities of Aggregate and Other Roadway Materials

The Engineer determines the weight of aggregate and other roadway materials that are being paid for by weight as shown and does not include the deducted weight of water in their payment quantities.

Material	Quantity Determination
Aggregate or other roadway material except as otherwise shown in this table	By deducting the weight of water in the material[a] in excess of 3 percent of the dry weight of the material from the weight of the material
Imported borrow, imported topsoil, aggregate subbase	By deducting the weight of water in the material[a] in excess of 6 percent of the dry weight of the material from the weight of the material
Straw	By deducting the weight of water in the material[a] in excess of 15 percent of the dry weight of the material from the weight of the material
Fiber[b]	Engineer does not deduct the weight of water
Aggregate base and aggregate for cement treated bases	As specified in Section 26, "Aggregate Bases," and Section 27, "Cement Treated Bases"

NOTE: Percentage of water is determined by California Test 226.
[a]At the time of weighing
[b]Weight of water in the fiber[a] must not exceed 15 percent of the dry weight of the fiber.

9-1.02 SCOPE OF PAYMENT

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

1. Risk, loss, damage repair, or cost of whatever character arising from or relating to the work and performance of the work
2. PLACs and taxes

Full compensation for work specified in Sections 1 through 9 is included in the payment for the bid items involved unless:

1. Bid item for the work is shown on the verified Bid Item List

2. Work is specified as paid for as extra work

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

Payment is:

1. Full compensation for each bid item specified by the description and measurement unit shown on the verified Bid Item List
2. For the price bid for each bid item shown on the verified Bid Item List or as changed by change order with a specified price adjustment

If an alternative is described in the Contract, the Department pays based on the bid items for the details and specifications not described as an alternative.

The Department pays for work performed by change order based on one or a combination of the following:

1. Bid item prices
2. Force account
3. Agreed price
4. Specialist billing

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

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

The Department pays 10 percent annual interest for unpaid and undisputed:

1. Progress payments
2. After-acceptance payment except for claims

For these payments, interest starts to accrue 30 days after the 1st working day following the 20th day of the month payment is due. For extra work bills not submitted within 7 days after performing the work as specified in 5-1.015E, "Extra Work Bills," interest starts to accrue 60 days after the 1st working day following the 20th day of the month payment is due.

The Department pays 6 percent annual interest for unpaid and undisputed claims. Interest starts to accrue 61 days after the Department accepts a claim statement.

The Department pays 6 percent annual interest for awards in arbitration (Civ Code § 3289).

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

9-1.03 FORCE ACCOUNT PAYMENT

9-1.03A General

For work paid by force account, the Engineer compares the Department's records to your daily force account work report. When you and the Engineer agree on the contents of the daily force account work reports, the Engineer accepts the report and the Department pays for the

work. If the records differ, the Department pays for the work based only on the information shown on the Department's records.

If a subcontractor performs work at force account, accept an additional 10 percent markup to the total cost of that work paid at force account, including markups specified in Section 9-1.03, as reimbursement for additional administrative costs.

The markups specified in labor, materials, and equipment include compensation for all delay costs, overhead costs, and profit.

If an item's payment is adjusted for work-character changes, the Department excludes your cost of determining the adjustment.

Payment for owner-operated labor and equipment is made at the market-priced invoice submitted.

9-1.03B Labor

Labor payment is full compensation for the cost of labor used in the direct performance of the work plus a 35 percent markup. Force account labor payment consists of:

1. Employer payment to the worker for:

    1.1. Basic hourly wage
    1.2. Health and welfare
    1.3. Pension
    1.4. Vacation
    1.5. Training
    1.6. Other State and federal recognized fringe benefit payments

2. Labor surcharge percentage in Labor Surcharge and Equipment Rental Rates current during the work paid at force account for:

    2.1. Workers' compensation insurance
    2.2. Social security
    2.3. Medicare
    2.4. Federal unemployment insurance
    2.5. State unemployment insurance
    2.6. State training taxes

3. Subsistence and travel allowances paid to the workers
4. Employer payment to supervisors, if authorized

The 35 percent markup consists of payment for all overhead costs related to labor but not designated as costs of labor used in the direct performance of the work including:

1. Home office overhead
2. Field office overhead
3. Bond costs
4. Profit
5. Labor liability insurance
6. Other fixed or administrative costs that are not costs of labor used in the direct performance of the work

9-1.03C Materials

Material payment is full compensation for materials you furnish and use in the work. The Engineer determines the cost based on the material purchase price, including delivery charges, except:

1. A 15 percent markup is added.
2. Supplier discounts are subtracted whether you took them or not.
3. If the Engineer believes the material purchase prices are excessive, the Department pays the lowest current wholesale price for a similar material quantity.
4. If you procured the materials from a source you wholly or partially own, the determined cost is based on the lower of the:

    4.1. Price paid by the purchaser for similar materials from that source on Contract items
    4.2. Current wholesale price for those materials

5. If you do not submit a material cost record within 30 days of billing, the determined cost is based on the lowest wholesale price:

    5.1. During that period
    5.2. In the quantities used

9-1.03D Equipment Rental

9-1.03D(1) General

Equipment rental payment is full compensation for:

1. Rental equipment costs, including moving rental equipment to and from the site of work performed by change order using its own power.
2. Transport equipment costs for rental equipment that cannot be transported economically using its own power. No payment is made during transport for the transported equipment.
3. 15 percent markup.

If you want to return the equipment to a location other than its original location, the payment to move the equipment must not exceed the cost of returning the equipment to its original location. If you use the equipment for work other than work paid by force account, the transportation cost is included in the other work.

Before moving or loading the equipment, obtain authorization for the equipment rental's original location.

The Engineer determines rental costs:

1. Using rates in Labor Surcharge and Equipment Rental Rates:

    1.1. By classifying equipment using manufacturer's ratings and manufacturer-approved changes.
    1.2. Current during the work paid by force account.
    1.3. Regardless of equipment ownership; but the Department uses the rental document rates or minimum rental cost terms if:

1.3.1. Rented from equipment business you do not own.
1.3.2. The Labor Surcharge and Equipment Rental Rates hourly rate is $10.00 per hour or less.

2. Using rates established by the Engineer for equipment not listed in Labor Surcharge and Equipment Rental Rates. You may submit cost information that helps the Engineer establish the rental rate; but the Department uses the rental document rates or minimum rental cost terms if:

   2.1. Rented from equipment business you do not own.
   2.2. The Engineer establishes a rate of $10.00 per hour or less.

3. Using rates for transport equipment not exceeding the hourly rates charged by established haulers.

Equipment rental rates include the cost of:

1. Fuel
2. Oil
3. Lubrication
4. Supplies
5. Small tools that are not consumed by use
6. Necessary attachments
7. Repairs and maintenance
8. Depreciation
9. Storage
10. Insurance
11. Incidentals

The Department pays for small tools consumed by use. The Engineer determines payment for small tools consumed by use based on Contractor-submitted invoices.

9-1.03D(2) Equipment On the Job Site

For equipment on the job site at the time required to perform work paid by force account, the time paid is the time:

1. To move the equipment to the location of work paid by force account plus an equal amount of time to move the equipment to another location on the job site when the work paid by force account is completed
2. To load and unload equipment
3. Equipment is operated to perform work paid by force account and:

   3.1. Hourly rates are paid in 1/2-hour increments
   3.2 Daily rates are paid in 1/2-day increments

When rented equipment on the job site is used to perform work at force account not required by the original contract work, the Engineer may authorize rates in excess of those in Labor Surcharge and Equipment Rental Rates if:

1. You submit a request to use rented equipment
2. Equipment is not available from your owned equipment fleet or from your subcontractors
3. Rented equipment is from an independent rental company
4. Proposed equipment rental rate is reasonable
5. Engineer authorizes the equipment source and the rental rate before you use the equipment

The Department pays for fuel consumed during operation of rented equipment not included in the invoiced rental rate.

9-1.03D(3) Equipment Not On the Job Site Required for Original Contract Work

For equipment not on the job site at the time required to perform work paid by force account and required for original Contract work, the time paid is the time the equipment is operated to perform work paid by force account and the time to move the equipment to a location on the job site when the work paid by force account is completed.

The minimum total time paid is:

1. 1 day if daily rates are paid
2. 8 hours if hourly rates are paid

If daily rates are recorded, equipment:

1. Idled is paid as 1/2 day
2. Operated 4 hours or less is paid as 1/2 day
3. Operated 4 hours or more is paid as 1 day

If the minimum total time exceeds 8 hours and if hourly rates are listed, the Department rounds up hours operated to the nearest 1/2-hour increment and pays based on the following table. The table does not apply when equipment is not operated due to breakdowns; in which case rental hours are the hours the equipment was operated.

Equipment Rental Hours

Hours operated	Hours paid
0.0	4.00
0.5	4.25
1.0	4.50
1.5	4.75
2.0	5.00
2.5	5.25
3.0	5.50
3.5	5.75
4.0	6.00
4.5	6.25
5.0	6.50
5.5	6.75
6.0	7.00
6.5	7.25
7.0	7.5
7.5	7.75
≥8.0	hours used

9-1.03D(4) Equipment Not On the Job Site Not Required for Original Contract Work

For equipment not on the job site at the time required to perform work paid by force account and not required for original Contract work, the time paid is the time:

1. To move the equipment to the location of work paid by force account plus an equal amount of time to return the equipment to its source when the work paid by force account is completed
2. To load and unload equipment
3. Equipment is operated to perform work paid by force account

For this equipment, the Engineer may authorize rates in excess of those in Labor Surcharge and Equipment Rental Rates subject to the following:

1. Equipment is not available from your normal sources or from one of your subcontractors
2. Proposed equipment rental rate is reasonable
3. Engineer authorizes the equipment source and the rental rate before you use the equipment

9-1.03D(5) Non-Owner-Operated Dump Truck Rental

Submit the rental rate for non-owner-operated dump truck rental. The Engineer determines the payment rate. Payment for non-owner-operated dump truck rental is for the cost of renting a dump truck, including its driver. For the purpose of markup payment only, the non-owner-operated dump truck is rental equipment and the owner is a subcontractor.

9-1.04 EXTRA WORK PERFORMED BY SPECIALISTS

If the Engineer determines that you or your subcontractors are not capable of performing specialty extra work, a specialist may be used. Itemize the labor, material, and equipment rental costs unless it is not the special service industry's established practice to provide itemization; in which case, the Engineer accepts current market-priced invoices for the work.

The Engineer may accept an invoice as a specialist billing for work performed at an off–job site manufacturing plant or machine shop.

The Engineer determines the cost based on the specialist invoice price minus any available or offered discounts plus a 10 percent markup.

9-1.05 CHANGED QUANTITY PAYMENT ADJUSTMENTS

9-1.05A General

The unit prices specified in Section 9-1.05 are adjusted under Section 9-1.03, "Force Account."

9-1.05B Increases of More Than 25 Percent

If the total bid item quantity exceeds 125 percent of the quantity shown on the verified Bid Item List and if no approved Contract Change Order addresses payment for the quantity exceeding 125 percent, the Engineer may adjust the unit price for the excess quantity under Section 9-1.03, "Force Account," or the following:

1. The adjustment is the difference between the unit price and the unit cost of the total item pay quantity.

2. In determining the unit cost, the Engineer excludes the item's fixed costs. You have recovered the fixed costs in the payment for 125 percent shown on the verified Bid Item List.
3. After excluding fixed costs, the Engineer determines the item unit cost under Section 9-1.03, "Force Account."

If the payment for the number of units of a bid item in excess of 125 percent of the verified Bid Item List is less than $5,000 at the unit price, the Engineer may not adjust the unit price unless you request it.

9-1.05C Decreases of More Than 25 Percent

If the total item pay quantity is less than 75 percent of the quantity shown on the verified Bid Item List and if no approved Contract Change Order addresses payment for the quantity less than 75 percent, you may request a unit price adjustment. The Engineer may adjust the unit price for the decreased quantity under Section 9-1.03, "Force Account" or the following:

1. The adjustment is the difference between the unit price and the unit cost of the total pay quantity.
2. In determining the unit cost, the Engineer includes the item's fixed costs.
3. After including fixed costs, the Engineer determines the item unit cost under Section 9-1.03, "Force Account."

The Department does not pay more than 75 percent of the item total in the verified Bid Item List.

9-1.05D Eliminated Items

If the Engineer eliminates an item, the Department pays your costs incurred before the Engineer's elimination notification date.

If you order authorized material for an eliminated item before the notification date and the order cannot be canceled, either of the following occurs:

1. If the material is returnable to the vendor, the Engineer orders you to return the material and the Department pays your handling costs and vendor charges.
2. The Department pays your cost for the material and its handling and becomes the material owner.

The Engineer determines the payment for the eliminated bid item under Section 9-1.03, "Force Account."

9-1.06 WORK-CHARACTER CHANGES

The Department adjusts a bid item unit price based on the difference between the cost to perform the work as planned and the cost to perform the work as changed. The Engineer determines the payment adjustment under Section 9-1.03, "Force Account." The Department adjusts payment for only the work portion that changed in character.

9-1.07 PROGRESS PAYMENTS

9-1.07A General

The Department pays you based on Engineer-prepared monthly progress estimates. Each estimate reflects:

1. Total work completed during the pay period
2. Extra work bills if:
   2.1. Submitted by the 15th of a month
   2.2. Approved by the 20th of a month
3. Amount for materials on hand
4. Amount earned for mobilization
5. Deductions
6. Withholds
7. Resolved potential claims
8. Payment adjustments

Submit certification stating the work complies with the QC procedures. The Engineer does not process a progress estimate without a signed certification.

You may protest a progress payment.

9-1.07B Schedule of Values

Section 9-1.07B applies to a lump sum bid item for which a schedule of values is specified to be submitted.

The sum of the amounts for the work units listed in the schedule of values must equal the lump sum price bid for the bid item.

Obtain authorization of a schedule of values before you perform work shown on the schedule. The Department does not process a progress payment for the bid item without an authorized schedule of values.

Accept progress payments for overhead, profit, bond costs, and other fixed or administrative costs as distributed proportionally among the items listed except that for a contract with a bid item for mobilization, accept progress payments for bond costs as included in the mobilization bid item.

For changed quantities of the work units listed, the Department adjusts payments in the same manner as specified for changed quantities of bid items under Section 9-1.05, "Changed Quantity Payment Adjustments."

9-1.07C Materials On Hand

A material on hand but not incorporated into the work is eligible for progress payment if:

1. Listed in a special provision as eligible and is in compliance with other Contract parts
2. Purchased
3. An invoice is submitted
4. Stored within the State and you submit evidence that the stored material is subject to the Department's control
5. Requested on the Department-furnished form

9-1.07D Mobilization

Mobilization is eligible for partial payments if the Contract includes a bid item for mobilization. The Department makes the partial payments under Pub Cont Code § 10264. If the Contract does not include a mobilization bid item, mobilization is included in the payment for the various bid items.

The Department pays the item total for mobilization in excess of 10 percent of the total bid in the 1st payment after Contract acceptance.

9-1.07E Withholds

9-1.07E(1) General

The Department may withhold payment for noncompliance.

The Department returns the noncompliance withhold in the progress payment following correction of noncompliance.

Withholds are not retentions under Pub Cont Code § 7107 and do not accrue interest under Pub Cont Code § 10261.5.

Withholds are cumulative and independent of deductions.

Section 9-1.07E does not include all withholds that may be taken; the Department may withhold other payments as specified.

9-1.07E(2) Progress Withholds

The Department withholds 10 percent of a partial payment for noncompliant progress. Noncompliant progress occurs when:

1. Total days to date exceed 75 percent of the revised Contract working days
2. Percent of working days elapsed exceeds the percent of value of work completed by more than 15 percent

The Engineer determines the percent of working days elapsed by dividing the total days to date by the revised Contract working days and converting the quotient to a percentage.

The Engineer determines the percent of value of work completed by summing payments made to date and the amount due on the current progress estimate, dividing this sum by the current total estimated value of the work, and converting the quotient to a percentage. These amounts are shown on the Progress Payment Voucher.

When the percent of working days elapsed minus the percent of value of work completed is less than or equal to 15 percent, the Department returns the withhold in the next progress payment.

9-1.07E(3) Performance Failure Withholds

During each estimate period you fail to comply with a Contract part, including submittal of a document as specified, the Department withholds a part of the progress payment. The documents include QC plans, schedules, traffic control plans, and water pollution control submittals.

For 1 performance failure, the Department withholds 25 percent of the progress payment but does not withhold more than 10 percent of the total bid.

For multiple performance failures, the Department withholds 100 percent of the progress payment but does not withhold more than 10 percent of the total bid.

9-1.07E(4) Stop Notice Withholds

The Department may withhold payments to cover claims filed under Civ Code § 3179 et seq.

Stop notice information may be obtained from the Office of External Accounts Payable, Division of Accounting.

9-1.07E(5) Penalty Withholds

Penalties include fines and damages that are proposed, assessed, or levied against you or the Department by a governmental agency or private lawsuit. Penalties are also payments made or costs incurred in settling alleged violations of federal, state, or local laws, regulations, requirements, or PLACs. The cost incurred may include the amount spent for mitigation or correcting a violation.

If you or the Department is assessed a penalty, the Department may withhold the penalty amount until the penalty disposition has been resolved. The Department may withhold penalty funds without notifying you.

Instead of the withhold, you may provide a bond equal to the highest estimated liability for any disputed penalties proposed.

9-1.07E(6)–9-1.07E(10) Reserved

9-1.07F Retentions

The Department does not retain moneys from progress payments due to the Contractor for work performed (Pub Cont Code § 7202).

9-1.07G–9-1.07K Reserved

9-1.08 PAYMENT AFTER CONTRACT ACCEPTANCE

9-1.08A General

Reserved

9-1.08B Payment Before Final Estimate

After Contract acceptance, the Department pays you based on the Engineer-prepared estimate that includes withholds and the balance due after deduction of previous payments.

9-1.08C Proposed Final Estimate

The Engineer estimates the amount of work completed and shows the amount payable in a proposed final estimate based on:

1. Contract items
2. Payment adjustments
3. Work paid by force account or agreed price
4. Extra work
5. Deductions

Submit either a written final estimate acceptance or a claim statement no later than the 30th day after receiving the proposed final estimate. Evidence of the Contractor's receipt of the final estimate and the Engineer's receipt of the Contractor's written acceptance or claim statement is a delivery service's proof of delivery or Engineer's written receipt if hand delivered.

If you claim that the final estimate is less than 90 percent of your total bid, the Department adjusts the final payment to cover your overhead. The adjustment is 10 percent of the difference between the total bid and the final estimate. The Department does not make this adjustment on a terminated contract.

9-1.08D Final Payment and Claims

9-1.08D(1) General

If you accept the proposed final estimate or do not submit a claim statement within 30 days of receiving the estimate, the Engineer furnishes the final estimate to you and the Department pays the amount due within 30 days. This final estimate and payment is conclusive except as specified in Sections 5-1.015, "Records," 6-1.075, "Guarantee," and 9-1.09, "Clerical Errors."

If you submit a claim statement within 30 days of receiving the Engineer's proposed final estimate, the Engineer furnishes a semifinal estimate to the Contractor and the Department pays the amount due within 30 days. The semifinal estimate is conclusive as to the amount of work completed and the amount payable except as affected by the claims or as specified in Sections 5-1.015, "Records," 6-1.075, "Guarantee," and 9-1.09, "Clerical Errors."

9-1.08D(2) Claim Statement

9-1.08D(2)(a) General

For each claim, submit a claim statement showing only the identification number that corresponds to the Full and Final Potential Claim Record and the final amount of additional payment requested except:

1. If the final amount of requested payment differs from the amount requested in the Full and Final Potential Claim Record
2. For a claim for quantities, withholds, deductions, liquidated damages, or change order bills
3. For an overhead claim

If the final amount of requested payment differs from the amount requested in the Full and Final Potential Claim Record, submit:

1. Identification number that corresponds to the Full and Final Potential Claim Record
2. Final amount of additional payment requested
3. Basis for the changed amount
4. Contract documentation that supports the changed amount
5. Statement of the reasons the Contract documentation supports the claim

The Engineer notifies you of an omission of or a disparity in the exclusive identification number. Within 15 days of the notification, correct the omission or disparity. If the omission or disparity is not resolved after the 15 days, the Engineer assigns a new number.

For a claim for quantities, withholds, deductions, or change order bills submit:

1. Final amount of additional payment requested
2. Enough detail to enable the Engineer to determine the basis and amounts of the additional payment requested

9-1.08D(2)(b) Overhead Claims

Include with an overhead claim:

1. Final amount of additional payment requested
2. Independent CPA audit report

Failure to submit the audit report with an overhead claim with the claim statement is a waiver of the overhead claim and operates as a bar to arbitration on the claim (Pub Cont Code § 10240.2).

The Department deducts an amount for field and home office overhead paid on added work from any claim for overhead. The value of the added work equals the value of the work completed minus the total bid. The home office overhead deduction equals 5 percent of the added work. The field office overhead deduction equals 5-1/2 percent of the added work.

If you intend to pursue a claim for reimbursement for field or home office overhead beyond that provided expressly by the Contract:

1. Notify the Engineer within 30 days of receipt of the proposed final estimate of your intent to seek reimbursement for specific overhead costs beyond that provided by the Contract
2. Specifically identify each claim and each date associated with each claim from which you seek reimbursement for specific overhead costs beyond that provided by the Contract
3. Timely submit all other claims
4. Within 30 days of receipt of the proposed final estimate, submit an audit report prepared by an independent CPA

    4.1. The audit report must show calculations with supporting documentation of actual home office and project field overhead costs
    4.2. The calculations must specify the actual daily rates for both field and home office overhead for the entire duration of the project expressed as a rate per working day
    4.3. The start and end dates of the actual project performance period, number of working days, overhead cost pools, and all allocation bases must be disclosed in the calculations of your actual field and home office overhead daily rates
    4.4. Neither daily rate may include a markup for profit

5. Field overhead costs from which the daily rate is calculated must be:

    5.1. Allowable under 48 CFR 31
    5.2. Supported by reliable records
    5.3. Related solely to the project
    5.4. Incurred during the actual project performance period
    5.5. Comprised of only time-related field overhead costs
    5.6. Not a direct cost

6. Home office overhead costs from which the daily rate is calculated must be:

    6.1. Allowable under 48 CFR 31
    6.2. Supported by reliable records
    6.3. Incurred during the actual project performance period
    6.4. Comprised of only fixed home office overhead costs
    6.5. Not a direct cost

The actual rate of time-related overhead is subject to authorization by the Engineer.

The CPA's audit must be performed under the Attestation Standards published by the American Institute of Certified Public Accountants. The CPA's audit report must express an opinion whether or not your calculations of your actual field and home office overhead daily rates comply with Section 9-1.08D(2)(b), "Overhead Claims." The attest documentation prepared by the CPA in connection with the audit must be reproduced and submitted for review with the audit report.

The Department provides markups for all work paid by force account. Overhead for field and home office costs are included in the markups. Overhead claims in excess of Contract markups are not allowed under the Contract. If you seek reimbursement for costs not allowed under the Contract, the Department does not pay your cost of performing the independent CPA examination specified in section 9-1.08D(2)(b), "Overhead Claims," including preparation of the audit report.

9-1.08D(2)(c) Declaration

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

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

9-1.08D(2)(d) Waiver

A claim is waived if:

1. Claim does not have a corresponding Full and Final Potential Claim Record identification number
2. Claim does not have the same nature, circumstances, and basis of claim as the corresponding Full and Final Potential Claim Record
3. Claim is not included in the claim statement
4. You do not comply with the claim procedures
5. You do not submit the declaration specified in 9-1.08D(2)(c), "Declaration"

9-1.08D(3) Final Determination of Claims

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

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

If the Engineer determines that a claim requires additional analysis, the Engineer schedules a board of review meeting. Meet with the board of review and make a presentation supporting the claim.

After claim review completion by the Engineer or board of review, the Department makes the final determination of claims and furnishes it to the Contractor.

After the determination, the Engineer furnishes a final estimate to the Contractor and the Department pays the amount due within 30 days. The final estimate is conclusive as to the

amount of work completed and the amount payable except as specified in Sections 5-1.015, "Records," 6-1.075, "Guarantee," and 9-1.09, "Clerical Errors."

The Contractor's failure to comply with the claim procedures is a bar to arbitration under Pub Cont Code § 10240.2.

9-1.09 CLERICAL ERRORS

For 3 years after Contract acceptance, estimates and payments are open to correction and adjustment for clerical errors. Either the Department or the Contractor pays to the other the amount due except for clerical errors resulting in an adjustment less than $200; in which case, no payment is made.

9-1.10 ARBITRATION

Pub Cont Code § 10240 through 10240.13 provides for the resolution of contract claims by arbitration.

Start arbitration by filing a complaint with the Office of Administrative Hearings in Sacramento (1 CA Code Regs § 1350). File the arbitration complaint no later than 90 days after receiving the Department's final written decision on a claim (Pub Cont Code § 10240.1).

^^

SECTION 10 DUST CONTROL
(Issued 02-06-09)

Replace Section 10 with:
SECTION 10 (BLANK)

^^

SECTION 11 MOBILIZATION
(Issued 06-05-09)

Replace Section 11 with:
SECTION 11 (BLANK)

^^

SECTION 12 CONSTRUCTION AREA TRAFFIC CONTROL DEVICES
(Issued 11-07-08)

In Section 12-1.01 in the 2nd paragraph, replace the 1st sentence with:

Attention is directed to Part 6 of the California MUTCD.

Replace Section 12-2.01 with:

12-2.01 FLAGGERS

Flaggers while on duty and assigned to traffic control or to give warning to the public that the highway is under construction and of any dangerous conditions to be encountered as a result thereof, shall perform their duties and shall be provided with the necessary equipment in conformance with Part 6 of the California MUTCD. The equipment shall be furnished and kept clean and in good repair by the Contractor at the Contractor's expense.

All flaggers shall wear safety apparel meeting the requirements of ANSI/ISEA 107-2004 for Class 2 or 3 garment and complying with 71 Fed Reg 67792.

In Section 12-3.01 replace the 1st paragraph with:

In addition to the requirements in Part 6 of the California MUTCD, all devices used by the Contractor in the performance of the work shall conform to the provisions in this Section 12-3.

In Section 12-3.06 in the 1st paragraph, replace the 2nd sentence with:

Construction area signs are shown in or referred to in Part 6 of the California MUTCD.

In Section 12-3.06 in the 4th paragraph, replace the 1st sentence with:

All construction area signs shall conform to the dimensions, color and legend requirements of the plans, Part 6 of the California MUTCD and these specifications.

In Section 12-3.06 in the 8th paragraph, replace the 1st sentence with:

Used signs with the specified sheeting material will be considered satisfactory if they conform to the requirements for visibility and legibility and the colors conform to the requirements in Part 6 of the California MUTCD.

^^

SECTION 14 (BLANK)
(Issued 06-01-11)

Replace Section 14 with:

SECTION 14 ENVIRONMENTAL STEWARDSHIP

14-1 GENERAL

14-1.01 GENERAL

Environmental stewardship includes both environmental compliance and environmental resource management.

If an ESA is shown on the plans:

1. The boundaries shown are approximate; the Department marks the exact boundaries on the ground
2. Do not enter the ESA unless authorized
3. If the ESA is breached, immediately:
   3.1. Secure the area and stop all operations within 60 feet of the ESA boundary
   3.2. Notify the Engineer
4. If the ESA is damaged, the Department determines what efforts are necessary to remedy the damage and who performs the remedy; you are responsible for remedies and charges.

14-2 CULTURAL RESOURCES

14-2.01 GENERAL

Reserved

14-2.02 ARCHAEOLOGICAL RESOURCES

If archaeological resources are discovered at the job site, do not disturb the resources and immediately:

1. Stop all work within a 60-foot radius of the discovery
2. Protect the discovery area
3. Notify the Engineer

The Department investigates. Do not move archaeological resources or take them from the job site. Do not resume work within the discovery area until authorized.

If, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of an archaeological find, or investigation or recovery of archeological materials, you will be compensated for resulting losses, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays."

If ordered, furnish resources to assist in the investigation or recovery of archaeological resources. This work will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

14-2.03 ARCHAEOLOGICAL MONITORING AREA

Section 14-2.03 applies if an AMA is described in the Contract.

The Department assigns an archaeological monitor to monitor job site activities within the AMA. Do not work within the AMA unless the archeological monitor is present.

The Engineer and the Department archaeological monitor conduct an AMA location field review with you at least 5 business days before start of work. The Department marks the exact boundaries of the AMA on the ground.

If temporary fence (Type ESA) or other exclosure for an AMA is described in the Contract, install temporary fence (Type ESA) or other exclosure to define the boundaries of the AMA during the AMA location field review.

At least 5 business days before starting work within an AMA, submit a schedule of days and hours to be worked for the Engineer's approval. If you require changes in the schedule, submit an update for the Engineer's approval at least 5 business days before any changed work day.

If archaeological resources are discovered within an AMA, comply with Section 14-2.02, "Archaeological Resources."

14-2.04 HISTORIC STRUCTURES

Reserved

14-3 COMMUNITY IMPACTS AND ENVIRONMENTAL JUSTICE

Reserved

14-4 NATIVE AMERICAN CONCERNS

Reserved

14-5 AESTHETICS

Reserved

14-6 BIOLOGICAL RESOURCES

14-6.01 GENERAL

Reserved

14-6.02 BIRD PROTECTION

Protect migratory and nongame birds, their occupied nests, and their eggs.

The Department anticipates nesting or attempted nesting from February 15 to September 1.

The federal Migratory Bird Treaty Act, 16 USC § 703–711, and 50 CFR Pt 10 and Fish & Game Code §§ 3503, 3513, and 3800 protect migratory and nongame birds, their occupied nests, and their eggs.

The federal Endangered Species Act of 1973, 16 USC §§ 1531 and 1543, and the California Endangered Species Act, Fish & Game Code §§ 2050–2115.5, prohibit the take of listed species and protect occupied and unoccupied nests of threatened and endangered bird species.

The Bald and Golden Eagle Protection Act, 16 USC § 668, prohibits the destruction of bald and golden eagles and their occupied and unoccupied nests.

If migratory or nongame bird nests are discovered that may be adversely affected by construction activities or an injured or killed bird is found, immediately:

1. Stop all work within a 100-foot radius of the discovery.
2. Notify the Engineer.

The Department investigates. Do not resume work within the specified radius of the discovery until authorized.

When ordered, use exclusion devices, take nesting prevention measures, remove and dispose of partially constructed and unoccupied nests of migratory or nongame birds on a regular basis to prevent their occupation, or perform any combination of these. This work will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

Prevent nest materials from falling into waterways.

Bird protection that causes a delay to the controlling activity is a condition unfavorable to the suitable prosecution of work as specified in Section 8-1.05, "Temporary Suspension of Work."

14-7 PALEONTOLOGICAL RESOURCES

If paleontological resources are discovered at the job site, do not disturb the material and immediately:

1. Stop all work within a 60-foot radius of the discovery
2. Protect the area
3. Notify the Engineer

The Department investigates and modifies the dimensions of the protected area if necessary. Do not move paleontological resources or take them from the job site. Do not resume work within the specified radius of the discovery until authorized.

14-8 NOISE AND VIBRATION

14-8.01 GENERAL

Reserved

14-8.02 NOISE CONTROL

Do not exceed 86 dBA LMax at 50 feet from the job site activities from 9 p.m. to 6 a.m.

Equip an internal combustion engine with the manufacturer-recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.

14-9 AIR QUALITY

14-9.01 AIR POLLUTION CONTROL

Comply with air pollution control rules, regulations, ordinances, and statutes that apply to work performed under the Contract, including air pollution control rules, regulations, ordinances, and statutes provided in Govt Code § 11017 (Pub Cont Code § 10231).

Do not burn material to be disposed of.

14-9.02 DUST CONTROL

Prevent and alleviate dust by applying water, dust palliative, or both under Section 14-9.01.

Apply water under Section 17, "Watering."

Apply dust palliative under Section 18,"Dust Palliative."

If ordered, apply water, dust palliative, or both to control dust caused by public traffic. This work will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

14-10 SOLID WASTE DISPOSAL AND RECYCLING

14-10.01 SOLID WASTE DISPOSAL AND RECYCLING

Submit an annual Solid Waste Disposal and Recycling Report between January 1 and 15 for each year work is performed under the Contract at any time during the previous calendar year. Show the types and amounts of project-generated solid waste taken to or diverted from landfills or reused on the project from January 1 through December 31 of the previous calendar year.

Submit a final annual Solid Waste Disposal and Recycling Report within 5 business days after Contract acceptance. Show the types and amounts of project-generated solid waste taken to or diverted from landfills or reused on the project from January 1 to Contract acceptance.

For each failure to submit a completed form, the Department withholds $10,000.

14-11 HAZARDOUS WASTE AND CONTAMINATION

14-11.01 GENERAL

Reserved

14-11.02 ASBESTOS AND HAZARDOUS SUBSTANCES

Upon discovery, immediately stop working in and notify the Engineer of areas where asbestos or a hazardous substance is present if the:

1. Contractor reasonably believes the substance is asbestos as defined in Labor Code § 6501.7 or a hazardous substance as defined in Health & Safety Code §§ 25316 and 25317
2. Presence is not described in the Contract
3. Substance has not been made harmless

14-12 OTHER INTERAGENCY RELATIONS

Reserved

14-13 PAYMENT

Payment for work specified in Section 14 is included in the payment for the bid items involved unless:

1. Bid item for the work is shown in the verified Bid Item List
2. Work is specified as paid for as extra work

^^

SECTION 15 EXISTING HIGHWAY FACILITIES
(Issued 05-01-09)

In Section 15-1.02 replace the 1st paragraph with:

Existing facilities which are to remain in place shall be protected in conformance with the provisions in Sections 5-1.18, "Property and Facility Preservation," and 7-1.12, "Indemnification and Insurance."

^^

SECTION 19 EARTHWORK
(Issued 09-16-11)

Replace Section 19-1.02 with:

19-1.02 (BLANK)

Replace Section 19-1.03 with:

19-1.03 GRADE TOLERANCE

Immediately prior to placing subsequent layers of material thereon, the grading plane shall conform to one of the following:

A. When hot mix asphalt is to be placed on the grading plane, the grading plane at any point shall not vary more than 0.05 foot above or below the grade established by the Engineer.

B. When subbase or base material to be placed on the grading plane is to be paid for by the ton, the grading plane at any point shall not vary more than 0.10 foot above or below the grade established by the Engineer.
C. When the material to be placed on the grading plane is to be paid for by the cubic yard, the grading plane at any point shall be not more than 0.05 foot above the grade established by the Engineer.

In Section 19-3.025C replace the 1st paragraph with:

Cementitious material used in soil cement bedding shall conform to the provisions in Section 90-2.01, "Cementitious Materials." Supplementary cementitious material will not be required.

In Section 19-3.025C replace the 4th paragraph with:

The aggregate, cementitious material, and water shall be proportioned either by weight or by volume. Soil cement bedding shall contain not less than 282 pounds of cementitious material per cubic yard. The water content shall be sufficient to produce a fluid, workable mix that will flow and can be pumped without segregation of the aggregate while being placed.

In Section 19-3.06 replace the 9th paragraph with:

Unless otherwise shown on the plans or specified in these specifications or the special provisions, material for structure backfill to be compacted to a relative compaction of not less than 90 percent, except material to be placed behind retaining walls, shall consist of material free of rocks, broken concrete, other solid material exceeding 3 inches in greatest dimension, or organic or other unsatisfactory material.

In Section 19-3.062 replace the 1st paragraph with:

Slurry cement backfill shall consist of a fluid, workable mixture of aggregate, cementitious material, and water.

In Section 19-3.062 replace the 5th paragraph with:

Cementitious material shall conform to the provisions in Section 90-2.01, "Cementitious Materials." Supplementary cementitious material will not be required.

In Section 19-3.062 replace the 8th paragraph with:

The aggregate, cementitious material, and water shall be proportioned either by weight or by volume. Slurry cement backfill shall contain not less than 188 pounds of cementitious material per cubic yard. The water content shall be sufficient to produce a fluid, workable mix that will flow and can be pumped without segregation of the aggregate while being placed.

^^

SECTION 20 EROSION CONTROL AND HIGHWAY PLANTING
(Issued 04-20-12)

Replace Section 20-2.03 with:

20-2.03 SOIL AMENDMENT

Soil amendment must comply with the Food & Agri Code.

In Section 20-2.10 delete the 8th, 9th, and 10th paragraphs.

In Section 20-3.04A delete the last paragraph.

In Section 20-4.026 replace the 3rd paragraph with:

Oil or pelleted forms of pesticides for weed control shall not be used.

Replace Section 20-4.055 with:

20-4.055 PRUNING

Prune plants under ANSI A300 (Part 1) published by the Tree Care Industry Association.

^^

SECTION 24 LIME STABILIZATION
(Issued 06-05-09)

Replace Section 24 with:

SECTION 24 LIME STABILIZED SOIL

24-1.01 GENERAL

24-1.01A Summary

Section 24 includes specifications for stabilizing soil by mixing lime and water with soil and compacting the mixture to the specified dimensions.

24-1.01B Definitions

lime: Quicklime made from high-calcium or dolomitic sources specified under ASTM C 51. For high-calcium quicklime, the calcium oxide content must be greater than 90 percent. For dolomitic quicklime, the calcium oxide content must be greater than 55 percent and the combined calcium oxide and magnesium oxide content must be greater than 90 percent.

mellowing period: The time between the initial and final mixing to promote initial chemical reactions between lime, water, and soil.

24-1.01C Submittals

From 30 to 180 days before use, submit one 10-pound sample of each lime product proposed and from each source.

Submit lime samples in airtight containers under ASTM C 50. Mark the sample date on the container. Include the MSDS and chemical and physical analysis with the submittal.

With the lime samples, submit a Certificate of Compliance from the pre-qualified lime source under Section 6-1.07, "Certificates of Compliance," with a statement certifying the lime furnished is the same as that pre-qualified.

Fifteen days before starting soil stabilization activities, submit for the Engineer's approval a laboratory to perform quality control tests. The laboratory must be qualified under the Department's Independent Assurance Program.

Before you apply lime in slurry form, submit the slurry's lime content for Engineer's approval 25 days before application.

Before performing quality control sampling and testing, submit the time and location the sampling and testing will occur. Submit quality control testing results within 24 hours of receiving the results.

Submit a weighmaster certificate or bill of lading with each load of lime delivered to the jobsite.

24-1.01D Quality Control and Assurance

General

Perform quality control testing in the presence of the Engineer.

Place unique, sequentially numbered lock seals on each load and affix them to trailer blow down valves that are locked open. The bill of lading for each lime delivery must have that specific lock seal number legibly and visibly imprinted.

The Engineer samples each lime delivery truck at the job site and randomly tests them off-site.

Pre-qualification of Lime Sources

Lime sources must be listed on the Department's pre-qualified products list. The list is available at the METS web site.

The pre-qualified list for lime sources describes the application procedures for inclusion on the list.

Preparing Soil

After you prepare an area for lime soil stabilization, test the soil to be stabilized every 500 cubic yards for relative compaction under California Test 231 and moisture content under California Test 226, and verify the surface grades.

Applying Lime

The Engineer determines the final application rate for each lime product proposed from the samples submitted. If the soil being stabilized changes, the Engineer changes the application rate. Based on California Test 373, the Engineer reports the application rates as the percent of lime by dry weight of soil. The Engineer provides the optimum moisture content determined under California Test 373 for each application rate.

Before applying lime, measure the temperature at the ground surface.

If lime in dry form is used, the Engineer verifies the application rate using the drop pan method once per 40,000 square feet stabilized, or twice per day, whichever is greater.

If lime in slurry form is used, report the quantity of slurry placed by measuring the volume of slurry in the holding tank once per 40,000 square feet stabilized, or twice per day, whichever is greater.

Mixing

For each day of initial mixing, test the moisture content. Sample the material immediately after initial mixing.

Randomly test the adequacy of the final mixing with a phenolphthalein indicator solution.

During mixing operations, measure the ground temperature at full mixing depth.

After mixing and before compacting, determine maximum density under California Test 216 from composite samples of the mixed material and at each distinct change in material. Test the moisture content of the mixed material under California Test 226. Test the gradation for compliance with "Materials."

Compaction

Test relative compaction on a wet weight basis.

After initial compaction, determine in-place density under California Test 231 and moisture content under California Test 226 at the same locations. The testing frequency must be 1 test per 250 cubic yards of lime stabilized soil. Test in 0.50-foot depth intervals.

Before requesting to compact material in layers greater than 0.50 foot, construct a test strip in the production area and demonstrate the test strip passes compaction tests using the proposed thickness. The test strip must contain no more material than 1 day's production. The Engineer tests at not more than 0.50-foot depth intervals regardless of the thickness of your layers.

Construct test pads by scraping away material to the depth ordered by the Engineer. If a compaction test fails corrective action must include the layers of material already placed above the test pad elevation.

Finish Grading

Do not proceed with construction activities for subsequent layers of material until the Engineer verifies the final grades of the lime stabilized soil.

Dispute Resolution

You and the Engineer must work together to avoid potential conflicts and to resolve disputes regarding test result discrepancies. Notify the Engineer within 5 days of receiving a test result if you dispute the test result.

If you or the Engineer dispute each other's test results, submit written quality control test results and copies of paperwork including worksheets used to determine the disputed test results to the Engineer. An Independent Third Party (ITP) performs referee testing. Before the ITP participates in a dispute resolution, the ITP must be accredited under the Department's Independent Assurance Program. The ITP must be independent of the project. By mutual agreement, the ITP is chosen from:

1. A Department laboratory
2. A Department laboratory in a district or region not in the district or region the project is located
3. The Transportation Laboratory
4. A laboratory not currently employed by you or your lime producer

If split quality control or acceptance samples are not available, the ITP uses any available material representing the disputed material for evaluation.

24-1.02 MATERIALS

24-1.02A Lime

Lime must comply with ASTM C 977 and the following:

Lime

Quality Characteristic	ASTM	Specification
Available Calcium and Magnesium Oxide(min., %)	C 25[a]	High Calcium Quicklime: CaO > 90 Dolomitic Quicklime: CaO > 55 and CaO + MgO > 90
Loss on ignition (max., %)	C 25	7 (total loss) 5 (carbon dioxide) 2 (free moisture)
Slaking rate	C 110	30 °C rise in 8 minutes

Notes:
[a] You may use ASTM C25 or ASTM C1301 and ASTM C1271.

A 0.5-pound sample of lime dry-sieved in a mechanical sieve shaker for 10 minutes ±30 seconds must comply with:

Sieve Sizes	Percentage Passing
3/8-inch	98-100

Slurry must:

1. Be free of contaminants
2. Contain at least the minimum dry solids
3. Have uniform consistency

If you prepare lime slurry, prepare it at the jobsite.

24-1.02B Water

If available, use potable water. Inform the Engineer if a water source other than potable water is used. If not using potable water, water for mixing soil and lime must:

1. Contain no more than 650 parts per million of chlorides as Cl, and no more than 1,300 parts per million of sulfates as SO_4
2. Not contain an amount of impurities that will cause a reduction in the strength of the stabilize soil

24-1.02C Mixed Material

Take a composite sample from 5 random locations after initial mixing. The moisture content of the composite sample tested under California Test 226 must be a minimum of 3 percent greater than optimum. Determine the moisture versus density relationship of the composite sample material determined under California Test 216, except Part 2, Section E, Paragraph 6 is modified as follows:

> After adjustment of the moisture content, compact each of the remaining test specimens in the mold, then record the water adjustment, tamper reading, and the corresponding adjusted wet density from the chart on Table 1 using the column corresponding to the actual wet weight of the test specimen compacted. Note each of these wet weights on Line I.

The mixed material before compaction excluding rock must comply with:

Sieve Sizes	Percentage Passing
1"	98 - 100
No. 4	60 - 100

24-1.02D Curing Treatment

Curing treatment may be any of the following:

1. Water cure
2. Curing seal
3. Moist material blanket

Curing seal must be SS or CSS grade asphaltic emulsion under Section 94, "Asphaltic Emulsions."

24-1.03 CONSTRUCTION

24-1.03A General

If using different types of lime or lime from more than one source, do not mix them. The Engineer determines separate application rates.

Deliver lime in full loads unless it is the last load needed for a work shift.

Apply lime at ground temperatures above 35 °F. Do not apply lime if you expect the ground temperature to drop below 35 °F before you complete mixing and compacting.

During mixing, maintain the in-place moisture of the soil to be stabilized a minimum 3 percent above the optimum moisture determined under California Test 216 as modified in "Mixed Material." During compaction and finish grading, add water to the surface to prevent drying until the next layer of mixed material is placed, or until you apply curing treatment.

Scarify the surface of lime stabilized soil at least 2 inches between each layer. Do not scarify the final surface of the lime stabilized soil.

Between the time of applying lime and 3 days after applying curing treatment, only allow equipment or vehicles on the soil being stabilized that are essential to the work.

24-1.03B Preparing Soil

Except for soil clods, remove rocks or solids larger than 1/3 of the layer thickness. Regardless of the layer thickness, remove rocks and solids greater than 4 inches. Notify the Engineer if you encounter rocks or solids greater than 1/3 of the layer thickness.

Before adding lime, place the soil to be stabilized to within 0.08 foot of the specified lines and grades and compact to not less than 90 percent relative compaction.

24-1.03C Applying Lime

Apply lime uniformly over the area to be stabilized using a vane spreader.

The Engineer determines the final application rate. Do not vary from this application rate by more than 5 percent.

Apply lime in dry form. If you request and the Engineer approves, you may apply lime in slurry form.

Lime slurry must be in suspension during application. Apply lime slurry uniformly making successive passes over a measured section or roadway until the specified lime content is reached. Apply the residue from lime slurry over the length of the roadway being processed.

24-1.03D Mixing

Lime and soil to be stabilized must be mixed uniformly at least twice to within 0.10 foot of the specified depth at any point. If the mixing depth exceeds the specified depth by more than 10 percent, add lime in proportion to the exceeded depth. The Department does not pay for this added lime.

Mix lime on the same day it is applied. After the initial mixing, allow a mellowing period for at least 36 hours before final mixing. Moisture content during the mellowing period determined under California Test 226 must be at least 3 percent higher than the optimum moisture content. You may add water and mix during the mellowing period.

Remix until the mixture is uniform with no streaks or pockets of lime.

Except for clods larger than 1 inch, mixed material must have a color reaction with sprayed phenolphthalein alcohol indicator solution.

Complete all the mixing work within 7 days of the initial application of lime.

24-1.03E Compaction

Begin compacting immediately after final mixing, but not less than 36 hours after the beginning of initial mixing.

Compact by using sheepsfoot or segmented wheel rollers immediately followed by steel drum or pneumatic-tired rollers. Do not use vibratory rollers.

If you request and the Engineer approves, you may compact mixed material in layers greater than 0.50 foot.

If the specified thickness is 0.50 foot or less, compact in one layer. If the specified thickness is more than 0.50 foot, compact in 2 or more layers of approximately equal thickness. The maximum compacted thickness of any one layer must not exceed 0.50 foot unless you first demonstrate your equipment and methods provide uniform distribution of lime and achieve the specified compaction.

Use other compaction methods in areas inaccessible to rollers.

Compact the lime stabilized soil to at least 95 percent relative compaction determined under California Test 216 as modified under "Mixed Material." The relative compaction is determined on a wet weight basis.

24-1.03F Finish Grading

Maintain the moisture content of the lime stabilized soil through the entire finish grading operation at a minimum of 3 percent above optimum moisture content.

The finished surface of the lime stabilized soil must not vary more than 0.08 foot above or below the grade established by the Engineer unless the lime stabilized soil is to be covered by material paid for by the cubic yard, in which case the finished surface may not vary above the grade established by the Engineer.

If lime stabilized soil is above the allowable tolerance, trim, remove, and dispose of the excess material. Do not leave loose material on the finished surface. If finish rolling cannot be completed within 2 hours of trimming, defer trimming.

If lime stabilized soil is below the allowable tolerance, you may use trimmed material to fill low areas only if final grading and final compaction occurs within 48 hours of beginning initial compaction. Before placing trimmed material, scarify the surface of the area to be filled at least 2 inches deep.

Finish rolling of trimmed surfaces must be performed with at least 1 complete coverage with steel drum or pneumatic-tired rollers.

24-1.03G Curing

General

Choose the method of curing.

Apply the chosen cure method within 48 hours of completing the sheepsfoot or segmented wheel compaction. Apply the chosen cure method within the same day of any trimming and finish grading.

Water Cure

Water may be used to cure the finished surface before you place a moist material blanket, or apply curing seal. Keep the surface above the optimum moisture content of the lime stabilized soil. Use this method for no more than 3 days, after which you must place a curing seal or moist material blanket.

Curing Seal

Curing seal equipment must have a gage indicating the volume of curing seal in the storage tank.

If curing seal is used, apply it:

1. To the finished surface of lime stabilized soil under Section 94-1.06, "Applying," of the Standard Specifications
2. At a rate from 0.10 to 0.20 gallon per square yard. The Engineer determines the exact rate
3. When the lime stabilized soil is at optimum moisture
4. When the ambient temperature is above 40 °F and rising

Repair damaged curing seal the same day the damage occurs.

Moist Material Blanket

Moist material blanket consists of moist structural material. Moist material blanket may be a temporary or permanent layer of material of sufficient thickness to prevent drying of the lime stabilized soil. You may use moist material blanket if the lime stabilized soil can bear the weight

of construction equipment. Maintain the moist material blanket above the optimum moisture content, as appropriate, until the next structural layer is placed.

24-1.04 MEASUREMENT AND PAYMENT

Lime stabilized soil is measured by the square yard determined from horizontal measurements of the planned surface of the lime stabilized soil.

Curing seal is measured under Section 94, "Asphaltic Emulsions." The amount of curing seal used is determined from the gauge specified for the curing equipment.

The contract item prices for the work involved with lime stabilized soil are paid:

1. Per square yard for lime stabilized soil
2. Per ton for lime
3. Per ton for asphaltic emulsion (curing seal)

Payment for the contract items involved with lime stabilized soil includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the lime stabilized soil, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The Department does not adjust payment for lime.

Quantities of lime wasted or disposed of in a manner not specified, or remaining on hand after completion of the work, will not be paid for. If you use a partial load of lime, weigh the truck and the remaining lime on a scale under Section 9-1.01, "Measurement of Quantities," and submit a weighmaster certificate to the Engineer.

Full compensation for preparing soil to be stabilized is included in the contract price paid per square yard for lime stabilized soil, and no separate payment is made therefor, except removing and disposing of rocks and solids larger 1/3 of the layer thickness and larger than 4 inches from native soil or embankment other than imported borrow is paid for as extra work as provided in Section 4-1.03D, "Extra Work." Removing and disposing of rocks and solids larger than 1/3 of the lift thickness and larger than 4 inches from imported borrow is at your expense.

Full compensation for mixing, compacting, and maintaining the moisture content of the lime stabilized soil is included in the contract price paid per square yard for lime stabilized soil, and no separate payment is made therefor.

Full compensation for applying lime is included in the contract price paid per ton for lime, and no additional compensation is allowed therefor.

If the dispute resolution ITP determines the Engineer's test results are correct, the Engineer deducts the ITP's testing costs from payments. If the ITP determines your test results are correct, the State pays the ITP testing costs.

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SECTION 25 AGGREGATE SUBBASES
(Issued 02-16-07)

In Section 25-1.02A replace the 1st paragraph with:

Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone
2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:

    5.1. Asphalt concrete
    5.2. Portland cement concrete
    5.3. Lean concrete base
    5.4. Cement treated base

Replace Section 25-1.02B with:

25-1.02B Class 4 Aggregate Subbase

Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone
2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:

    5.1. Asphalt concrete
    5.2. Portland cement concrete
    5.3. Lean concrete base
    5.4. Cement treated base

^^

SECTION 26 AGGREGATE BASES
(Issued 02-16-07)

In Section 26-1.02A replace the 1st paragraph with:

Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone
2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:

    5.1. Asphalt concrete
    5.2. Portland cement concrete

5.3. Lean concrete base
5.4. Cement treated base

In Section 26-1.02B replace the 1st paragraph with:

Aggregate must be clean and free from organic matter and other deleterious substances. Aggregate must consist of any combination of:

1. Broken stone
2. Crushed gravel
3. Natural rough surfaced gravel
4. Sand
5. Up to 100 percent of any combination of processed:

    5.1. Asphalt concrete
    5.2. Portland cement concrete
    5.3. Lean concrete base
    5.4. Cement treated base

^^

SECTION 27 CEMENT TREATED BASES
(Issued 07-31-07)

In Section 27-1.02 replace the 1st paragraph with:

Cement shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

In Section 27-1.02 replace the 3rd paragraph with:

Aggregate for use in Class A cement treated base shall be of such quality that when mixed with cement in an amount not to exceed 5 percent by weight of the dry aggregate and compacted at optimum moisture content, the compressive strength of a sample of the compacted mixture shall not be less than 750 pounds per square inch at 7 days, when tested by California Test 312.

In Section 27-1.02 replace the 4th paragraph with:

Aggregate for use in Class B cement treated base shall have a Resistance (R-value) of not less than 60 before mixing with cement and a Resistance (R-value) of not less than 80 after mixing with cement in an amount not to exceed 2.5 percent by weight of the dry aggregate.

In Section 27-1.07 replace the 9th paragraph with:

When surfacing material is hot mix asphalt, the low areas shall be filled with hot mix asphalt conforming to the requirements for the lowest layer of hot mix asphalt to be placed as surfacing. This filling shall be done as a separate operation prior to placing the lowest layer of surfacing,

and full compensation for this filling will be considered as included in the contract price paid for cement treated base and no additional compensation will be allowed therefor.

^^

SECTION 28 LEAN CONCRETE BASE
(Issued 05-15-09)

In Section 28-1.02 replace the 1st paragraph with:

Cement shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

In Section 28-1.02 replace the 6th paragraph with:

Aggregate shall be of such quality that, when mixed with cement in an amount not to exceed 300 pounds per cubic yard, and tested in conformance with the requirements in California Test 548, the compressive strength of a sample will be not less than 700 pounds per square inch at 7 days.

Replace Section 28-1.05 with:

Placing of lean concrete base shall conform to the provisions for placing concrete pavement in Section 40-3.04, "Placing Concrete," except that the third paragraph in Section 40-3.04A, "General," shall not apply.

Unless otherwise required by the plans or the special provisions, lean concrete base shall be constructed in not less than 12-foot widths separated by construction joints. Lean concrete base constructed monolithically in widths greater than 26 feet shall be constructed with a longitudinal contraction joint offset not more than 3 feet from the centerline of the width being constructed.

Longitudinal contraction joints in lean concrete base shall be constructed in conformance with the provisions in Section 40-3.08E, "Sawing Method."

When concrete pavement is to be placed over lean concrete base, longitudinal construction joints and longitudinal contraction joints in the lean concrete base shall not be within one foot of planned longitudinal contraction joints nor longitudinal construction joints in the concrete pavement.

Lean concrete base shall not be mixed nor placed while the atmospheric temperature is below 35 °F, and shall not be placed on frozen ground.

In Section 28-1.06 replace the 1st and 2nd paragraphs with:

Lean concrete base shall be spread, compacted, and shaped in conformance with the provisions in Section 40-3.04D, "Stationary Side Form Construction," and Section 40-3.04E, "Slip-Form Construction."

In advance of curing operations, lean concrete base to be surfaced with hot mix asphalt shall be textured with a drag strip of burlap, a broom or a spring steel tine device which will produce scoring in the finished surface. The scoring shall be parallel with the centerline or transverse thereto. The operation shall be performed at a time and in a manner to produce the coarsest texture practical for the method used.

In Section 28-1.08 replace the 2nd paragraph with:

Hardened lean concrete base with a surface lower than 0.05 foot below the grade established by the Engineer shall be removed and replaced with lean concrete base which complies with these specifications, or if permitted by the Engineer, the low areas shall be filled with pavement material as follows:

1. When pavement material is hot mix asphalt, the low areas shall be filled with hot mix asphalt conforming to the requirements for the lowest layer of hot mix asphalt to be placed as pavement. This shall be done as a separate operation prior to placing the lowest layer of pavement, and full compensation for this filling will be considered as included in the contract price paid per cubic yard for lean concrete base and no additional compensation will be allowed therefor.
2. When pavement material is portland cement concrete, the low areas shall be filled with pavement concrete at the time and in the same operation that the pavement is placed. Full compensation for this filling will be considered as included in the contract price paid per cubic yard for lean concrete base and no additional compensation will be allowed therefor.

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SECTION 29 TREATED PERMEABLE BASES
(Issued 05-15-09)

In Section 29-1.02B replace the 2nd paragraph with:

Cement shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

In Section 29-1.04A replace the 1st paragraph with:

Aggregates and asphalt for asphalt treated permeable base shall be stored, proportioned and mixed in the same manner provided for storing, proportioning and mixing aggregates and asphalt for hot mix asphalt in Section 39-1.08, "Production," except as follows:

1. The aggregate need not be separated into sizes.
2. The temperature of the aggregate before adding the asphalt binder shall be not less than 275° F nor more than 325° F.
3. Asphalt treated permeable base stored in excess of 2 hours shall not be used in the work.
4. The aggregate shall be combined with 2.5 percent paving asphalt by weight of the dry aggregate. After testing samples of the Contractor's proposed aggregate supply, the Engineer may order an increase or decrease in the asphalt content. If an increase or decrease is ordered, and the increase or decrease exceeds the specified amount by more than 0.1 percent by weight of the dry aggregate, the compensation payable to the Contractor for the asphalt treated permeable base will be increased or decreased on the basis of the total increase or decrease in asphalt.

5. The asphalt content of the asphalt mixture will be determined, at the option of the Engineer, by extraction tests in conformance with the requirements in California Test 310 or 362, or will be determined in conformance with the requirements in California Test 379. The bitumen ratio pounds of asphalt per 100 pounds of dry aggregate shall not vary by more than 0.5 pound of asphalt above or 0.5 pound of asphalt below the amount designated by the Engineer. Compliance with this requirement will be determined either by taking samples from trucks at the plant or from the mat behind the paver before rolling. If the sample is taken from the mat behind the paver, the bitumen ratio shall be not less than the amount designated by the Engineer, less 0.7 pound of asphalt per 100 pounds of dry aggregate.

In Section 29-1.04B replace the 2nd paragraph with:

Cement treated permeable base shall contain not less than 287 pounds of cement per cubic yard.

In Section 29-1.05 replace the 1st paragraph with:

Asphalt treated permeable base shall be spread and compacted as specified for hot mix asphalt under the "Method" construction process in Section 39, "Hot Mix Asphalt," and these specifications.

In Section 29-1.05 in the 8th paragraph, replace the 2nd sentence with:

The filter fabric shall conform to the provisions in Section 88-1.02, "Filtration," and shall be placed in conformance with the provisions for placing filter fabric for edge drains in Section 68-3.03, "Installation."

In Section 29-1.06 replace the 1st and 2nd paragraphs with:

Cement treated base shall be placed, spread, compacted, and shaped in conformance with the provisions in Section 40-3.04D, "Stationary Side Form Construction," and Section 40-3.04E, "Slip-Form Construction," except that vibrators shall not be used and the third paragraph in Section 40-3.04A, "General," shall not apply.

In Section 29-1.06 in the 9th paragraph, replace the 2nd sentence with:

The filter fabric shall conform to the provisions in Section 88-1.02, "Filtration," and shall be placed in conformance with the provisions for placing filter fabric for edge drains in Section 68-3.03, "Installation."

In Section 29-1.07 replace the 2nd paragraph with:

Hardened treated permeable base with a surface lower than 0.05 foot below the grade established by the Engineer shall be removed and replaced with treated permeable base which complies with these specifications, or if permitted by the Engineer, the low areas shall be filled with pavement material as follows:

1. When pavement material is hot mix asphalt, the low areas shall be filled with hot mix asphalt conforming to the requirements for the lowest layer of hot mix asphalt to be

placed as pavement. This shall be done as a separate operation prior to placing the lowest layer of pavement.

2. When pavement material is portland cement concrete, the low areas shall be filled with pavement concrete at the time and in the same operation in which the pavement is placed.
3. Full compensation for filling low areas will be considered as included in the contract price paid per cubic yard for treated permeable base and no additional compensation will be allowed therefor.

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SECTION 37 BITUMINOUS SEALS
(Issued 06-05-09)

In Section 37-1.03 replace the 4th through 6th paragraphs with:

On 2-lane two-way roadways, W8-7 "LOOSE GRAVEL" signs and W13-1 (35) speed advisory signs shall be furnished and placed adjacent to both sides of the traveled way where screenings are being spread on a traffic lane. The first W8-7 sign in each direction shall be placed where traffic first encounters loose screenings, regardless of which lane the screenings are being spread on. The W13-1 (35) signs need not be placed in those areas with posted speed limits of less than 40 MPH. The signs shall be placed at maximum 2,000-foot intervals along each side of the traveled way and at public roads or streets entering the seal coat area as directed by the Engineer.

On multilane roadways (freeways, expressways and multilane conventional highways) where screenings are being spread on a traffic lane, W8-7 "LOOSE GRAVEL" signs and W13-1 (35) speed advisory signs shall be furnished and placed adjacent to the outside edge of the traveled way nearest to the lane being worked on. The first W8-7 sign shall be placed where the screenings begin with respect to the direction of travel on that lane. The W13-1 (35) signs need not be placed in those areas with posted speed limits of less than 40 MPH. The signs shall be placed at maximum 2,000-foot intervals along the edge of traveled way and at on-ramps, public roads or streets entering the seal coat area as directed by the Engineer.

The W8-7 and W13-1 signs shall be maintained in place at each location until final brooming of the seal coat surface at that location is completed. The W8-7 and W13-1 signs shall conform to the provisions for construction area signs in Section 12, "Construction Area Traffic Control Devices." The signs may be set on temporary portable supports with the W13-1 below the W8-7 or on barricades with the W13-1 sign alternating with the W8-7 sign.

In Section 37-1.07 replace the 2nd paragraph with:

Rollers shall be oscillating type pneumatic-tired rollers. A minimum of 2 pneumatic-tired rollers conforming to the provisions in Section 39-3.03 "Spreading and Compacting Equipment," shall be furnished.

In Section 37-1.09 replace the 2nd paragraph with:

The above prices and payments shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in applying seal

coat, complete in place, including furnishing, placing, maintaining, and removing W8-7 and W13-1 signs, when required, and temporary supports or barricades for the signs, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

In Section 37-2.05 replace the 6th paragraph with:

In addition to conforming to the provisions in Section 5-1.10, "Equipment," the identifying number of mixer-spreader trucks shall be at least 2 inches in height, located on the front and rear of the vehicle.

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SECTION 39 ASPHALT CONCRETE
(Issued 10-19-12)

Replace Section 39 with:

SECTION 39 HOT MIX ASPHALT

39-1 GENERAL

39-1.01 DESCRIPTION

Section 39 includes specifications for producing and placing hot mix asphalt (HMA) by mixing aggregate and asphalt binder at a mixing plant and spreading and compacting the HMA mixture.

The special provisions specify one or more types of HMA, including:

1. Type A
2. Type B
3. Open graded friction course (OGFC). OGFC includes hot mix asphalt (open graded)[HMA-O], rubberized hot mix asphalt (open graded) [RHMA-O] and rubberized hot mix asphalt (open graded high binder) [RHMA-O-HB]
4. Rubberized hot mix asphalt (gap graded) [RHMA-G]

The special provisions specify the HMA construction process, including:

1. Standard
2. Method
3. Quality Control / Quality Assurance (QC / QA)

39-1.02 MATERIALS

39-1.02A Geosynthetic Pavement Interlayer

Geosynthetic pavement interlayer must comply with the specifications in Section 88-1.07, "Pavement Interlayer," for the type of interlayer shown on the plans.

39-1.02B Tack Coat

Tack coat must comply with the specifications for asphaltic emulsion in Section 94, "Asphaltic Emulsion," or asphalt binder in Section 92, "Asphalts." Choose the type and grade.

Notify the Engineer if you dilute asphaltic emulsion with water. The weight ratio of added water to asphaltic emulsion must not exceed 1 to 1.

Measure added water either by weight or volume in compliance with the specifications for weighing, measuring, and metering devices under Section 9-1.01, "Measurement of Quantities," or you may 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 in writing:

1. The weight ratio of water to bituminous material in the original asphaltic emulsion
2. The weight of asphaltic emulsion before diluting
3. The weight of added water
4. The final dilution weight ratio of water to asphaltic emulsion

39-1.02C Asphalt Binder

Asphalt binder in HMA must comply with Section 92, "Asphalts," or Section 39-1.02D, "Asphalt Rubber Binder." The special provisions specify the grade.

Asphalt binder for geosynthetic pavement interlayer must comply with Section 92, "Asphalts." Choose from Grades PG 64-10, PG 64-16, or PG 70-10.

39-1.02D Asphalt Rubber Binder

General

Use asphalt rubber binder in RHMA-G, RHMA-O, and RHMA-O-HB. Asphalt rubber binder must be a combination of:

1. Asphalt binder
2. Asphalt modifier
3. Crumb rubber modifier (CRM)

The combined asphalt binder and asphalt modifier must be 80.0 ± 2.0 percent by weight of the asphalt rubber binder.

Asphalt Modifier

Asphalt modifier must be a resinous, high flash point, and aromatic hydrocarbon, and comply with:

Asphalt Modifier for Asphalt Rubber Binder

Quality Characteristic	ASTM	Specification
Viscosity, m^2/s (x 10^{-6}) at 100 °C	D 445	X ± 3 [a]
Flash Point, CL.O.C., °C	D 92	207 minimum
Molecular Analysis		
Asphaltenes, percent by mass	D 2007	0.1 maximum
Aromatics, percent by mass	D 2007	55 minimum

Note:

[a] The symbol "X" is the proposed asphalt modifier viscosity. "X" must be between 19 and 36. A change in "X" requires a new asphalt rubber binder design.

Asphalt modifier must be from 2.0 percent to 6.0 percent by weight of the asphalt binder in the asphalt rubber binder.

Crumb Rubber Modifier

CRM consists of a ground or granulated combination of scrap tire CRM and high natural CRM. CRM must be 75.0 ± 2.0 percent scrap tire CRM and 25.0 ± 2.0 percent high natural CRM by total weight of CRM. Scrap tire CRM must be from any combination of automobile tires, truck tires, or tire buffings.

Sample and test scrap tire CRM and high natural CRM separately. CRM must comply with:

Crumb Rubber Modifier for Asphalt Rubber Binder

Quality Characteristic	Test Method	Specification
Scrap tire CRM gradation (% passing No. 8 sieve)	LP-10	100
High natural CRM gradation (% passing No. 10 sieve)	LP-10	100
Wire in CRM (% max.)	LP-10	0.01
Fabric in CRM (% max.)	LP-10	0.05
CRM particle length (inch max.) [a]	--	3/16
CRM specific gravity [a]	CT 208	1.1 – 1.2
Natural rubber content in high natural CRM (%) [a]	ASTM D 297	40.0 – 48.0

Note:
[a] Test at mix design and for Certificate of Compliance.

Only use CRM ground and granulated at ambient temperature. If steel and fiber are cryogenically separated, it must occur before grinding and granulating. Only use cryogenically produced CRM particles that can be ground or granulated and not pass through the grinder or granulator.

CRM must be dry, free-flowing particles that do not stick together. CRM must not cause foaming when combined with the asphalt binder and asphalt modifier. You may add calcium carbonate or talc up to 3 percent by weight of CRM.

Asphalt Rubber Binder Design and Profile

Submit in writing an asphalt rubber binder design and profile that complies with the asphalt rubber binder specifications. In the design, designate the asphalt, asphalt modifier, and CRM and their proportions. The profile is not a performance specification and only serves to indicate expected trends in asphalt rubber binder properties during binder production. The profile must include the same component sources for the asphalt rubber binder used.

Design the asphalt rubber binder from testing you perform for each quality characteristic and for the reaction temperatures expected during production. The 24-hour (1,440-minute) interaction period determines the design profile. At a minimum, mix asphalt rubber binder components, take samples, and perform and record the following tests:

Asphalt Rubber Binder Reaction Design Profile

Test	Minutes of Reaction [a]							Limits
	45	60	90	120	240	360	1440	
Cone penetration @ 77 °F, 0.10-mm (ASTM D 217)	X [b]				X		X	25 - 70
Resilience @ 77 °F, percent rebound (ASTM D 5329)	X				X		X	18 min.
Field softening point, °F (ASTM D 36)	X				X		X	125 - 165
Viscosity, centipoises (LP-11)	X	X	X	X	X	X	X	1,500 - 4,000

Notes:

[a] Six hours (360 minutes) after CRM addition, reduce the oven temperature to 275 °F for a period of 16 hours. After the 16-hour (1320 minutes) cool-down after CRM addition, reheat the binder to the reaction temperature expected during production for sampling and testing at 24 hours (1440 minutes).

[b] "X" denotes required testing

Asphalt Rubber Binder

After interacting for a minimum of 45 minutes, asphalt rubber binder must comply with:

Asphalt Rubber Binder

Quality Characteristic	Test for Quality Control or Acceptance	Test Method	Specification	
			Minimum	Maximum
Cone penetration @ 77 °F, 0.10-mm	Acceptance	ASTM D 217	25	70
Resilience @ 77 °F, percent rebound	Acceptance	ASTM D 5329	18	--
Field softening point, °F	Acceptance	ASTM D 36	125	165
Viscosity @ 375 °F, centipoises	Quality Control	LP-11	1,500	4,000

39-1.02E Aggregate

Aggregate must be clean and free from deleterious substances. Aggregate:

1. Retained on the No. 4 sieve is coarse
2. Passing the No. 4 sieve is fine
3. Added and passing the No. 30 sieve is supplemental fine, including:

    3.1. Hydrated lime
    3.2. Portland cement
    3.3. Fines from dust collectors

The special provisions specify the aggregate gradation for each HMA type.

The specified aggregate gradation is before the addition of asphalt binder and includes supplemental fines. The Engineer tests for aggregate grading under California Test 202, modified by California Test 105 if there is a difference in specific gravity of 0.2 or more between the coarse and fine parts of different aggregate blends.

Choose a sieve size target value (TV) within each target value limit presented in the aggregate gradation tables.

Aggregate Gradation
(Percentage Passing)
HMA Types A and B

3/4–inch HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
1"	100	—
3/4"	90 - 100	TV ±5
1/2"	70 - 90	TV ±6
No. 4	45 - 55	TV ±7
No. 8	32 - 40	TV ±5
No. 30	12 - 21	TV ±4
No. 200	2 - 7	TV ±2

1/2–inch HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/4"	100	—
1/2"	95 - 99	TV ±6
3/8"	75 - 95	TV ±6
No. 4	55 - 66	TV ±7
No. 8	38 - 49	TV ±5
No. 30	15 - 27	TV ±4
No. 200	2 - 8	TV ±2

3/8–inch HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
1/2"	100	—
3/8"	95 - 100	TV ±6
No. 4	58 - 72	TV ±7
No. 8	34 - 48	TV ±6
No. 30	18 - 32	TV ±5
No. 200	2 - 9	TV ±2

No. 4 HMA Types A and B

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/8"	100	—
No. 4	95 - 100	TV ±7
No. 8	72 - 77	TV ±7
No. 30	37 - 43	TV ±7
No. 200	2 - 12	TV ±4

Rubberized Hot Mix Asphalt - Gap Graded (RHMA-G)

3/4–inch RHMA-G

Sieve Sizes	Target Value Limits	Allowable Tolerance
1"	100	—
3/4"	95 - 100	TV ±5
1/2"	83 - 87	TV ±6
3/8"	65 - 70	TV ±6
No. 4	28 - 42	TV ±7
No. 8	14 - 22	TV ±5
No. 200	0 - 6	TV ±2

1/2–inch RHMA-G

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/4"	100	—
1/2"	90 - 100	TV ±6
3/8"	83 - 87	TV ±6
No. 4	28 - 42	TV ±7
No. 8	14 - 22	TV ±5
No. 200	0 - 6	TV ±2

Open Graded Friction Course (OGFC)

1–inch OGFC

Sieve Sizes	Target Value Limits	Allowable Tolerance
1 1/2"	100	—
1"	99 - 100	TV ±5
3/4"	85 - 96	TV ±5
1/2"	55 - 71	TV ±6
No. 4	10 - 25	TV ±7
No. 8	6 - 16	TV ±5
No. 200	1 - 6	TV ±2

1/2–inch OGFC

Sieve Sizes	Target Value Limits	Allowable Tolerance
3/4"	100	—
1/2"	95 - 100	TV ±6
3/8"	78 - 89	TV ±6
No. 4	28 - 37	TV ±7
No. 8	7 - 18	TV ±5
No. 30	0 - 10	TV ±4
No. 200	0 - 3	TV ±2

3/8–inch OGFC

Sieve Sizes	Target Value Limits	Allowable Tolerance
1/2"	100	—
3/8"	90 - 100	TV ±6
No. 4	29 - 36	TV ±7
No. 8	7 - 18	TV ±6
No. 30	0 - 10	TV ±5
No. 200	0 - 3	TV ±2

Before the addition of asphalt binder and lime treatment, aggregate must comply with:

Aggregate Quality

Quality Characteristic	Test Method	HMA Type			
		A	B	RHMA-G	OGFC
Percent of crushed particles	CT 205				
Coarse aggregate (% min.)					
One fractured face		90	25	--	90
Two fractured faces		75	--	90	75
Fine aggregate (% min)					
(Passing No. 4 sieve and retained on No. 8 sieve.)					
One fractured face		70	20	70	90
Los Angeles Rattler (% max.)	CT 211				
Loss at 100 Rev.		12	--	12	12
Loss at 500 Rev.		45	50	40	40
Sand equivalent (min.) [a]	CT 217	47	42	47	--
Fine aggregate angularity (% min.) [b]	CT 234	45	45	45	--
Flat and elongated particles (% max. by weight @ 5:1)	CT 235	10	10	10	10

Notes:

[a] Reported value must be the average of 3 tests from a single sample.

[b] The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

39-1.02F Reclaimed Asphalt Pavement

You may produce HMA using reclaimed asphalt pavement (RAP). HMA produced using RAP must comply with the specifications for HMA except aggregate quality specifications do not apply to RAP. You may substitute RAP aggregate for a part of the virgin aggregate in HMA in a quantity not exceeding 15.0 percent of the aggregate blend. Do not use RAP in OGFC and RHMA-G.

Assign the substitution rate of RAP aggregate for virgin aggregate with the job mix formula (JMF) submittal. The JMF must include the percent of RAP used. If you change your assigned RAP aggregate substitution rate by more than 5 percent (within the 15.0 percent limit), submit a new JMF.

Process RAP from asphalt concrete. You may process and stockpile RAP throughout the project's life. Prevent material contamination and segregation. Store RAP in stockpiles on smooth surfaces free of debris and organic material. Processed RAP stockpiles must consist only of homogeneous RAP.

39-1.03 HOT MIX ASPHALT MIX DESIGN REQUIREMENTS

39-1.03A General

A mix design consists of performing California Test 367 and laboratory procedures on combinations of aggregate gradations and asphalt binder contents to determine the optimum binder content (OBC) and HMA mixture qualities. If RAP is used, use Laboratory Procedure LP-9. The result of the mix design becomes the proposed JMF.

Use Form CEM-3512 to document aggregate quality and mix design data. Use Form CEM-3511 to present the JMF.

Laboratories testing aggregate qualities and preparing the mix design and JMF must be qualified under the Department's Independent Assurance Program. Take samples under California Test 125.

The Engineer reviews the aggregate qualities, mix design, and JMF and verifies and accepts the JMF.

You may change the JMF during production. Do not use the changed JMF until the Engineer accepts it. Except when adjusting the JMF in compliance with Section 39-1.03E, "Job Mix Formula Verification," perform a new mix design and submit in writing a new JMF submittal for changing any of the following:

1. Target asphalt binder percentage
2. Asphalt binder supplier
3. Asphalt rubber binder supplier
4. Component materials used in asphalt rubber binder or percentage of any component materials
5. Combined aggregate gradation
6. Aggregate sources
7. Substitution rate for RAP aggregate of more than 5 percent
8. Any material in the JMF

For OGFC, submit in writing a complete JMF submittal except asphalt binder content. The Engineer determines the asphalt binder content under California Test 368 within 20 days of your complete JMF submittal and provides you a Form CEM-3513.

39-1.03B Hot Mix Asphalt Mix Design

Perform a mix design that produces HMA in compliance with:

Hot Mix Asphalt Mix Design Requirements

Quality Characteristic	Test Method	HMA Type		
		A	B	RHMA-G
Air voids content (%)	CT 367[a]	4.0	4.0	Special Provisions
Voids in mineral aggregate (% min.)	LP-2			
No. 4 grading		17.0	17.0	--
3/8" grading		15.0	15.0	--
1/2" grading		14.0	14.0	18.0 – 23.0[b]
3/4" grading		13.0	13.0	18.0 – 23.0[b]
Voids filled with asphalt (%)	LP-3			
No. 4 grading		76.0 – 80.0	76.0 – 80.0	Note d
3/8" grading		73.0 – 76.0	73.0 – 76.0	
1/2" grading		65.0 – 75.0	65.0 – 75.0	
3/4" grading		65.0 – 75.0	65.0 – 75.0	
Dust proportion	LP-4			
No. 4 and 3/8" gradings		0.9 – 2.0	0.9 – 2.0	Note d
1/2" and 3/4" gradings		0.6 – 1.3	0.6 – 1.3	
Stabilometer value (min.) [c]	CT 366			
No. 4 and 3/8" gradings		30	30	--
1/2" and 3/4" gradings		37	35	23

Notes:

[a] Calculate the air voids content of each specimen using California Test 309 and Lab Procedure LP-1. Modify California Test 367, Paragraph C5, to use the exact air voids content specified in the selection of OBC.

[b] Voids in mineral aggregate for RHMA-G must be within this range.

[c] Modify California Test 304, Part 2.B.2.c: "After compaction in the compactor, cool to 140 °± 5 °F by allowing the briquettes to cool at room temperature for 0.5-hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."

[d] Report this value in the JMF submittal.

For stability and air voids content, prepare 3 briquettes at the OBC and test for compliance. Report the average of 3 tests. Prepare new briquettes and test if the range of stability for the 3 briquettes is more than 8 points. The average air void content may vary from the specified air void content by ±0.5 percent.

You may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If you use the same briquettes and tests using bulk specific gravity fail, you may prepare 3 new briquettes and determine a new bulk specific gravity.

39-1.03C Job Mix Formula Submittal

Each JMF submittal must consist of:

1. Proposed JMF on Form CEM-3511
2. Mix design documentation on Form CEM-3512 dated within 12 months of submittal
3. JMF verification on Form CEM-3513, if applicable
4. JMF renewal on Form CEM-3514, if applicable
5. Materials Safety Data Sheets (MSDS) for:

    5.1. Asphalt binder
    5.2. Base asphalt binder used in asphalt rubber binder
    5.3. CRM and asphalt modifier used in asphalt rubber binder
    5.4. Blended asphalt rubber binder mixture
    5.5. Supplemental fine aggregate except fines from dust collectors
    5.6. Antistrip additives

If the Engineer requests in writing, sample the following materials in the presence of the Engineer and place in labeled containers weighing no more than 50 pounds each:

1. Coarse, fine, and supplemental fine aggregate from stockpiles, cold feed belts, or hot bins. Samples must include at least 120 pounds for each coarse aggregate, 80 pounds for each fine aggregate, and 10 pounds for each type of supplemental fines. The Department combines these aggregate samples to comply with the JMF target values submitted on Form CEM-3511.
2. RAP from stockpiles or RAP system. Samples must be at least 60 pounds.
3. Asphalt binder from the binder supplier. Samples must be in two 1-quart cylindrical shaped cans with open top and friction lids.
4. Asphalt rubber binder with the components blended in the proportions to be used. Samples must be in four 1-quart cylindrical shaped cans with open top and friction lids.

Notify the Engineer in writing at least 2 business days before sampling materials. For aggregate and RAP, split the samples into at least 4 parts. Submit 3 parts to the Engineer and use 1 part for your testing.

39-1.03D Job Mix Formula Review

The Engineer reviews each mix design and proposed JMF within 5 business days from the complete JMF submittal. The review consists of reviewing the mix design procedures and comparing the proposed JMF with the specifications.

The Engineer may verify aggregate qualities during this review period.

39-1.03E Job Mix Formula Verification

If you cannot submit a Department-verified JMF on Form CEM-3513 dated within 12 months before HMA production, the Engineer verifies the JMF.

Based on your testing and production experience, you may submit on Form CEM-3511 an adjusted JMF before the Engineer's verification testing. JMF adjustments may include a change in the:

1. Asphalt binder content target value up to ±0.6 percent from the optimum binder content value submitted on Form CEM-3512 except do not adjust the target value for asphalt rubber binder for RHMA-G below 7.0 percent
2. Aggregate gradation target values within the target value limits specified in the aggregate gradation tables

For HMA Type A, Type B, and RHMA-G, the Engineer verifies the JMF from samples taken from HMA produced by the plant to be used. Notify the Engineer in writing at least 2 business days before sampling materials.

In the Engineer's presence and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

Sample aggregate from cold feed belts or hot bins. Sample RAP from the RAP system. Sample HMA under California Test 125 except if you request in writing and the Engineer approves, you may sample from any of the following locations:

1. The plant
2. A truck
3. A windrow
4. The paver hopper
5. The mat behind the paver

You may sample from a different project including a non-Department project if you make arrangements for the Engineer to be present during sampling.

For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 split parts to the Engineer and use 1 part for your testing.

The Engineer verifies each proposed JMF within 20 days of receiving all verification samples and the JMF submittal has been accepted. If you request in writing, the Engineer verifies RHMA-G quality requirements within 3 business days of sampling. Verification is testing for compliance with the specifications for:

1. Aggregate quality
2. Aggregate gradation (JMF TV ± tolerance)
3. Asphalt binder content (JMF TV ± tolerance)
4. HMA quality specified in the table Hot Mix Asphalt Mix Design Requirements except:

    4.1. Air voids content (design value ± 2.0 percent)

4.2. Voids filled with asphalt (report only if an adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC)
4.3. Dust proportion (report only if an adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC)

The Engineer prepares 3 briquettes from a single split sample. To verify the JMF for stability and air voids content, the Engineer tests the 3 briquettes and reports the average of 3 tests. The Engineer prepares new briquettes if the range of stability for the 3 briquettes is more than 8 points.

The Engineer may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If the Engineer uses the same briquettes and the tests using bulk specific gravity fail, the Engineer prepares 3 new briquettes and determines a new bulk specific gravity.

If the Engineer verifies the JMF, the Engineer provides you a Form CEM-3513.

If the Engineer's tests on plant-produced samples do not verify the JMF, the Engineer notifies you in writing and you must submit a new JMF submittal or submit an adjusted JMF based on your testing. JMF adjustments may include a change in the:

1. Asphalt binder content target value up to ±0.6 percent from the optimum binder content value submitted on Form CEM-3512 except do not adjust the target value for asphalt rubber binder for RHMA-G below 7.0 percent
2. Aggregate gradation target values within the target value limits specified in the aggregate gradation tables

You may adjust the JMF only once due to a failed verification test. An adjusted JMF requires a new Form CEM-3511 and verification of a plant-produced sample.

A verified JMF is valid for 12 months.

For each HMA type and aggregate size specified, the Engineer verifies at the State's expense up to 2 proposed JMF including a JMF adjusted after verification failure. The Engineer deducts $3,000 from payments for each verification exceeding this limit. This deduction does not apply to verifications initiated by the Engineer or JMF renewal.

39-1.03F Job Mix Formula Renewal

You may request a JMF renewal by submitting the following:

1. Proposed JMF on Form CEM-3511
2. A previously verified JMF documented on Form CEM-3513 dated within 12 months
3. Mix design documentation on Form CEM-3512 used for the previously verified JMF

If the Engineer requests in writing, sample the following materials in the presence of the Engineer and place in labeled containers weighing no more than 50 pounds each:

1. Coarse, fine, and supplemental fine aggregate from stockpiles, cold feed belts, or hot bins. Samples must include at least 120 pounds for each coarse aggregate, 80 pounds for each fine aggregate, and 10 pounds for each type of supplemental fines. The Department combines these aggregate samples to comply with the JMF target values submitted on Form CEM-3511.
2. RAP from stockpiles or RAP system. Samples must be at least 60 pounds.
3. Asphalt binder from the binder supplier. Samples must be in two 1-quart cylindrical shaped cans with open top and friction lids.

4. Asphalt rubber binder with the components blended in the proportions to be used. Samples must be in four 1-quart cylindrical shaped cans with open top and friction lids.

Notify the Engineer in writing at least 2 business days before sampling materials. For aggregate and RAP, split samples into at least 4 parts. Submit 3 parts to the Engineer and use 1 part for your testing.

The Engineer may verify aggregate qualities during this review period.

Notify the Engineer in writing at least 2 business days before sampling materials. For aggregate, RAP, and HMA, split the samples into at least 4 parts. Submit 3 parts to the Engineer and use 1 part for your testing.

The Engineer verifies the JMF renewal submittal under Section 39-1.03E, "Job Mix Formula Verification," except:

1. The Engineer retains samples until you provide test results for your part on Form CEM-3514.
2. The Engineer tests samples of materials obtained from the HMA production unit after you submit test results that comply with the specifications for the quality characteristics under Section 39-1.03E, "Job Mix Formula Verification."
3. The Engineer verifies each proposed JMF renewal within 20 days of receiving verification samples.
4. You may not adjust the JMF due to a failed verification.
5. For each HMA type and aggregate gradation specified, the Engineer verifies at the State's expense 1 proposed JMF renewal within a 12-month period.

The most recent aggregate quality test results within the past 12 months may be used for verification of JMF renewal or the Engineer may perform aggregate quality tests for verification of JMF renewal.

If the Engineer verifies the JMF renewal, the Engineer provides you a Form CEM-3513.

39-1.03G Job Mix Formula Modification

For an accepted JMF, you may change binder source one time during production.

Submit your modified JMF request a minimum of 3 business days before production. Each modified JMF submittal must consist of:

1. Proposed modified JMF on Form CEM-3511.
2. Mix design records on Form CEM-3512 for the accepted JMF to be modified.
3. JMF verification on Form CEM-3513 for the accepted JMF to be modified.
4. Quality characteristics test results for the modified JMF as specified in section 39-1.03B. Perform tests at the mix design OBC as shown on Form CEM-3512.
5. If required, California Test 371 test results for the modified JMF.

With an accepted modified JMF submittal, the Engineer verifies each modified JMF within 5 business days of receiving all verification samples. If California Test 371 is required, the Engineer tests for California Test 371 within 10 days of receiving verification samples.

The Engineer verifies the modified JMF after the modified JMF HMA is placed on the project and verification samples are taken within the first 750 tons following sampling requirements in Section 39-1.03E, "Job Mix Formula Verification." The Engineer tests verification samples for compliance with:

1. Stability as shown in the table titled "Hot Mix Asphalt Mix Design Requirements"
2. Air void content at design value ±2.0 percent
3. Voids in mineral aggregate as shown in the table titled "Hot Mix Asphalt Mix Design Requirements"
4. Voids filled with asphalt if an adjustment for asphalt binder content TV is more than ±0.3 percent from the original OBC shown on Form CEM-3512.
5. Dust proportion if an adjustment for asphalt binder content TV is more than ±0.3 percent from OBC shown on Form CEM-3512.

If the modified JMF is verified, the Engineer revises your Form CEM-3513 to include the new binder source. Your revised Form CEM-3513 will have the same expiration date as the original Form CEM-3513 for the accepted JMF that is modified.

If a modified JMF is not verified, stop production and any HMA placed using the modified JMF is rejected.

The Engineer deducts $2,000 from payments for each modified JMF verification. The Engineer deducts an additional $2,000 from payments for each modified JMF verification that requires California Test 371.

39-1.03H Job Mix Formula Acceptance

You may start HMA production if:

1. The Engineer's review of the JMF shows compliance with the specifications.
2. The Department has verified the JMF within 12 months before HMA production.
3. The Engineer accepts the verified JMF.

39-1.04 CONTRACTOR QUALITY CONTROL

39-1.04A General

Establish, maintain, and change a quality control system to ensure materials and work comply with the specifications. Submit quality control test results to the Engineer within 3 business days of a request except when QC / QA is specified.

You must identify the HMA sampling location in your Quality Control Plan. During production, take samples under California Test 125. You may sample HMA from:

1. The plant
2. The truck
3. A windrow
4. The paver hopper
5. The mat behind the paver

39-1.04B Prepaving Conference

Meet with the Engineer at a prepaving conference at a mutually agreed time and place. Discuss methods of performing the production and paving work.

39-1.04C Asphalt Rubber Binder

Take asphalt rubber binder samples from the feed line connecting the asphalt rubber binder tank to the HMA plant. Sample and test asphalt rubber binder under Laboratory Procedure LP-11.

Test asphalt rubber binder for compliance with the viscosity specifications in Section 39-1.02, "Materials." During asphalt rubber binder production and HMA production using asphalt rubber binder, measure viscosity every hour with not less than 1 reading for each asphalt rubber binder batch. Log measurements with corresponding time and asphalt rubber binder temperature. Submit the log daily in writing.

Submit a Certificate of Compliance under Section 6-1.07, "Certificates of Compliance." With the Certificate of Compliance, submit test results in writing for CRM and asphalt modifier with each truckload delivered to the HMA plant. A Certificate of Compliance for asphalt modifier must not represent more than 5,000 pounds. Use an AASHTO-certified laboratory for testing.

Sample and test gradation and wire and fabric content of CRM once per 10,000 pounds of scrap tire CRM and once per 3,400 pounds of high natural CRM. Sample and test scrap tire CRM and high natural CRM separately.

Submit certified weight slips in writing for the CRM and asphalt modifier furnished.

39-1.04D Aggregate

Determine the aggregate moisture content and RAP moisture content in continuous mixing plants at least twice a day during production and adjust the plant controller. Determine the RAP moisture content in batch mixing plants at least twice a day during production and adjust the plant controller.

39-1.04E Reclaimed Asphalt Pavement

Perform RAP quality control testing each day.

Sample RAP once daily and determine the RAP aggregate gradation under Laboratory Procedure LP-9 and submit the results to the Engineer in writing with the combined aggregate gradation.

39-1.04F Density Cores

To determine density for Standard and QC / QA projects, take 4-inch or 6-inch diameter density cores at least once every 5 business days. Take 1 density core for every 250 tons of HMA from random locations the Engineer designates. Take density cores in the Engineer's presence and backfill and compact holes with material authorized by the Engineer. Before submitting a density core to the Engineer, mark 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 taken within 1 foot longitudinally from the original density core. Relocate any density core located within 1 foot of a rumble strip to 1 foot transversely away from the rumble strip.

39-1.04G Briquettes

Prepare 3 briquettes for each stability and air voids content determination. Report the average of 3 tests. Prepare new briquettes and test if the range of stability for the 3 briquettes is more than 12 points.

You may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If you use these briquettes and tests using bulk specific gravity fail, you may prepare 3 new briquettes and determine a new bulk specific gravity.

39-1.05 ENGINEER'S ACCEPTANCE

The Engineer's acceptance of HMA is specified in the sections for each HMA construction process.

The Engineer samples materials for testing under California Test 125 and the applicable test method except samples may be taken from:

1. The plant from:

    1.1. A truck
    1.2. An automatic sampling device

2. The mat behind the paver

Sampling must be independent of Contractor quality control, statistically-based, and random. If you request, the Engineer splits samples and provides you with a part.

The Engineer accepts HMA based on:

1. Accepted JMF
2. Accepted QCP for Standard and QC / QA
3. Compliance with the HMA Acceptance tables
4. Acceptance of a lot for QC / QA
5. Visual inspection

The Engineer prepares 3 briquettes for each stability and air voids content determination. The Engineer reports the average of 3 tests. The Engineer prepares new briquettes and test if the range of stability for the 3 briquettes is more than 8 points.

The Engineer may use the briquettes used for stability testing to determine bulk specific gravity under CT 308. If the Engineer uses the same briquettes and the tests using bulk specific gravity fail, the Engineer prepares 3 new briquettes and determines a new bulk specific gravity.

39-1.06 DISPUTE RESOLUTION

You and the Engineer must work together to avoid potential conflicts and to resolve disputes regarding test result discrepancies. Notify the Engineer in writing within 5 business days of receiving a test result if you dispute the test result.

If you or the Engineer dispute each other's test results, submit written quality control test results and copies of paperwork including worksheets used to determine the disputed test results to the Engineer. An Independent Third Party (ITP) performs referee testing. Before the ITP participates in a dispute resolution, the ITP must be accredited under the Department's Independent Assurance Program. The ITP must be independent of the project. By mutual agreement, the ITP is chosen from:

1. A Department laboratory
2. A Department laboratory in a district or region not in the district or region the project is located
3. The Transportation Laboratory
4. A laboratory not currently employed by you or your HMA producer

If split quality control or acceptance samples are not available, the ITP uses any available material representing the disputed HMA for evaluation.

39-1.07 PRODUCTION START-UP EVALUATION

The Engineer evaluates HMA production and placement at production start-up.

Within the first 750 tons produced on the first day of HMA production, in the Engineer's presence and from the same production run, take samples of:

1. Aggregate
2. Asphalt binder
3. RAP
4. HMA

Sample aggregate from cold feed belts or hot bins. Take RAP samples from the RAP system. Sample HMA under California Test 125 except if you request in writing and the Engineer approves, you may sample HMA from:

1. The plant
2. The truck
3. A windrow
4. The paver hopper
5. The mat behind the paver

For aggregate, RAP, and HMA, split the samples into at least 4 parts and label their containers. Submit 3 split parts to the Engineer and keep 1 part.

For Standard and QC / QA projects, you and the Engineer must test the split samples and report test results in writing within 3 business days of sampling. If you proceed before receipt of the test results, the Engineer may consider the HMA placed to be represented by these test results.

For Standard and QC / QA projects, take 4-inch or 6-inch diameter density cores within the first 750 tons on the first day of HMA production. For each density core, the Engineer reports the bulk specific gravity determined under California Test 308, Method A in addition to the percent of maximum theoretical density. You may test for in-place density at the density core locations and include them in your production tests for percent of maximum theoretical density.

39-1.08 PRODUCTION

39-1.08A General

Produce HMA in a batch mixing plant or a continuous mixing plant. Proportion aggregate by hot or cold feed control.

HMA plants must be Department-qualified. Before production, the HMA plant must have a current qualification under the Department's Materials Plant Quality Program.

During production, you may adjust:

1. Hot or cold feed proportion controls for virgin aggregate and RAP
2. The set point for asphalt binder content

39-1.08B Mixing

Mix HMA ingredients into a homogeneous mixture of coated aggregates.

Asphalt binder must be between 275 °F and 375 °F when mixed with aggregate.

Asphalt rubber binder must be between 375 °F and 425 °F when mixed with aggregate.

When mixed with asphalt binder, aggregate must not be more than 325 °F except aggregate for OGFC with unmodified asphalt binder must be not more than 275 °F. Aggregate temperature specifications do not apply when you use RAP.

HMA with or without RAP must not be more than 325 °F.

39-1.08C Asphalt Rubber Binder

Deliver scrap tire CRM and high natural CRM in separate bags.

Either proportion and mix asphalt binder, asphalt modifier, and CRM simultaneously or premix the asphalt binder and asphalt modifier before adding CRM. If you premix asphalt binder and asphalt modifier, asphalt binder must be from 375 to 425 degrees F when you add the asphalt modifier. Mix them for at least 20 minutes. When you add CRM, the asphalt binder and asphalt modifier must be between 375 °F and 425 °F.

Do not use asphalt rubber binder during the first 45 minutes of the reaction period. During this period, the asphalt rubber binder mixture must be between 375 °F and the lower of 425 °F or 25 °F below the asphalt binder's flash point indicated in the MSDS.

If any asphalt rubber binder is not used within 4 hours after the reaction period, discontinue heating. If the asphalt rubber binder drops below 375 °F, reheat before use. If you add more scrap tire CRM to the reheated asphalt rubber binder, the binder must undergo a 45-minute reaction period. The added scrap tire CRM must not exceed 10 percent of the total asphalt rubber binder weight. Reheated and reacted asphalt rubber binder must comply with the viscosity specifications for asphalt rubber binder in Section 39-1.02, "Materials." Do not reheat asphalt rubber binder more than twice.

39-1.09 SUBGRADE, TACK COAT, AND GEOSYNTHETIC PAVEMENT INTERLAYER

39-1.09A General

Prepare subgrade or apply tack coat to surfaces receiving HMA. If specified, place geosynthetic pavement interlayer over a coat of asphalt binder.

39-1.09B Subgrade

Subgrade to receive HMA must comply with the compaction and elevation tolerance specifications in the sections for the material involved. Subgrade must be free of loose and extraneous material. If HMA is paved on existing base or pavement, remove loose paving particles, dirt, and other extraneous material by any means including flushing and sweeping.

39-1.09C Tack Coat

Apply tack coat:

1. To existing pavement including planed surfaces
2. Between HMA layers
3. To vertical surfaces of:

    3.1. Curbs
    3.2. Gutters
    3.3. Construction joints

Before placing HMA, apply tack coat in 1 application at the minimum residual rate specified for the condition of the underlying surface:

Tack Coat Application Rates for HMA Type A, Type B, and RHMA-G

HMA over:	Minimum Residual Rates (gallons per square yard)		
	CSS1/CSS1h, SS1/SS1h and QS1h/CQS1h Asphaltic Emulsion	CRS1/CRS2, RS1/RS2 and QS1/CQS1 Asphaltic Emulsion	Asphalt Binder and PMRS2/PMCRS2 and PMRS2h/PMCRS2h Asphaltic Emulsion
New HMA (between layers)	0.02	0.03	0.02
PCC and existing HMA (AC) surfaces	0.03	0.04	0.03
Planed PCC and HMA (AC) surfaces	0.05	0.06	0.04

Tack Coat Application Rates for OGFC

OGFC over:	Minimum Residual Rates (gallons per square yard)		
	CSS1/CSS1h, SS1/SS1h and QS1h/CQS1h Asphaltic Emulsion	CRS1/CRS2, RS1/RS2 and QS1/CQS1 Asphaltic Emulsion	Asphalt Binder and PMRS2/PMCRS2 and PMRS2h/PMCRS2h Asphaltic Emulsion
New HMA	0.03	0.04	0.03
PCC and existing HMA (AC) surfaces	0.05	0.06	0.04
Planed PCC and HMA (AC) surfaces	0.06	0.07	0.05

If you dilute asphaltic emulsion, mix until homogeneous before application.

Apply to vertical surfaces with a residual tack coat rate that will thoroughly coat the vertical face without running off.

If you request in writing and the Engineer authorizes, 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. The surface is at least 140 °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 track tack coat onto pavement surfaces beyond the job site.

Asphalt binder tack coat must be between 285 °F and 350 °F when applied.

39-1.09D Geosynthetic Pavement Interlayer

Place geosynthetic pavement interlayer in compliance with the manufacturer's recommendations.

Before placing the geosynthetic pavement interlayer and asphalt binder:

1. Repair cracks 1/4 inch and wider, spalls, and holes in the pavement. The State pays for this repair work under Section 4-1.03D, "Extra Work."
2. Clean the pavement of loose and extraneous material.

Immediately before placing the interlayer, apply 0.25 gallon ± 0.03 gallon of asphalt binder per square yard of interlayer or until the fabric is saturated. Apply asphalt binder the width of the geosynthetic pavement interlayer plus 3 inches on each side. At interlayer overlaps, apply asphalt binder on the lower interlayer the same overlap distance as the upper interlayer.

Asphalt binder must be from 285 °F to 350 °F and below the minimum melting point of the geosynthetic pavement interlayer when applied.

Align and place the interlayer with no overlapping wrinkles, except a wrinkle that overlaps may remain if it is less than 1/2 inch thick. If the overlapping wrinkle is more than 1/2 inch thick, cut the wrinkle out and overlap the interlayer no more than 2 inches.

The minimum HMA thickness over the interlayer must be 0.12 foot thick including conform tapers. Do not place the interlayer on a wet or frozen surface.

Overlap the interlayer borders between 2 inches and 4 inches. In the direction of paving, overlap the following roll with the preceding roll at any break.

You may use rolling equipment to correct distortions or wrinkles in the interlayer.

If asphalt binder tracked onto the interlayer or brought to the surface by construction equipment causes interlayer displacement, cover it with a small quantity of HMA.

Before placing HMA on the interlayer, do not expose the interlayer to:

1. Traffic except for crossings under traffic control and only after you place a small HMA quantity
2. Sharp turns from construction equipment
3. Damaging elements

Pave HMA on the interlayer during the same work shift.

39-1.10 SPREADING AND COMPACTING EQUIPMENT

Paving equipment for spreading must be:

1. Self-propelled
2. Mechanical
3. Equipped with a screed or strike-off assembly that can distribute HMA the full width of a traffic lane
4. Equipped with a full-width compacting device
5. Equipped with automatic screed controls and sensing devices that control the thickness, longitudinal grade, and transverse screed slope

Install and maintain grade and slope references.

The screed must produce a uniform HMA surface texture without tearing, shoving, or gouging.

The paver must not leave marks such as ridges and indentations unless you can eliminate them by rolling.

Rollers must be equipped with a system that prevents HMA from sticking to the wheels. You may use a parting agent that does not damage the HMA or impede the bonding of layers.

In areas inaccessible to spreading and compacting equipment:

1. Spread the HMA by any means to obtain the specified lines, grades and cross sections.
2. Use a pneumatic tamper, plate compactor, or equivalent to achieve thorough compaction.

39-1.11 TRANSPORTING, SPREADING, AND COMPACTING

Do not pave HMA on a wet pavement or frozen surface.

You may deposit HMA in a windrow and load it in the paver if:

1. Paver is equipped with a hopper that automatically feeds the screed
2. Loading equipment can pick up the windrowed material and deposit it in the paver hopper without damaging base material
3. Activities for deposit, pick-up, loading, and paving are continuous
4. HMA temperature in the windrow does not fall below 260 °F

You may pave HMA in 1 or more layers on areas less than 5 feet wide and outside the traveled way including shoulders. You may use mechanical equipment other than a paver for these areas. The equipment must produce a uniform smoothness and texture.

HMA handled, spread, or windrowed must not stain the finished surface of any improvement including pavement.

Do not use petroleum products such as kerosene or diesel fuel to release HMA from trucks, spreaders, or compactors.

HMA must be free of:

1. Segregation
2. Coarse or fine aggregate pockets
3. Hardened lumps

Longitudinal joints in the top layer must match specified lane edges. Alternate longitudinal joint offsets in lower layers at least 0.5 foot from each side of the specified lane edges. You may request in writing other longitudinal joint placement patterns.

Until the adjoining through lane's top layer has been paved, do not pave the top layer of:

1. Shoulders
2. Tapers
3. Transitions
4. Road connections
5. Driveways
6. Curve widenings
7. Chain control lanes
8. Turnouts
9. Turn pockets

If the number of lanes change, pave each through lane's top layer before paving a tapering lane's top layer. Simultaneous to paving a through lane's top layer, you may pave an adjoining area's top layer including shoulders. Do not operate spreading equipment on any area's top layer until completing final compaction.

If HMA (leveling) is specified, fill and level irregularities and ruts with HMA before spreading HMA over base, existing surfaces, or bridge decks. You may use mechanical equipment other than a paver for these areas. The equipment must produce a uniform

smoothness and texture. HMA used to change an existing surface's cross slope or profile is not HMA (leveling).

If placing HMA against the edge of existing pavement, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material without damaging the surface remaining in place. If placing HMA against the edge of a longitudinal or transverse construction joint and the joint is damaged or not placed to a neat line, sawcut or grind the pavement straight and vertical along the joint and remove extraneous material without damaging the surface remaining in place. Repair or remove and replace damaged pavement at your expense.

Rolling must leave the completed surface compacted and smooth without tearing, cracking, or shoving. Complete finish rolling activities before the pavement surface temperature is:

1. Below 150 °F for HMA with unmodified binder
2. Below 140 °F for HMA with modified binder
3. Below 200 °F for RHMA-G

If a vibratory roller is used as a finish roller, turn the vibrator off.

Do not use a pneumatic tired roller to compact RHMA-G.

For Standard and QC/QA, if a 3/4-inch aggregate grading is specified, you may use a 1/2-inch aggregate grading if the specified total paved thickness is at least 0.15 foot and less than 0.20 foot thick.

Spread and compact HMA under Section 39-3.03, "Spreading and Compacting Equipment," and Section 39-3.04, "Transporting, Spreading, and Compacting," for any of the following:

1. Specified paved thickness is less than 0.15 foot.
2. Specified paved thickness is less than 0.20 foot and a 3/4-inch aggregate grading is specified and used.
3. You spread and compact at:

    3.1. Asphalt concrete surfacing replacement areas
    3.2. Leveling courses
    3.3. Areas the Engineer determines conventional compaction and compaction measurement methods are impeded

Do not open new HMA pavement to public traffic until its mid-depth temperature is below 160 °F.

If you request in writing and the Engineer authorizes, you may cool HMA Type A and Type B with water when rolling activities are complete. Apply water under Section 17, "Watering."

Spread sand at a rate between 1 pound and 2 pounds per square yard on new RHMA-G, RHMA-O, and RHMA-O-HB pavement when finish rolling is complete. Sand must be free of clay or organic matter. Sand must comply with Section 90-3.03, "Fine Aggregate Grading." Keep traffic off the pavement until spreading sand is complete.

39-1.12 SMOOTHNESS

39-1.12A General

Determine HMA smoothness with a profilograph and a straightedge.

Smoothness specifications do not apply to OGFC placed on existing pavement not constructed under the same project.

If portland cement concrete is placed on HMA:

1. Cold plane the HMA finished surface to within specified tolerances if it is higher than the grade specified by the Engineer.
2. Remove and replace HMA if the finished surface is lower than 0.05 foot below the grade specified by the Engineer.

39-1.12B Straightedge

The HMA pavement top layer must not vary from the lower edge of a 12-foot long straightedge:

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

39-1.12C Profilograph

Under California Test 526, determine the zero (null) blanking band Profile Index (PI_0) and must-grinds on the top layer of HMA Type A, Type B, and RHMA-G pavement. Take 2 profiles within each traffic lane, 3 feet from and parallel with the edge of each lane.

A must-grind is a deviation of 0.3 inch or more in a length of 25 feet. You must correct must-grinds.

For OGFC, only determine must-grinds when placed over HMA constructed under the same project. The top layer of the underlying HMA must comply with the smoothness specifications before placing OGFC.

Profile pavement in the Engineer's presence. Choose the time of profiling.

On tangents and horizontal curves with a centerline radius of curvature 2,000 feet or more, the PI_0 must be at most 2.5 inches per 0.1-mile section.

On horizontal curves with a centerline radius of curvature between 1,000 feet and 2,000 feet including pavement within the superelevation transitions, the PI_0 must be at most 5 inches per 0.1-mile section.

Before the Engineer accepts HMA pavement for smoothness, submit written final profilograms.

Submit 1 electronic copy of profile information in Microsoft Excel and 1 electronic copy of longitudinal pavement profiles in ".erd" format or other ProVAL compatible format to the Engineer and to:

Smoothness@dot.ca.gov

The following HMA pavement areas do not require a PI_0. You must measure these areas with a 12-foot straightedge and determine must-grinds with a profilograph:

1. New HMA with a total thickness less than 0.25 foot
2. HMA sections of city or county streets and roads, turn lanes and collector lanes that are less than 1,500 feet in length

The following HMA pavement areas do not require a PI_0. You must measure these areas with a 12-foot straightedge:

1. Horizontal curves with a centerline radius of curvature less than 1,000 feet including pavement within the superelevation transitions of those curves

2. Within 12 feet of a transverse joint separating the pavement from:

    2.1. Existing pavement not constructed under the same project
    2.2. A bridge deck or approach slab

3. Exit ramp termini, truck weigh stations, and weigh-in-motion areas
4. If steep grades and superelevation rates greater than 6 percent are present on:

    4.1. Ramps
    4.2. Connectors

5. Turn lanes
6. Areas within 15 feet of manholes or drainage transitions
7. Acceleration and deceleration lanes for at-grade intersections
8. Shoulders and miscellaneous areas
9. HMA pavement within 3 feet from and parallel to the construction joints formed between curbs, gutters, or existing pavement

39-1.12D Smoothness Correction

If the top layer of HMA Type A, Type B, or RHMA-G pavement does not comply with the smoothness specifications, grind the pavement to within tolerances, remove and replace it, or place a layer of HMA. The Engineer must authorize your choice of correction before the work begins.

Remove and replace the areas of OGFC not in compliance with the must-grind and straightedge specifications, except you may grind OGFC for correcting smoothness:

1. At a transverse joint separating the pavement from pavement not constructed under the same project
2. Within 12 feet of a transverse joint separating the pavement from a bridge deck or approach slab

Corrected HMA pavement areas must be uniform rectangles with edges:

1. Parallel to the nearest HMA pavement edge or lane line
2. Perpendicular to the pavement centerline

Measure the corrected HMA pavement surface with a profilograph and a 12-foot straightedge and correct the pavement to within specified tolerances. If a must-grind area or straightedged pavement cannot be corrected to within specified tolerances, remove and replace the pavement.

On ground areas not overlaid with OGFC, apply fog seal coat under Section 37-1, "Seal Coats."

39-1.13 MISCELLANEOUS AREAS AND DIKES

Miscellaneous areas are outside the traveled way and include:

1. Median areas not including inside shoulders
2. Island areas
3. Sidewalks
4. Gutters

5. Gutter flares
6. Ditches
7. Overside drains
8. Aprons at the ends of drainage structures

Spread miscellaneous areas in 1 layer and compact to the specified lines and grades.
For miscellaneous areas and dikes:

1. Do not submit a JMF.
2. Choose the 3/8-inch or 1/2-inch HMA Type A and Type B aggregate gradations.
3. Minimum asphalt binder content must be 6.8 percent for 3/8-inch aggregate and 6.0 percent for 1/2-inch aggregate. If you request in writing and the Engineer authorizes, you may reduce the minimum asphalt binder content.
4. Choose asphalt binder Grade PG 70-10 or the same grade specified for HMA.

39-2 STANDARD

39-2.01 DESCRIPTION

If HMA is specified as Standard, construct it under Section 39-1, "General," this Section 39-2, "Standard," and Section 39-5, "Measurement and Payment."

39-2.02 CONTRACTOR QUALITY CONTROL

39-2.02A Quality Control Plan

Establish, implement, and maintain a Quality Control Plan (QCP) for HMA. The QCP must describe the organization and procedures you will use to:

1. Control the quality characteristics
2. Determine when corrective actions are needed (action limits)
3. Implement corrective actions

When you submit the proposed JMF, submit the written QCP. You and the Engineer must discuss the QCP during the prepaving conference.
The QCP must address the elements affecting HMA quality including:

1. Aggregate
2. Asphalt binder
3. Additives
4. Production
5. Paving

The Engineer reviews each QCP within 5 business days from the submittal. Hold HMA production until the Engineer accepts the QCP in writing. The Engineer's QCP acceptance does not mean your compliance with the QCP will result in acceptable HMA. Section 39-1.05, "Engineer's Acceptance," specifies HMA acceptance.

39-2.02B Quality Control Testing

Perform sampling and testing at the specified frequency for the following quality characteristics:

Minimum Quality Control – Standard

Quality Characteristic	Test Method	Minimum Sampling and Testing Frequency	HMA Type			
			A	B	RHMA-G	OGFC
Aggregate gradation[a]	CT 202	1 per 750 tons and any remaining part at the end of the project	JMF ± Tolerance [b]	JMF ± Tolerance [b]	JMF ± Tolerance [b]	JMF ± Tolerance [b]
Sand equivalent (min.) [c]	CT 217		47	42	47	--
Asphalt binder content (%)	CT 379 or 382		JMF ± 0.45	JMF ± 0.45	JMF ± 0.50	JMF ± 0.50
HMA moisture content (%, max.)	CT 226 or CT 370	1 per 2,500 tons but not less than 1 per paving day	1.0	1.0	1.0	1.0
Field compaction, (%, max. theoretical density) [d,e]	Quality control plan	2 per business day (min.)	91 - 97	91 - 97	91 - 97	--
Stabilometer value (min.) [c, f]	CT 366	One per 4,000 tons or 2 per 5 business days, which-ever is more				
No. 4 and 3/8" gradings			30	30	--	--
1/2" and 3/4" gradings			37	35	23	--
Air voids content (%) [c, g]	CT 367		4 ± 2	4 ± 2	Specification ± 2	--
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants [h]	CT 226 or CT 370	2 per day during production	--	--	--	--
Percent of crushed particles coarse aggregate (%, min.)	CT 205	As necessary and designat-ed in the QCP. At least once per project				
One fractured face			90	25	--	90
Two fractured faces			75	--	90	75
Fine aggregate (%, min) (Passing No. 4 sieve and retained on No. 8 sieve.) One fractured face			70	20	70	90
Los Angeles Rattler (%, max.)	CT 211					
Loss at 100 rev.			12	--	12	12
Loss at 500 rev.			45	50	40	40

Flat and elongated particles (%, max. by weight @ 5:1)	CT 235		Report only	Report only	Report only	Report only
Fine aggregate angularity (%, min.)[i]	CT 234		45	45	45	--
Voids filled with asphalt (%)[j] No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-3		 76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	 76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	Report only	--
Voids in mineral aggregate (% min.)[j] No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-2		 17.0 15.0 14.0 13.0	 17.0 15.0 14.0 13.0	 -- -- 18.0 – 23.0 [k] 18.0 – 23.0 [k]	--
Dust proportion[j] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	LP-4		 0.9 – 2.0 0.6 – 1.3	 0.9 – 2.0 0.6 – 1.3	Report only	--
Smoothness	Section 39-1.12	--	12-foot straightedge, must-grind, and PI_0	12-foot straightedge, must-grind, and PI_0	12-foot straightedge, must-grind, and PI_0	12-foot straightedge and must-grind
Asphalt rubber binder viscosity @ 375 °F, centipoises	Section 39-1.02D	Section 39-1.04C	--	--	1,500 – 4,000	1,500 – 4,000
Asphalt modifier	Section 39-1.02D	Section 39-1.04C	--	--	Section 39-1.02D	Section 39-1.02D
Crumb rubber modifier	Section 39-1.02D	Section 39-1.04C	--	--	Section 39-1.02D	Section 39-1.02D

Notes:

[a] Determine combined aggregate gradation containing RAP under Laboratory Procedure LP-9.

[b] The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."

[c] Report the average of 3 tests from a single split sample.

[d] Determine field compaction for any of the following conditions:

1. 1/2-inch, 3/8-inch, No. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

[e] To determine field compaction use:

1. In-place density measurements using the method specified in your QC.
2. California Test 309 to determine maximum theoretical density at the frequency specified in California Test 375, Part 5C.

[f] Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ± 5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."

[g] Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

[h] For adjusting the plant controller at the HMA plant.

[i] The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

[j] Report only if the adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC.

[k] Voids in mineral aggregate for RHMA-G must be within this range.

For any single quality characteristic except smoothness, if 2 consecutive quality control test results do not comply with the action limits or specifications:

1. Stop production.
2. Notify the Engineer in writing.
3. Take corrective action.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

39-2.03 ENGINEER'S ACCEPTANCE

39-2.03A Testing

The Engineer samples for acceptance testing and tests for:

HMA Acceptance - Standard

Quality Characteristic	Test Method	HMA Type			
		A	B	RHMA-G	OGFC
Aggregate gradation [a] Sieve: 3/4" / 1/2" / 3/8" 1/2": X [b] / / 3/8": / X / No. 4: / / X No. 8: X / X / X No. 200: X / X / X	CT 202	JMF ± Tolerance [c]	JMF ± Tolerance [c]	JMF ± Tolerance [c]	JMF ± Tolerance [c]
Sand equivalent (min.) [d]	CT 217	47	42	47	--
Asphalt binder content (%)	CT 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.50	JMF ± 0.50
HMA moisture content (%, max.)	CT 226 or CT 370	1.0	1.0	1.0	1.0
Field compaction (% max. theoretical density) [e,f]	CT 375	91 – 97	91 – 97	91 – 97	--
Stabilometer value (min.) [d,g]	CT 366				
No. 4 and 3/8" gradings		30	30	--	--
1/2" and 3/4" gradings		37	35	23	--
Air voids content (%) [d, h]	CT 367	4 ± 2	4 ± 2	Specification ± 2	--
Percent of crushed particles	CT 205				
Coarse aggregate (%, min.)					
One fractured face		90	25	--	90
Two fractured faces		75	--	90	75
Fine aggregate (%, min) (Passing No. 4 sieve and retained on No. 8 sieve.)					
One fractured face		70	20	70	90
Los Angeles Rattler (%, max.)	CT 211				
Loss at 100 rev.		12	--	12	12
Loss at 500 rev.		45	50	40	40
Fine aggregate angularity (%, min.) [i]	CT 234	45	45	45	--
Flat and elongated particles (%, max. by weight @ 5:1)	CT 235	Report only	Report only	Report only	Report only
Voids filled with asphalt (%) [j]	LP-3				
No. 4 grading		76.0 – 80.0	76.0 – 80.0	Report only	--
3/8" grading		73.0 – 76.0	73.0 – 76.0		
1/2" grading		65.0 – 75.0	65.0 – 75.0		
3/4" grading		65.0 – 75.0	65.0 – 75.0		
Voids in mineral aggregate (% min.) [j]	LP-2				
No. 4 grading		17.0	17.0	--	--
3/8" grading		15.0	15.0	--	
1/2" grading		14.0	14.0	18.0 – 23.0 [k]	
3/4" grading		13.0	13.0	18.0 – 23.0 [k]	
Dust proportion [j]	LP-4				
No. 4 and 3/8" gradings		0.9 – 2.0	0.9 – 2.0	Report only	--
1/2" and 3/4" gradings		0.6 – 1.3	0.6 – 1.3		
Smoothness	Section 39-1.12	12-foot straightedge, must-grind, and PI_0	12-foot straightedge, must-grind, and PI_0	12-foot straightedge, must-grind, and PI_0	12-foot straightedge and must-grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92
Asphalt rubber binder	Various	--	--	Section 92-	Section 92-

				1.02(C) and Section 39-1.02D	1.02(C) and Section 39-1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
Crumb rubber modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D

[a] The Engineer determines combined aggregate gradations containing RAP under Laboratory Procedure LP-9.
[b] "X" denotes the sieves the Engineer considers for the specified aggregate gradation.
[c] The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."
[d] The Engineer reports the average of 3 tests from a single split sample.
[e] The Engineer determines field compaction for any of the following conditions:
1. 1/2-inch, 3/8-inch, or No.4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.
[f] To determined field compaction, the Engineer uses:
1. California Test 308, Method A, to determine in-place density of each density core.
2. California Test 309 to determine maximum theoretical density at the frequency specified in California Test 375, Part 5C.
[g] Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ±5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."
[h] The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[i] The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.
[j] Report only if the adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC.
[k] Voids in mineral aggregate for RHMA-G must be within this range.

No single test result may represent more than the smaller of 750 tons or 1 day's production.

For any single quality characteristic except smoothness, if 2 consecutive acceptance test results do not comply with the specifications:

1. Stop production.
2. Take corrective action.
3. In the Engineer's presence, take samples and split each sample into 4 parts. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Engineer tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

The Engineer tests the density core you take from each 250 tons of HMA production. The Engineer determines the percent of maximum theoretical density for each density core by determining the density core's density and dividing by the maximum theoretical density.

The Engineer determines the percent of maximum theoretical density from density cores taken from the final layer measured the full depth of the total paved HMA thickness if any of the following applies:

1. 1/2-inch, 3/8-inch, or No. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot and any layer is less than 0.20 foot.

For percent of maximum theoretical density, the Engineer determines a deduction for each test result outside the specifications in compliance with:

Reduced Payment Factors for Percent of Maximum Theoretical Density

HMA Type A and B and RHMA-G Percent of Maximum Theoretical Density	Reduced Payment Factor	HMA Type A and B and RHMA-G Percent of Maximum Theoretical Density	Reduced Payment Factor
91.0	0.0000	97.0	0.0000
90.9	0.0125	97.1	0.0125
90.8	0.0250	97.2	0.0250
90.7	0.0375	97.3	0.0375
90.6	0.0500	97.4	0.0500
90.5	0.0625	97.5	0.0625
90.4	0.0750	97.6	0.0750
90.3	0.0875	97.7	0.0875
90.2	0.1000	97.8	0.1000
90.1	0.1125	97.9	0.1125
90.0	0.1250	98.0	0.1250
89.9	0.1375	98.1	0.1375
89.8	0.1500	98.2	0.1500
89.7	0.1625	98.3	0.1625
89.6	0.1750	98.4	0.1750
89.5	0.1875	98.5	0.1875
89.4	0.2000	98.6	0.2000
89.3	0.2125	98.7	0.2125
89.2	0.2250	98.8	0.2250
89.1	0.2375	98.9	0.2375
89.0	0.2500	99.0	0.2500
< 89.0	Remove and Replace	> 99.0	Remove and Replace

39-2.04 TRANSPORTING, SPREADING, AND COMPACTING

Determine the number of rollers needed to obtain the specified density and surface finish.

39-3 METHOD

39-3.01 DESCRIPTION

If HMA is specified as Method, construct it under Section 39-1, "General," this Section 39-3, "Method," and Section 39-5, "Measurement and Payment."

39-3.02 ENGINEER'S ACCEPTANCE

39-3.02A Testing

The Engineer samples for acceptance testing and tests for:

HMA Acceptance - Method

Quality Characteristic	Test Method	HMA Type			
		A	B	RHMA-G	OGFC
Aggregate gradation [a]	CT 202	JMF ± Tolerance [b]	JMF ± Tolerance [b]	JMF ± Tolerance [b]	JMF ± Tolerance [b]
Sand equivalent (min.) [c]	CT 217	47	42	47	--
Asphalt binder content (%)	CT 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.50	JMF ± 0.50
HMA moisture content (%, max.)	CT 226 or CT 370	1.0	1.0	1.0	1.0
Stabilometer value (min.) [c,d]	CT 366				
No. 4 and 3/8" gradings		30	30	--	--
1/2" and 3/4" gradings		37	35	23	--
Percent of crushed particles	CT 205				
Coarse aggregate (% min.)					
One fractured face		90	25	--	90
Two fractured faces		75	--	90	75
Fine aggregate (% min) (Passing No. 4 sieve and retained on No. 8 sieve.)					
One fractured face		70	20	70	90
Los Angeles Rattler (% max.)	CT 211				
Loss at 100 rev.		12	--	12	12
Loss at 500 rev.		45	50	40	40
Air voids content (%) [c, e]	CT 367	4 ± 2	4 ± 2	Specification ± 2	--
Fine aggregate angularity (% min.) [f]	CT 234	45	45	45	--
Flat and elongated particles (% max. by weight @ 5:1)	CT 235	Report only	Report only	Report only	Report only
Voids filled with asphalt (%) [g]	LP-3			Report only	
No. 4 grading		76.0 – 80.0	76.0 – 80.0		--
3/8" grading		73.0 – 76.0	73.0 – 76.0		
1/2" grading		65.0 – 75.0	65.0 – 75.0		
3/4" grading		65.0 – 75.0	65.0 – 75.0		
Voids in mineral aggregate (% min.) [g]	LP-2				
No. 4 grading		17.0	17.0	--	--
3/8" grading		15.0	15.0	--	
1/2" grading		14.0	14.0	18.0 – 23.0 [h]	
3/4" grading		13.0	13.0	18.0 – 23.0 [h]	
Dust proportion [g]	LP-4				
No. 4 and 3/8" gradings		0.9 – 2.0	0.9 – 2.0	Report only	--
1/2" and 3/4" gradings		0.6 – 1.3	0.6 – 1.3		
Smoothness	Section 39-1.12	12-foot straightedge and must-grind	12-foot straightedge and must-grind	12-foot straightedge and must-grind	12-foot straightedge and must-grind
Asphalt binder	Various	Section 92	Section 92	Section 92	Section 92
Asphalt rubber binder	Various	--	--	Section 92-1.02(C) and Section 39-	Section 92-1.02(C) and Section 39-

				1.02D	1.02D
Asphalt modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D
Crumb rubber modifier	Various	--	--	Section 39-1.02D	Section 39-1.02D

[a] The Engineer determines combined aggregate gradations containing RAP under Laboratory Procedure LP-9.
[b] The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."
[c] The Engineer reports the average of 3 tests from a single split sample.
[d] Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ±5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."
[e] The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[f] The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.
[g] Report only if the adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC.
[h] Voids in mineral aggregate for RHMA-G must be within this range.

No single test result may represent more than the smaller of 750 tons or 1 day's production.

For any single quality characteristic except smoothness, if 2 consecutive acceptance test results do not comply with the specifications:

1. Stop production.
2. Take corrective action.
3. In the Engineer's presence, take samples and split each sample into 4 parts. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Engineer tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

39-3.03 SPREADING AND COMPACTING EQUIPMENT

Each paver spreading HMA Type A and Type B must be followed by 3 rollers:

1. One vibratory roller specifically designed to compact HMA. The roller must be capable of at least 2,500 vibrations per minute and must be equipped with amplitude and frequency controls. The roller's gross static weight must be at least 7.5 tons.
2. One oscillating type pneumatic-tired roller at least 4 feet wide. Pneumatic tires must be of equal size, diameter, type, and ply. The tires must be inflated to 60 psi minimum and maintained so that the air pressure does not vary more than 5 psi.
3. One steel-tired, 2-axle tandem roller. The roller's gross static weight must be at least 7.5 tons.

Each roller must have a separate operator. Rollers must be self-propelled and reversible.

Compact RHMA-G under the specifications for compacting HMA Type A and Type B except do not use pneumatic-tired rollers.

Compact OGFC with steel-tired, 2-axle tandem rollers. If placing over 300 tons of OGFC per hour, use at least 3 rollers for each paver. If placing less than 300 tons of OGFC per hour, use at least 2 rollers for each paver. Each roller must weigh between 126 pounds to 172 pounds per linear inch of drum width. Turn the vibrator off.

39-3.04 TRANSPORTING, SPREADING, AND COMPACTING

Pave HMA in maximum 0.25-foot thick compacted layers.

If the surface to be paved is both in sunlight and shade, pavement surface temperatures are taken in the shade.

Spread HMA Type A and Type B only if atmospheric and surface temperatures are:

Minimum Atmospheric and Surface Temperatures

Compacted Layer Thickness, feet	Atmospheric,° F		Surface,° F	
	Unmodified Asphalt Binder	Modified Asphalt Binder[a]	Unmodified Asphalt Binder	Modified Asphalt Binder[a]
< 0.15	55	50	60	55
0.15 – 0.25	45	45	50	50

Note:
[a] Except asphalt rubber binder.

If the asphalt binder for HMA Type A and Type B is:

1. Unmodified asphalt binder, complete:

   1.1. First coverage of breakdown compaction before the surface temperature drops below 250 °F
   1.2. Breakdown and intermediate compaction before the surface temperature drops below 200 °F
   1.3. Finish compaction before the surface temperature drops below 150 °F

2. Modified asphalt binder, complete:

   2.1. First coverage of breakdown compaction before the surface temperature drops below 240 °F
   2.2. Breakdown and intermediate compaction before the surface temperature drops below 180 °F
   2.3. Finish compaction before the surface temperature drops below 140 °F

For RHMA-G:

1. Only spread and compact if the atmospheric temperature is at least 55 °F and the surface temperature is at least 60 °F.
2. Complete the first coverage of breakdown compaction before the surface temperature drops below 285 °F.
3. Complete breakdown and intermediate compaction before the surface temperature drops below 250 °F.
4. Complete finish compaction before the surface temperature drops below 200 °F.
5. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For OGFC with unmodified asphalt binder:

1. Only spread and compact if the atmospheric temperature is at least 55 °F and the surface temperature is at least 60 °F.
2. Complete first coverage using 2 rollers before the surface temperature drops below 240 °F.
3. Complete all compaction before the surface temperature drops below 200 °F.
4. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For OGFC with modified asphalt binder except asphalt rubber binder:

1. Only spread and compact if the atmospheric temperature is at least 50 °F and the surface temperature is at least 50 °F.
2. Complete first coverage using 2 rollers before the surface temperature drops below 240 °F.
3. Complete all compaction before the surface temperature drops below 180 °F.
4. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until you transfer the mixture to the paver's hopper or to the pavement surface.

For RHMA-O and RHMA-O-HB:

1. Only spread and compact if the atmospheric temperature is at least 55 °F and surface temperature is at least 60 °F.
2 Complete the 1st coverage using 2 rollers before the surface temperature drops below 280 °F.
3. Complete compaction before the surface temperature drops below 250 °F.
4. If the atmospheric temperature is below 70 °F, cover loads in trucks with tarpaulins. The tarpaulins must completely cover the exposed load until the mixture is transferred to the paver's hopper or to the pavement surface.

For RHMA-G and OGFC, tarpaulins are not required if the time from discharge to truck until transfer to the paver's hopper or the pavement surface is less than 30 minutes.

HMA 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.

Start rolling at the lower edge and progress toward the highest part.

Perform breakdown compaction of each layer of HMA Type A, Type B, and RHMA-G with 3 coverages using a vibratory roller. The speed of the vibratory roller in miles per hour must not exceed the vibrations per minute divided by 1,000. If the HMA layer thickness is less than 0.08 foot, turn the vibrator off. The Engineer may order fewer coverages if the HMA layer thickness is less than 0.15 foot.

Perform intermediate compaction of each layer of HMA Type A and Type B with 3 coverages using a pneumatic-tired roller at a speed not to exceed 5 mph.

Perform finish compaction of HMA Type A, Type B, and RHMA-G with 1 coverage using a steel-tired roller.

Compact OGFC with 2 coverages using steel-tired rollers.

39-4 QUALITY CONTROL / QUALITY ASSURANCE

39-4.01 DESCRIPTION

If HMA is specified as Quality Control / Quality Assurance, construct it under Section 39-1, "General," this Section 39-4, "Quality Control / Quality Assurance," and Section 39-5, "Measurement and Payment."

39-4.02 GENERAL

The QC / QA construction process consists of:

1. Establishing, maintaining, and changing if needed a quality control system providing assurance the HMA complies with the specifications
2. Sampling and testing at specified intervals, or sublots, to demonstrate compliance and to control process
3. The Engineer sampling and testing at specified intervals to verify testing process and HMA quality
4. The Engineer using test results, statistical evaluation of verified quality control tests, and inspection to accept HMA for payment

A lot is a quantity of HMA. The Engineer designates a new lot when:

1. 20 sublots are complete
2. The JMF changes
3. Production stops for more than 30 days

Each lot consists of no more than 20 sublots. A sublot is 750 tons except HMA paved at day's end greater than 250 tons is a sublot. If HMA paved at day's end is less than 250 tons, you may either make this quantity a sublot or include it in the previous sublot's test results for statistical evaluation.

39-4.03 CONTRACTOR QUALITY CONTROL

39-4.03A General

Use a composite quality factor, QF_C, and individual quality factors, QF_{QCi}, to control your process and evaluate your quality control program. For quality characteristics without quality factors, use your quality control plan's action limits to control process.

Control HMA quality including:

1. Materials
2. Proportioning
3. Spreading and compacting
4. Finished roadway surface

Develop, implement, and maintain a quality control program that includes:

1. Inspection
2. Sampling
3. Testing

39-4.03B Quality Control Plan

With the JMF submittal, submit a written Quality Control Plan (QCP). The QCP must comply with the Department's Quality Control Manual for Hot Mix Asphalt Production and Placement. Discuss the QCP with the Engineer during the prepaving conference.

The Engineer reviews each QCP within 5 business days from the submittal. Hold HMA production until the Engineer accepts the QCP in writing. The Engineer's QCP acceptance does not mean your compliance with the QCP will result in acceptable HMA. Section 39-1.05, "Engineer's Acceptance," specifies HMA acceptance.

The QCP must include the name and qualifications of a Quality Control Manager. The Quality Control Manager administers the QCP and during paving must be at the job site within 3 hours of receiving notice. The Quality Control Manager must not be any of the following on the project:

1. Foreman
2. Production or paving crewmember
3. Inspector
4. Tester

The QCP must include action limits and details of corrective action you will take if a test result for any quality characteristic falls outside an action limit.

As work progresses, you must submit a written QCP supplement to change quality control procedures, personnel, tester qualification status, or laboratory accreditation status.

39-4.03C Quality Control Inspection, Sampling, And Testing

Sample, test, inspect, and manage HMA quality control.

Provide a roadway inspector while HMA paving activities are in progress. Provide a plant inspector during HMA production.

Inspectors must comply with the Department's Quality Control Manual for Hot Mix Asphalt Production and Placement.

Provide a testing laboratory and personnel for quality control testing. Provide the Engineer unrestricted access to the quality control activities. Before providing services for the project, the Engineer reviews, accredits, and qualifies the testing laboratory and personnel under the Department's Independent Assurance Program.

The minimum random sampling and testing for quality control is:

Minimum Quality Control – QC / QA

Quality Characteristic	Test Method	Min-imum Sampl-ing and Testing Frequen-cy	HMA Type			Location of Sampling	Max. Report-ing Time Allow-ance
			A	B	RHMA-G		
Aggregate gradation [a]	CT 202	1 per 750 tons	JMF ± Tolerance [b]	JMF ± Tolerance [b]	JMF ± Tolerance [b]	CT 125	24 hours
Asphalt binder content (%)	CT 379 or 382		JMF ±0.45	JMF ±0.45	JMF ±0.5	Loose Mix Behind Paver See CT 125	
Field compaction (% max. theoretical density) [c,d]	QC Plan		92 - 96	92 - 96	91 - 96	QC Plan	
Aggregate moisture content at continuous mixing plants and RAP moisture content at continuous mixing plants and batch mixing plants [e]	CT 226 or CT 370	2 per day during produc-tion	--	--	--	Stock-piles or cold feed belts	--
Sand equivalent (min.) [f]	CT 217	1 per 750 tons	47	42	47	CT 125	24 hours
HMA moisture content (%,max.)	CT 226 or CT 370	1 per 2,500 tons but not less than 1 per paving day	1.0	1.0	1.0	Loose Mix Behind Paver See CT 125	24 hours
Stabilometer Value (min.) [f, g] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	CT 366	1 per 4,000 tons or 2 per 5 bus-iness days, which-ever is more	30 37	30 35	-- 23		48 hours
Air voids content (%) [f, h]	CT 367		4 ± 2	4 ± 2	Specifica-tion ± 2		

Percent of crushed particles coarse aggregate (% min.) One fractured face Two fractured faces Fine aggregate (% min) (Passing No. 4 sieve and retained on No. 8 sieve.) One fractured face	CT 205	As necessary and designated in QCP. At least once per project.	 90 75 70	 25 -- 20	 -- 90 70	CT 125	48 hours
Los Angeles Rattler (% max.) Loss at 100 rev. Loss at 500 rev.	CT 211		 12 45	 -- 50	 12 40	CT 125	
Fine aggregate angularity (% min.)[i]	CT 234		45	45	45	CT 125	
Flat and elongated particle (% max. by weight @ 5:1)	CT 235		Report only	Report only	Report only	CT 125	
Voids filled with asphalt (%)[j] No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-3		 76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	 76.0 – 80.0 73.0 – 76.0 65.0 – 75.0 65.0 – 75.0	Report only	LP-3	
Voids in mineral aggregate (% min.)[j] No. 4 grading 3/8" grading 1/2" grading 3/4" grading	LP-2		 17.0 15.0 14.0 13.0	 17.0 15.0 14.0 13.0	 -- -- 18.0 – 23.0[k] 18.0 – 23.0[k]	LP-2	
Dust proportion[j] No. 4 and 3/8" gradings 1/2" and 3/4" gradings	LP-4		 0.9 – 2.0 0.6 – 1.3	 0.9 – 2.0 0.6 – 1.3	Report only	LP-4	
Smoothness	Section 39-1.12	--	12-foot straight-edge, must-grind, and PI_0	12-foot straight-edge, must-grind, and PI_0	12-foot straight-edge, must-grind, and PI_0	--	
Asphalt rubber binder viscosity @ 375 °F, centipoises	Section 39-1.02D	--	--	--	1,500 – 4,000	Section 39-1.02D	24 hours
Crumb rubber modifier	Section 39-1.02D	--	--	--	Section 39-1.02D	Section 39-1.02D	48 hours

Notes:

[a] Determine combined aggregate gradation containing RAP under Laboratory Procedure LP-9.

[b] The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."

[c] Determine field compaction for any of the following conditions:

1. 1/2-inch, 3/8-inch, No. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

[d] To determine field compaction use:
1. In-place density measurements using the method specified in your QC.
2. California Test 309 to determine maximum theoretical density at the frequency specified in California Test 375, Part 5C.

[e] For adjusting the plant controller at the HMA plant.
[f] Report the average of 3 tests from a single split sample.
[g] Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ± 5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."
[h] Determine the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.
[i] The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.
[j] Report only if the adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC.
[k] Voids in mineral aggregate for RHMA-G must be within this range.

Within the specified reporting time, submit written test results including:

1. Sampling location, quantity, and time
2. Testing results
3. Supporting data and calculations

If test results for any quality characteristic are beyond the action limits in the QCP, take corrective actions. Document the corrective actions taken in the inspection records under Section 39-4.03E, "Records of Inspection and Testing."

Stop production, notify the Engineer in writing, take corrective action, and demonstrate compliance with the specifications before resuming production and placement on the State highway if:

1. A lot's composite quality factor, QF_C, or an individual quality factor, QF_{QCi} for i = 3, 4, or 5, is below 0.90 determined under Section 39-4.03F, "Statistical Evaluation," using quality control data
2. An individual quality factor, QF_{QCi} for i = 1 or 2, is below 0.75 using quality control data
3. Quality characteristics for which a quality factor, QF_{QCi}, is not determined has 2 consecutive quality control tests not in compliance with the specifications

39-4.03D Charts And Records

Record sampling and testing results for quality control on forms provided in the "Quality Control Manual for Hot Mix Asphalt," or on forms you submit with the QCP. The QCP must also include form posting locations and submittal times.

Submit quality control test results using the Department's statistical evaluation program, HMAPay, available at

www.dot.ca.gov/hq/construc/hma/index.htm

39-4.03E Records Of Inspection And Testing

During HMA production, submit in writing a daily:

1. HMA Construction Daily Record of Inspection. Also make this record available at the HMA plant and job site each day.

2. HMA Inspection and Testing Summary. Include in the summary:

   2.1. QC worksheet with updated test results from the HMAPay program
   2.2. Test forms with the testers' signatures and Quality Control Manager's initials.
   2.3. Inspection forms with the inspectors' signatures and Quality Control Manager's initials.
   2.4. A list and explanation of deviations from the specifications or regular practices.
   2.5. A signed statement by the Quality Control Manager that says:

   "It is hereby certified that the information contained in this record is accurate, and that information, tests, or calculations documented herein comply with the specifications of the contract and the standards set forth in the testing procedures. Exceptions to this certification are documented as part of this record."

Retain for inspection the records generated as part of quality control including inspection, sampling, and testing for at least 3 years after final acceptance.

39-4.03F Statistical Evaluation

General

Determine a lot's composite quality factor, QF_C, and the individual quality factors, QF_{QCi}. Perform statistical evaluation calculations to determine these quality factors based on quality control test results for:

1. Aggregate gradation
2. Asphalt binder content
3. Percent of maximum theoretical density

The Engineer grants a waiver and you must use 1.0 as the individual quality factor for percent of maximum theoretical density, QF_{QC5}, for HMA paved in:

1. Areas where the total paved thickness is less than 0.15 foot
2. Areas where the total paved thickness is less than 0.20 foot and a 3/4-inch grading is specified and used
3. Dig outs
4. Leveling courses
5. Areas where, in the opinion of the Engineer, compaction or compaction measurement by conventional methods is impeded

Statistical Evaluation Calculations

Use the Variability-Unknown / Standard Deviation Method to determine the percentage of a lot not in compliance with the specifications.

Determine the percentage of work not in compliance with the specification limits for each quality characteristic as follows:

1. Calculate the arithmetic mean ($\bar{X}$) of the test values

$$\bar{X} = \frac{\Sigma x}{n}$$

where:

x = individual test values
n = number of test values

2. Calculate the standard deviation

$$s = \sqrt{\frac{n(\Sigma x^2)-(\Sigma x)^2}{n(n-1)}}$$

where:

$\sum(x^2)$ = sum of the squares of individual test values
$(\sum x)^2$ = sum of the individual test values squared
n = number of test values

3. Calculate the upper quality index (Qu)

$$Q_u = \frac{USL - \bar{X}}{s}$$

where:

USL = target value plus the production tolerance or upper specification limit
s = standard deviation
$\bar{X}$ = arithmetic mean

4. Calculate the lower quality index (QL);

$$Q_L = \frac{\bar{X} - LSL}{s}$$

where:

LSL = target value minus production tolerance or lower specification limit
s = standard deviation
$\bar{X}$ = arithmetic mean

5. From the table, Upper Quality Index Q_U or Lower Quality Index Q_L, of this Section 39-4.03F, "Statistical Evaluation", determine P_U ;

where:

P_U = the estimated percentage of work outside the USL.
$P_U = 0$, when USL is not specified.

6. From the table, Upper Quality Index Q_U or Lower Quality Index Q_L, of this Section 39-4.03F, "Statistical Evaluation," determine P_L;

where:

P_L = the estimated percentage of work outside the LSL.
$P_L = 0$, when LSL is not specified.

7. Calculate the total estimated percentage of work outside the USL and LSL, percent defective

   Percent defective $= P_U + P_L$

P_U and P_L are determined from:

P_U or P_L	Upper Quality Index Q_U or Lower Quality Index Q_L												
	Sample Size (n)												
	5	6	7	8	9	10-11	12-14	15-17	18-22	23-29	30-42	43-66	>66
0	1.72	1.88	1.99	2.07	2.13	2.20	2.28	2.34	2.39	2.44	2.48	2.51	2.56
1	1.64	1.75	1.82	1.88	1.91	1.96	2.01	2.04	2.07	2.09	2.12	2.14	2.16
2	1.58	1.66	1.72	1.75	1.78	1.81	1.84	1.87	1.89	1.91	1.93	1.94	1.95
3	1.52	1.59	1.63	1.66	1.68	1.71	1.73	1.75	1.76	1.78	1.79	1.80	1.81
4	1.47	1.52	1.56	1.58	1.60	1.62	1.64	1.65	1.66	1.67	1.68	1.69	1.70
5	1.42	1.47	1.49	1.51	1.52	1.54	1.55	1.56	1.57	1.58	1.59	1.59	1.60
6	1.38	1.41	1.43	1.45	1.46	1.47	1.48	1.49	1.50	1.50	1.51	1.51	1.52
7	1.33	1.36	1.38	1.39	1.40	1.41	1.41	1.42	1.43	1.43	1.44	1.44	1.44
8	1.29	1.31	1.33	1.33	1.34	1.35	1.35	1.36	1.36	1.37	1.37	1.37	1.38
9	1.25	1.27	1.28	1.28	1.29	1.29	1.30	1.30	1.30	1.31	1.31	1.31	1.31
10	1.21	1.23	1.23	1.24	1.24	1.24	1.25	1.25	1.25	1.25	1.25	1.26	1.26
11	1.18	1.18	1.19	1.19	1.19	1.19	1.20	1.20	1.20	1.20	1.20	1.20	1.20
12	1.14	1.14	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
13	1.10	1.10	1.10	1.10	1.10	1.10	1.11	1.11	1.11	1.11	1.11	1.11	1.11
14	1.07	1.07	1.07	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
15	1.03	1.03	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
16	1.00	0.99	0.99	0.99	0.99	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
17	0.97	0.96	0.95	0.95	0.95	0.95	0.94	0.94	0.94	0.94	0.94	0.94	0.94
18	0.93	0.92	0.92	0.92	0.91	0.91	0.91	0.91	0.90	0.90	0.90	0.90	0.90
19	0.90	0.89	0.88	0.88	0.88	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
20	0.87	0.86	0.85	0.85	0.84	0.84	0.84	0.83	0.83	0.83	0.83	0.83	0.83
21	0.84	0.82	0.82	0.81	0.81	0.81	0.80	0.80	0.80	0.80	0.80	0.80	0.79
22	0.81	0.79	0.79	0.78	0.78	0.77	0.77	0.77	0.76	0.76	0.76	0.76	0.76
23	0.77	0.76	0.75	0.75	0.74	0.74	0.74	0.73	0.73	0.73	0.73	0.73	0.73
24	0.74	0.73	0.72	0.72	0.71	0.71	0.70	0.70	0.70	0.70	0.70	0.70	0.70
25	0.71	0.70	0.69	0.69	0.68	0.68	0.67	0.67	0.67	0.67	0.67	0.67	0.66
26	0.68	0.67	0.67	0.65	0.65	0.65	0.64	0.64	0.64	0.64	0.64	0.64	0.63
27	0.65	0.64	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.61	0.61	0.61	0.60
28	0.62	0.61	0.60	0.59	0.59	0.59	0.58	0.58	0.58	0.58	0.58	0.58	0.57
29	0.59	0.58	0.57	0.57	0.56	0.56	0.55	0.55	0.55	0.55	0.55	0.55	0.54
30	0.56	0.55	0.54	0.54	0.53	0.53	0.52	0.52	0.52	0.52	0.52	0.52	0.52
31	0.53	0.52	0.51	0.51	0.50	0.50	0.50	0.49	0.49	0.49	0.49	0.49	0.49
32	0.50	0.49	0.48	0.48	0.48	0.47	0.47	0.47	0.46	0.46	0.46	0.46	0.46
33	0.47	0.48	0.45	0.45	0.45	0.44	0.44	0.44	0.44	0.43	0.43	0.43	0.43
34	0.45	0.43	0.43	0.42	0.42	0.42	0.41	0.41	0.41	0.41	0.41	0.41	0.40
35	0.42	0.40	0.40	0.39	0.39	0.39	0.38	0.38	0.38	0.38	0.38	0.38	0.38
36	0.39	0.38	0.37	0.37	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36
37	0.36	0.35	0.34	0.34	0.34	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.32
38	0.33	0.32	0.32	0.31	0.31	0.31	0.30	0.30	0.30	0.30	0.30	0.30	0.30
39	0.30	0.30	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
40	0.28	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
41	0.25	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
42	0.23	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
43	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
44	0.16	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
45	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
46	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
47	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
48	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
49	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1. If the value of Q_U or Q_L does not correspond to a value in the table, use the next lower value.
2. If Q_U or Q_L are negative values, P_U or P_L is equal to 100 minus the table value for P_U or P_L.

Quality Factor Determination

Determine individual quality factors, QF_{QCi}, using percent defective = $P_U + P_L$ and:

Quality Factors

Quality Factor	Maximum Allowable Percent Defective ($P_U + P_L$) Sample Size (n)												
	5	6	7	8	9	10-11	12-14	15-17	18-22	23-29	30-42	43-66	>66
1.05				0	0	0	0	0	0	0	0	0	0
1.04			0	1	3	5	4	4	4	3	3	3	3
1.03		0	2	4	6	8	7	7	6	5	5	4	4
1.02		1	3	6	9	11	10	9	8	7	7	6	6
1.01	0	2	5	8	11	13	12	11	10	9	8	8	7
1.00	22	20	18	17	16	15	14	13	12	11	10	9	8
0.99	24	22	20	19	18	17	16	15	14	13	11	10	9
0.98	26	24	22	21	20	19	18	16	15	14	13	12	10
0.97	28	26	24	23	22	21	19	18	17	16	14	13	12
0.96	30	28	26	25	24	22	21	19	18	17	16	14	13
0.95	32	29	28	26	25	24	22	21	20	18	17	16	14
0.94	33	31	29	28	27	25	24	22	21	20	18	17	15
0.93	35	33	31	29	28	27	25	24	22	21	20	18	16
0.92	37	34	32	31	30	28	27	25	24	22	21	19	18
0.91	38	36	34	32	31	30	28	26	25	24	22	21	19
0.90	39	37	35	34	33	31	29	28	26	25	23	22	20
0.89	41	38	37	35	34	32	31	29	28	26	25	23	21
0.88	42	40	38	36	35	34	32	30	29	27	26	24	22
0.87	43	41	39	38	37	35	33	32	30	29	27	25	23
0.86	45	42	41	39	38	36	34	33	31	30	28	26	24
0.85	46	44	42	40	39	38	36	34	33	31	29	28	25
0.84	47	45	43	42	40	39	37	35	34	32	30	29	27
0.83	49	46	44	43	42	40	38	36	35	33	31	30	28
0.82	50	47	46	44	43	41	39	38	36	34	33	31	29
0.81	51	49	47	45	44	42	41	39	37	36	34	32	30
0.80	52	50	48	46	45	44	42	40	38	37	35	33	31
0.79	54	51	49	48	46	45	43	41	39	38	36	34	32
0.78	55	52	50	49	48	46	44	42	41	39	37	35	33
0.77	56	54	52	50	49	47	45	43	42	40	38	36	34
0.76	57	55	53	51	50	48	46	44	43	41	39	37	35
0.75	58	56	54	52	51	49	47	46	44	42	40	38	36
	60	57	55	53	52	51	48	47	45	43	41	40	37
	61	58	56	55	53	52	50	48	46	44	43	41	38
Reject	62	59	57	56	54	53	51	49	47	45	44	42	39
	63	61	58	57	55	54	52	50	48	47	45	43	40
	64	62	60	58	57	55	53	51	49	48	46	44	41
Reject Values Greater Than Those Shown Above													

Notes:

1. To obtain a quality factor when the estimated percent outside specification limits from table, "Upper Quality Index Q_U or Lower Quality Index Q_L," does not correspond to a value in the table, use the next larger value.

Compute the composite of single quality factors, QF_C, for a lot using:

$$QF_C = \sum_{i=1}^{5} w_i \, QF_{QC_i}$$

where:

QF_C = the composite quality factor for the lot rounded to 2 decimal places.

QF_{QCi} = the quality factor for the individual quality characteristic.
w = the weighting factor listed in the table HMA Acceptance – QC / QA.
i = the quality characteristic index number in the table HMA Acceptance – QC / QA.

39-4.04 ENGINEER'S QUALITY ASSURANCE

39-4.04A General

The Engineer assures quality by:

1. Reviewing mix designs and proposed JMF
2. Inspecting procedures
3. Conducting oversight of quality control inspection and records
4. Verification sampling and testing during production and paving

39-4.04B Verification Sampling And Testing

General

The Engineer samples:

1. Aggregate to verify gradation
2. HMA to verify asphalt binder content

Verification

For aggregate gradation and asphalt binder content, the minimum ratio of verification testing frequency to quality control testing frequency is 1:5. The Engineer performs at least 3 verification tests per lot.

Using the t-test, the Engineer compares quality control tests results for aggregate gradation and asphalt binder content with corresponding verification test results. The Engineer uses the average and standard deviation of up to 20 sequential sublots for the comparison. The Engineer uses production start-up evaluation tests to represent the first sublot. When there are less than 20 sequential sublots, the Engineer uses the maximum number of sequential sublots available. The 21st sublot becomes the 1st sublot (n = 1) in the next lot.

The t-value for a group of test data is computed as follows:

$$t = \frac{\left|\overline{X}_c - \overline{X}_v\right|}{S_p\sqrt{\frac{1}{n_c} + \frac{1}{n_v}}} \qquad \text{and} \qquad S_p^2 = \frac{S_c^2(n_c - 1) + S_v^2(n_v - 1)}{n_c + n_v - 2}$$

where:

n_c = Number of quality control tests (2 minimum, 20 maximum).
n_v = Number of verification tests (minimum of 1 required).
$\overline{X}_c$ = Mean of quality control tests.
$\overline{X}_v$ = Mean of verification tests.
S_p = Pooled standard deviation (When $n_v = 1$, $S_p = S_c$).
S_c = Standard deviation of quality control tests.
S_v = Standard deviation of verification tests (when $n_v > 1$).

The comparison of quality control test results and the verification test results is at a level of significance of $\alpha = 0.025$. The Engineer computes t and compares it to the critical t-value, t_{crit}, from:

Critical T-Value

Degrees of freedom (n_c+n_v-2)	t_{crit} (for $\alpha = 0.025$)	Degrees of freedom (n_c+n_v-2)	t_{crit} (for $\alpha = 0.025$)
1	24.452	18	2.445
2	6.205	19	2.433
3	4.177	20	2.423
4	3.495	21	2.414
5	3.163	22	2.405
6	2.969	23	2.398
7	2.841	24	2.391
8	2.752	25	2.385
9	2.685	26	2.379
10	2.634	27	2.373
11	2.593	28	2.368
12	2.560	29	2.364
13	2.533	30	2.360
14	2.510	40	2.329
15	2.490	60	2.299
16	2.473	120	2.270
17	2.458	∞	2.241

If the t-value computed is less than or equal to t_{crit}, quality control test results are verified.

If the t-value computed is greater than t_{crit} and both $\overline{X}_v$ and $\overline{X}_c$ comply with acceptance specifications, the quality control tests are verified. You may continue to produce and place HMA with the following allowable differences:

1. $\left|\overline{X}_v - \overline{X}_c\right| \leq 1.0$ percent for any grading
2. $\left|\overline{X}_v - \overline{X}_c\right| \leq 0.1$ percent for asphalt binder content

If the t-value computed is greater than t_{crit} and the $\left|\overline{X}_v - \overline{X}_c\right|$ for grading or asphalt binder content are greater than the allowable differences, quality control test results are not verified and:

1. The Engineer notifies you in writing.
2. You and the Engineer must investigate why the difference exist.
3. If the reason for the difference cannot be found and corrected, the Engineer's test results are used for acceptance and pay.

39-4.05 ENGINEER'S ACCEPTANCE

39-4.05A Testing

The Engineer samples for acceptance testing and tests for:

HMA Acceptance – QC / QA

Index (i)	Quality Characteristic				Weight-ing Factor (w)	Test Method	HMA Type		
							A	B	RHMA-G
		Aggregate gradation [a]				CT 202	JMF ± Tolerance [c]		
	Sieve	3/4"	1/2"	3/8"					
1	1/2"	X [b]	--	--	0.05				
1	3/8"	--	X	--	0.05				
1	No. 4	--	--	X	0.05				
2	No. 8	X	X	X	0.10				
3	No. 200	X	X	X	0.15				
4	Asphalt binder content (%)				0.30	CT 379 or 382	JMF ± 0.45	JMF ± 0.45	JMF ± 0.5
5	Field compaction (% max. theoretical density) [d,e]				0.40	CT 375	92 – 96	92 – 96	91 – 96
	Sand equivalent (min.) [f]					CT 217	47	42	47
	Stabilometer value (min.) [f, g]					CT 366			
	No. 4 and 3/8" gradings						30	30	--
	1/2" and 3/4" gradings						37	35	23
	Air voids content (%) [f, h]					CT 367	4 ± 2	4 ± 2	Specification ± 2
	Percent of crushed particles coarse aggregate (% min.)					CT 205			
	One fractured face						90	25	--
	Two fractured faces						75	--	90
	Fine aggregate (% min) (Passing No. 4 sieve and retained on No. 8 sieve.)								
	One fractured face						70	20	70
	HMA moisture content (%, max.)					CT 226 or CT 370	1.0	1.0	1.0
	Los Angeles Rattler (% max.)					CT 211			
	Loss at 100 rev.						12	--	12
	Loss at 500 rev.						45	50	40
	Fine aggregate angularity (% min.) [i]					CT 234	45	45	45
	Flat and elongated particle (% max. by weight @ 5:1)					CT 235	Report only	Report only	Report only
	Voids in mineral aggregate (% min.) [j]								(Note k)
	No. 4 grading					LP-2	17.0	17.0	--
	3/8" grading						15.0	15.0	--
	1/2" grading						14.0	14.0	18.0 - 23.0
	3/4" grading						13.0	13.0	18.0 - 23.0
	Voids filled with asphalt (%) [j]								
	No. 4 grading					LP-3	76.0 - 80.0	76.0 - 80.0	Report only
	3/8" grading						73.0 - 76.0	73.0 - 76.0	
	1/2" grading						65.0 - 75.0	65.0 - 75.0	
	3/4" grading						65.0 - 75.0	65.0 - 75.0	
	Dust proportion [j]					LP-4			
	No. 4 and 3/8" gradings						0.9 - 2.0	0.9 – 2.0	Report only
	1/2" and 3/4" gradings						0.6 - 1.3	0.6 – 1.3	

	Smoothness		Section 39-1.12	12-foot straight-edge, must-grind, and PI_0	12-foot straight-edge, must-grind, and PI_0	12-foot straight-edge, must-grind, and PI_0
	Asphalt binder		Various	Section 92	Section 92	Section 92
	Asphalt rubber binder		Various	--	--	Section 92-1.02(C) and Section 39-1.02D
	Asphalt modifier		Various	--	--	Section 39-1.02D
	Crumb rubber modifier		Various	--	--	Section 39-1.02D

Notes:

[a] The Engineer determines combined aggregate gradations containing RAP under Laboratory Procedure LP-9.

[b] "X" denotes the sieves the Engineer considers for the specified aggregate gradation.

[c] The tolerances must comply with the allowable tolerances in Section 39-1.02E, "Aggregate."

[d] The Engineer determines field compaction for any of the following conditions:

1. 1/2-inch, 3/8-inch, or No.4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot.
2. 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot.

[e] To determined field compaction, the Engineer uses:

1. California Test 308, Method A, to determine in-place density of each density core.
2. California Test 309 to determine maximum theoretical density at the frequency specified in California Test 375, Part 5C.

[f] The Engineer reports the average of 3 tests from a single split sample.

[g] Modify California Test 304, Part 2.B.2.c: "After compaction in the mechanical compactor, cool to 140 °F ± 5 °F by allowing the briquettes to cool at room temperature for 0.5 hour, then place the briquettes in the oven at 140 °F for a minimum of 2 hours and not more than 3 hours."

[h] The Engineer determines the bulk specific gravity of each lab-compacted briquette under California Test 308, Method A, and theoretical maximum specific gravity under California Test 309.

[i] The Engineer waives this specification if HMA contains 10 percent or less of nonmanufactured sand by weight of total aggregate. Manufactured sand is fine aggregate produced by crushing rock or gravel.

[j] Report only if the adjustment for asphalt binder content target value is less than or equal to ± 0.3 percent from OBC.

[k] Voids in mineral aggregate for RHMA-G must be within this range.

The Engineer determines the percent of maximum theoretical density from the average density of 3 density cores you take from every 750 tons of production or part thereof divided by the maximum theoretical density.

The Engineer determines the percent of maximum theoretical density from density cores taken from the final layer measured the full depth of the total paved HMA thickness if any of the following applies:

1. If 1/2-inch, 3/8-inch, or No. 4 aggregate grading is used and the specified total paved thickness is at least 0.15 foot and any layer is less than 0.15 foot.
2. If 3/4-inch aggregate grading is used and the specified total paved thickness is at least 0.20 foot and any layer is less than 0.20 foot.

The Engineer calculates QF_{QCi} for i = 1, 2, 3, and 4 using quality control data and QF_{QCi} for i = 5 using quality assurance data.

The Engineer stops production and terminates a lot if:

1. The lot's composite quality factor, QF_C, or an individual quality factor, QF_{QCi} for i = 3, 4, or 5, is below 0.90 determined under Section 39-4.03F, "Statistical Evaluation"
2. An individual quality factor, QF_{QCi} for i = 1 or 2, is below 0.75
3. Quality characteristics for which a quality factor, QF_{QCi}, is not determined has 2 consecutive acceptance or quality control tests not in compliance with the specifications

For any single quality characteristic for which a quality factor, QF_{QCi}, is not determined, except smoothness, if 2 consecutive acceptance test results do not comply with specifications:

1. Stop production.
2. Take corrective action.
3. In the Engineer's presence, take samples and split each sample into 4 parts. Test 1 part for compliance with the specifications and submit 3 parts to the Engineer. The Engineer tests 1 part for compliance with the specifications and reserves and stores 2 parts.
4. Demonstrate compliance with the specifications before resuming production and placement on the State highway.

39-4.05B Statistical Evaluation, Determination Of Quality Factors And Acceptance

Statistical Evaluation and Determination of Quality Factors

To determine the individual quality factor, QF_{QCi}, for any quality factor i = 1 through 5 or a lot's composite quality factor, QF_C, for acceptance and payment adjustment, the Engineer uses the evaluation specifications under Section 39-4.03F, "Statistical Evaluation," and:

1. Verified quality control test results for aggregate gradation
2. Verified quality control test results for asphalt binder content
3. The Engineer's test results for percent of maximum theoretical density

Lot Acceptance Based on Quality Factors

The Engineer accepts a lot based on the quality factors determined for aggregate gradation and asphalt binder content, QF_{QCi} for i = 1 through 4, using the total number of verified quality control test result values and the total percent defective ($P_U + P_L$).

The Engineer accepts a lot based on the quality factor determined for maximum theoretical density, QF_{QC5}, using the total number of test result values from density cores and the total percent defective ($P_U + P_L$).

The Engineer calculates the quality factor for the lot, QF_C, which is a composite of weighted individual quality factors, QF_{QCi}, determined for each quality characteristic in the HMA Acceptance – QC / QA table in Section 39-4.05A, "Testing."

The Engineer accepts a lot based on quality factors if:

1. The current composite quality factor, QF_C, is 0.90 or greater
2. Each individual quality factor, QF_{QCi} for i = 3, 4, and 5, is 0.90 or greater
3. Each individual quality factor, QF_{QCi} for i = 1 and 2, is 0.75 or greater

No single quality characteristic test may represent more than the smaller of 750 tons or 1 day's production.

Payment Adjustment

If a lot is accepted, the Engineer adjusts payment with the following formula:

$$PA = \sum_{i=1}^{n} HMACP * wi * [QFQCi * (HMATT - WHMATTi) + WHMATTi] - (HMACP * HMATT)$$

where:

PA =	Payment adjustment rounded to 2 decimal places.
$HMACP$ =	HMA contract price.
$HMATT$ =	HMA total tons represented in the lot.
$WHMATT_i$ =	Total tons of waived quality characteristic HMA.
QF_{QCi} =	Running quality factor for the individual quality characteristic. QF_{QCi} for i = 1 through 4 must be from verified Contractor's QC results. QF_{QC5} must be determined from the Engineer's results on density cores taken for percent of maximum theoretical density determination.
w =	Weighting factor listed in the HMA acceptance table.
i =	Quality characteristic index number in the HMA acceptance table.

If the payment adjustment is a negative value, the Engineer deducts this amount from payment. If the payment adjustment is a positive value, the Engineer adds this amount to payment.

The 21st sublot becomes the 1st sublot (n = 1) in the next lot. When the 21st sequential sublot becomes the 1st sublot, the previous 20 sequential sublots become a lot for which the Engineer determines a quality factor. The Engineer uses this quality factor to pay for the HMA in the lot. If the next lot consists of less than 8 sublots, these sublots must be added to the previous lot for quality factor determination using 21 to 27 sublots.

39-4.05C Dispute Resolution

For a lot, if you or the Engineer dispute any quality factor, QF_{QCi}, or verification test result, every sublot in that lot must be retested.

Referee tests must be performed under the specifications for acceptance testing.

Any quality factor, QF_{QCi}, must be determined using the referee tests.

For any quality factor, QF_{QCi}, for i = 1 through 5, dispute resolution:

1. If the difference between the quality factors for QF_{QCi} using the referee test result and the disputed test result is less than or equal to 0.01, the original test result is correct.
2. If the difference between the quality factor for QF_{QCi} using the referee test result and the disputed test result is more than 0.01, the quality factor determined from the referee tests supersedes the previously determined quality factor.

39-5 MEASUREMENT AND PAYMENT

39-5.01 MEASUREMENT

The contract item for HMA is measured by weight. The weight of each HMA mixture designated in the Engineer's Estimate must be the combined mixture weight.

If tack coat, asphalt binder, and asphaltic emulsion are paid with separate contract items, their contract items are measured under Section 92, "Asphalts," or Section 94, "Asphaltic Emulsions," as the case may be.

If recorded batch weights are printed automatically, the contract item for HMA 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 asphalt binder weight per batch is printed.
3. Each truckload's zero tolerance weight is printed before weighing the first batch and after weighing the last batch.
4. Time, date, mix number, load number and truck identification is correlated with a load slip.
5. A copy of the recorded batch weights is certified by a licensed weighmaster and submitted to the Engineer.

The contract item for placing HMA dike is measured by the linear foot along the completed length. The contract item for placing HMA in miscellaneous areas is measured as the in-place compacted area in square yards. In addition to the quantities measured on a linear foot or square yard basis, the HMA for dike and miscellaneous areas are measured by weight.

The contract item for geosynthetic pavement interlayer is measured by the square yard for the actual pavement area covered.

39-5.02 PAYMENT

The contract prices paid per ton for hot mix asphalt as designated in the Engineer's Estimate include full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in constructing hot mix asphalt, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

If HMA is specified to comply with Section 39-4, "Quality Control / Quality Assurance," the Engineer adjusts payment under that section.

Full compensation for the Quality Control Plan and prepaving conference is included in the contract prices paid per ton for hot mix asphalt as designated in the Engineer's Estimate and no additional compensation will be allowed therefor.

Full compensation for performing and submitting mix designs and for Contractor sampling, testing, inspection, testing facilities, and preparation and submittal of results is included in the contract prices paid per ton for HMA as designated in the Engineer's Estimate and no additional compensation will be allowed therefor.

Full compensation for reclaimed asphalt pavement is included in the contract prices paid per ton for HMA as designated in the Engineer's Estimate and no additional compensation will be allowed therefor.

The contract price paid per ton for hot mix asphalt (leveling) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in hot mix asphalt (leveling), complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The State pays for HMA dike at the contract price per linear foot for place HMA dike and by the ton for HMA. The contract prices paid per linear foot for place hot mix asphalt dike as designated in the Engineer's Estimate include full compensation for furnishing all labor, tools, equipment, and incidentals, and for doing all the work involved in placing HMA dike, complete in place, including excavation, backfill, and preparation of the area to receive the dike, as shown

on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The State pays for HMA specified to be a miscellaneous area at the contract price per square yard for place hot mix asphalt (miscellaneous area) and per ton for hot mix asphalt. The contract price paid per square yard for place hot mix asphalt (miscellaneous area) includes full compensation for furnishing all labor, tools, equipment, and incidentals, and for doing all the work involved in placing HMA (miscellaneous area) complete in place, including excavation, backfill, and preparation of the area to receive HMA (miscellaneous area), as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

If the Quality Control / Quality Assurance construction process is specified, HMA placed in dikes and miscellaneous areas is paid for at the contract price per ton for hot mix asphalt under Section 39-4, "Quality Control / Quality Assurance." Section 39-4.05B, "Statistical Evaluation, Determination of Quality Factors and Acceptance," does not apply to HMA placed in dikes and miscellaneous areas.

If there are no contract items for place hot mix asphalt dike and place hot mix asphalt (miscellaneous area) and the work is specified, full compensation for constructing HMA dikes and HMA (miscellaneous areas) including excavation, backfill, and preparation of the area to receive HMA dike or HMA (miscellaneous area) is included in the contract price paid per ton for the hot mix asphalt designated in the Engineer's Estimate and no separate payment will be made therefor.

The contract price paid per square yard for geosynthetic pavement interlayer of the type shown on the verified Bid Item List includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing geosynthetic pavement interlayer, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The contract price paid per ton for paving asphalt (binder, geosynthetic pavement interlayer) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying paving asphalt (binder, geosynthetic pavement interlayer), complete in place, including spreading sand to cover exposed binder material, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

Full compensation for small quantities of HMA placed on geosynthetic pavement interlayer to prevent displacement during construction is included in the contract price paid per ton for the HMA being paved over the interlayer and no separate payment will be made therefor.

The contract price paid per ton for tack coat includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying tack coat, complete in place, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The Engineer does not adjust payment for increases or decreases in the quantities for tack coat, regardless of the reason for the increase or decrease. Section 4-1.03B, "Increased or Decreased Quantities," does not apply to the items for tack coat.

Full compensation for performing smoothness testing, submitting written and electronic copies of tests, and performing corrective work including applying fog seal coat is included in the contract price paid per ton for the HMA designated in the Engineer's Estimate and no separate payment will be made therefor.

Full compensation for spreading sand on RHMA-G, RHMA-O, and RHMA-O-HB surfaces and for sweeping and removing excess sand is included in the contract price paid per ton for

rubberized hot mix asphalt as designated in the Engineer's Estimate and no separate payment will be made therefor.

If the dispute resolution ITP determines the Engineer's test results are correct, the Engineer deducts the ITP's testing costs from payments. If the ITP determines your test results are correct, the State pays the ITP's testing costs. If, in the Engineer's opinion, work completion is delayed because of incorrect Engineer test results, the Department makes payment and time adjustments under Section 8-1.09, "Delays."

^^

SECTION 40 PORTLAND CEMENT CONCRETE PAVEMENT
(Issued 01-20-12)

Replace Section 40 with:

SECTION 40 CONCRETE PAVEMENT

40-1 GENERAL

40-1.01 SUMMARY

Section 40 includes specifications for constructing concrete pavement on a prepared subgrade.

40-1.02 SUBMITTALS

40-1.02A Certificates of Compliance

Submit Certificates of Compliance under Section 6-1.07, "Certificates of Compliance." Include a test result report for any specified test with certification that test was performed within 12 months before the tested material's use.

Submit Certificates of Compliance for:

1. Tie bars
2. Threaded tie bar splice couplers
3. Dowel bars
4. Tie bar baskets
5. Dowel bar baskets
6. Chemical adhesive (drill and bond)
7. Silicone joint sealant
8. Asphalt rubber joint sealant
9. Preformed compression seal
10. Backer rods. Include the manufacturer's statement of compatibility with the sealant to be used.
11. Joint filler material
12. Curing compound. For each delivery to the job site, submit a copy of the Certificate of Compliance to the Engineer and the Transportation Laboratory. Each Certificate of Compliance must not represent more than 10,000 gallons and must include a test result report for:

12.1. Moisture loss at 24 hours under California Test 534
12.2. Reflectance under ASTM E 1347
12.3. Viscosity under ASTM D 2196
12.4. Nonvolatile content under ASTM D 2369
12.5. Pigment content under ASTM D 3723
13. Epoxy powder coating

40-1.02B Curing Compound Samples

Submit split curing compound samples to the Transportation Laboratory.

40-1.02C Drilled Corings

Submit each core taken for Engineer's acceptance in a plastic bag. Mark each core with a location description.

40-1.02D Independent Third Party Air Content Testing Laboratory

Before testing, submit for the Engineer's approval the name of a laboratory that will test drilled core specimens for air content in cases of dispute.

40-1.02E Dowel Bars

Before placing dowel bars, submit a procedure for identifying transverse contraction joint locations relative to the dowel bars' longitudinal center and a procedure for consolidating concrete around the dowel bars.

40-1.02F Concrete Field Qualification

Submit field qualification data and test reports including:

1. Mixing date
2. Mixing equipment and procedures used
3. Batch volume in cubic yards
4. Type and source of ingredients used
5. Penetration of the concrete
6. Air content of the plastic concrete
7. Age and strength at time of concrete beam testing

Field qualification test reports must be certified with a signature by an official in responsible charge of the laboratory performing the tests.

40-1.02G Frequency Measuring Device (Tachometer)

Submit calibration documentation and operational guidelines for frequency measuring devices for concrete consolidation vibrators.

40-1.02H Manufacturer's Recommendations and Instructions

If used and at least 15 days before delivery to the job site, submit manufacturer's recommendations and instructions for storage and installation of:

1. Threaded tie bar splice couplers
2. Chemical adhesive (drill and bond)
3. Silicone liquid sealant

4. Asphalt rubber liquid sealant
5. Preformed compression seals
6. Joint filler material

40-1.02I Mix Proportions

At least 15 days before starting testing for mix proportions , submit a copy of the AASHTO accreditation for your laboratory determining the mix proportions. At least 30 days before starting field qualification, submit the proposed concrete mix proportions, the corresponding mix identifications, and laboratory test reports including the modulus of rupture for each trial mixture at 10, 21, 28, and 42 days.

40-1.02J Preformed Compression Seal

Submit the manufacturer's data sheet used to develop the recommended preformed compression seal based on the joint dimensions.

40-1.02K Concrete Pavement Early Age Crack Mitigation System

At least 24 hours before each paving shift, submit:

1. Early age stress and strength predictions
2. Scheduled sawing and curing activities
3. Contingency plan if volunteer cracking occurs

At least 24 hours before paving, meet with the Engineer to review the submittals for the early age crack mitigation system.

During paving, update the system with current weather data obtained from a portable weather station. Before paving concrete pavement with these updates, submit new stress and strength predictions and curing and sawing activity schedules.

40-1.02L Profilograms

Submit profilograms within 5 business days of initial profiling and within 2 business days of profiling corrected sections.

Submit 1 electronic copy of profile information in ".erd" format or other ProVAL compatible format to the Engineer and to:

Smoothness@dot.ca.gov

Submit the original of final profilograms before the Engineer accepts the contract.

Submitted profilograms become the Department's property.

40-1.02M Protecting Concrete Pavement During Cold Weather

Submit a plan for protecting concrete pavement during the initial 72 hours after paving when the forecasted minimum ambient temperature is below 40 degrees F.

40-1.02N Quality Control Charts

Submit updated quality control charts each paving day.

40-1.02O Quality Control Plan

At least 30 days before the start of field qualification, submit a concrete pavement quality control plan (QCP).

40-1.03 QUALITY CONTROL AND ASSURANCE

40-1.03A Contractor Quality Control Plan

Establish, implement, and maintain a QCP for concrete pavement. The QCP must describe the organization and procedures you use to:

1. Control the production process
2. Determine if changes to the production process are needed
3. Implement changes

The QCP must address the elements affecting concrete pavement quality including:

1. Mix proportions
2. Aggregate gradation
3. Materials quality
4. Stockpile management
5. Line and grade control
6. Proportioning
7. Mixing and transportation
8. Placing and consolidation
9. Contraction and construction joints
10. Dowel bar placement, alignment, and anchorage
11. Tie bar placement
12. Modulus of rupture
13. Finishing and curing
14. Surface smoothness
15. Joint sealant and compression seal installation

The QCP must include details of corrective action to be taken if any process is out of control. As a minimum, a process is out of control if any of the following occurs:

1. For fine and coarse aggregate gradation, 2 consecutive running averages of 4 tests are outside the specification limits
2. For individual penetration or air content measurements:

    2.1. One point falls outside the suspension limit line
    2.2. Two points in a row fall outside the action limit line

Stop production and take corrective action for out of control processes or the Engineer rejects subsequent material.

40-1.03B Quality Control Testing

Select random locations and perform sampling and testing in compliance with:

Quality Control Testing

Test	Frequency	Test Method
Cleanness value	2 per day	CT 227
Sand equivalent	2 per day	CT 217
Aggregate gradation	2 per day	CT 202
Air content (freeze thaw) [a]	1 per hour	CT 504
Air content (non-freeze thaw)	1 per 4 hours	CT 504
Density	1 per 4 hours	CT 518
Penetration	1 per 4 hours	CT 533
Calibration of moisture meter [b, c]	1 per day	CT 223 or CT 226

Notes:

[a] If air entrainment is specified, make at least 1 air content measurement per hour. If air entrainment is not specified, make at least 1 air content measurement per 4 hours.

[b] Make at least 1 measurement of moisture content per week to check the calibration of an electronically actuated moisture meter.

[c] Random location sampling and testing is not applicable.

If air entrainment is specified, the testing laboratory and tester must be qualified under the Department's Independent Assurance Manual. The manual is available from the Transportation Laboratory.

40-1.03C Control Charts

Maintain control charts to identify potential problems and assignable causes. Post a copy of each control chart at a location determined by the Engineer.

Individual measurement control charts must use the target values in the mix proportions as indicators of central tendency.

Develop linear control charts for:

1. Cleanness value
2. Sand equivalent
3. Fine and coarse aggregate gradation
4. Air content
5. Penetration

Control charts must include:

1. Contract number
2. Mix proportions
3. Test number
4. Each test parameter
5. Action and suspension limits
6. Specification limits
7. Quality control test results

For fine and coarse aggregate gradation control charts, record the running average of the previous 4 consecutive gradation tests for each sieve and superimpose the specification limits.

For penetration and air content control charts, record the individual measurements and superimpose the following action and suspension limits:

Penetration and Air Content Action and Suspension Limits

Control Parameter	Individual Measurements	
	Action Limit	Suspension Limit
Penetration, CT 533	1 inch	1-1/2 inch
Air content, CT 504	±1.0 percent	±1.5 percent

40-1.03D Contractor's Laboratory

Use a laboratory that complies with ASTM C 1077 to determine the mix proportions for concrete pavement. The laboratory must have a current AASHTO accreditation for:

1. AASHTO T 97 or ASTM C 78
2. ASTM C 192/C 192M

40-1.03E Joint Sealant and Compression Seal Installation Training

Before installing joint sealant or compression seals, arrange for a representative from the joint sealant or compression seal manufacturer to provide training on the cleaning and preparation of the joint and installing the sealant or seal. Until your personnel and the Department's personnel have been trained, do not install joint sealant or compression seals.

40-1.03F Frequency Measuring Device (Tachometer)

Before each day's concrete pavement placement and at intervals not to exceed 4 hours of production, test and record vibration frequency for concrete consolidation vibrators.

40-1.03G Early Age Concrete Pavement Crack Mitigation System

Develop and implement a system for predicting concrete pavement stresses and strength during the initial 72 hours after paving. The system must include:

1. Subscribing to a weather service to obtain forecasts for wind speed, ambient temperatures, humidity, and cloud cover
2. Portable weather station with anemometer, temperature and humidity sensors, located at the paving site
3. Early age concrete pavement stress and strength prediction computer program
4. Analyzing, monitoring, updating, and reporting the system's predictions

40-1.03H Curing Compound

Sample curing compound from shipping containers at the manufacturer's source of supply. Split the samples.

40-1.03I Concrete Pavement Smoothness

Within 10 days after paving, measure the Profile Index (PI_0) of the concrete pavement surface using a zero (null) blanking band under California Test 526.

For the following concrete pavement areas, the Engineer does not require a profilograph and you must test and correct high points determined by a 12-foot straightedge placed parallel with and perpendicular to the centerline:

1. Horizontal curves with a centerline radius of curvature less than 1,000 feet including concrete pavement within the superelevation transitions of those curves.
2. Exit ramp termini, truck weigh stations, and weigh-in-motion areas

3. Where steep grades and superelevation rates greater than 6 percent are present on:

    3.1. Ramps
    3.2. Connectors

4. Turn lanes and areas around manholes or drainage transitions
5. Acceleration and deceleration lanes for at-grade intersections
6. Shoulders and miscellaneous gore areas

Use a California Profilograph to determine the concrete pavement profile. If the profilograph uses a mechanical recorder, use an electronic scanner to reduce the profilogram.

The profilograph operator must be qualified under the Department's Independent Assurance Manual. The manual is available from the Department's Materials Engineering and Testing Services Web site.

40-1.03J Profilograph Test Procedure

Notify the Engineer at least 2 business days before performing profilograph testing. Each day before performing profilograph testing, notify the Engineer of the start location. Perform profilograph testing in the Engineer's presence.

Before starting profilograph testing, remove foreign objects from the concrete pavement surface.

Before starting profilograph testing, calibrate the profilograph in the Engineer's presence. If the Engineer chooses not to be present during profilograph testing, you may perform the testing with the Engineer's written approval. Note the Engineer's absence on the profilogram.

Determine PI_0 values for the final concrete pavement surface of each 0.1-mile section of a traffic lane. Take 2 profiles within each traffic lane, 3 feet from and parallel with the edge of each lane. Each section's PI_0 is the average of the PI_0 values for the measurements within that traffic lane. A section that is less than 0.01 mile and is the result of an interruption to continuous concrete pavement surface must comply with the PI_0 specifications for a full section. Adjust the PI_0 for a partial section to reflect a full section.

Use stationing to locate vertical deviations greater than 0.3 inches. The profilogram stationing must be the same as the project stationing. Note 0.1-mile segments on the profilogram.

Label the profilogram with:

1. Contract number
2. County and route number
3. Stationing
4. Operator's name
5. Test date
6. Test number
7. Traffic direction
8. Traffic lane (numbered from left to right in direction of travel)
9. Test wheel path (left or right in direction of travel)
10. Test direction
11. Paving direction

40-1.03K Smoothness Corrective Action

Correct concrete pavement not complying with the Engineer's acceptance specifications for smoothness by grinding under Section 42-2, "Grinding."

Do not grind before:

1. Ten days after concrete pavement placement
2. The concrete has developed a modulus of rupture of at least 550 psi

Grind the entire lane width. When completed, the lane width must be uniform in texture and appearance. Square the corrected area's start and end normal to the paved surface's centerline.

Retest sections where corrections were made.

40-1.03L Acceptance Criteria

General

Concrete pavement is accepted based on the Department's testing for the concrete pavement quality characteristics shown in the following table:

Concrete Pavement Acceptance Testing

Quality Characteristic	Quantity	Test
28-day modulus of rupture	1,000 cubic yards	CT 523
Thickness	1,200 square yards for primary area measurements	CT 531
Dowel bar placement	700 square yards	Measurement
Tie bar placement	4,000 square yards	Measurement
Coefficient of friction	One day's paving	CT 342
Air content (freeze-thaw) [a]	One day's paving	CT 504

Note:

[a] Air content tests must be performed under California Test 504 if air entrainment is specified.

Pavement smoothness may be accepted based on the Department's testing. A single test represents no more than 0.1 mile.

Acceptance of modulus of rupture, thickness, dowel bar and tie bar placement, coefficient of friction, smoothness, and air content, does not constitute final concrete pavement acceptance.

Modulus of Rupture

The Engineer accepts concrete pavement for modulus of rupture on a lot basis. The minimum modulus of rupture for each lot is 570 psi at 28 days.

For each lot of concrete for concrete pavement:

1. Quantity must not exceed 1,000 cubic yards.
2. Department determines the modulus of rupture of test beams aged 10 days and 28 days.
3. Department calculates the modulus of rupture by averaging the individual test results of 2 beams aged for 28 days.

The Department provides molds and machines for modulus of rupture acceptance testing. Provide material and labor the Engineer may require.

Concrete Pavement Smoothness

If the Department tests for smoothness, the tests are performed under Section 40-1.03I, "Concrete Pavement Smoothness."

The Engineer accepts concrete pavement for smoothness in compliance with the following:

1. For tangents and horizontal curves having a centerline radius of curvature 2,000 feet or more, the PI_0 must be at most 2-1/2 inches per 0.1-mile section.
2. For horizontal curves having a centerline radius of curvature from 1,000 to 2,000 feet including concrete pavement within the superelevation transitions of those curves, the PI_0 must be at most 5 inches per 0.1-mile section.
3. If using a profilograph to measure smoothness, the surface must not have individual high points greater than 0.3 inch.
4. If using a straightedge to measure smoothness, the surface must be within 0.02 foot of the straightedge's lower edge.

Profile index specifications apply to existing pavement within 50 feet of the transverse joint separating new concrete pavement and the existing pavement.

If the Department's profilograph test results do not match yours, the Engineer may order you to recalibrate your profilograph equipment and perform a retest. If your test results are inaccurate due to operator error, the Engineer may disqualify your profilograph operator. If the Engineer determines your test results are inaccurate, the Engineer does not make adjustments to payment or contract time for recalibrating, retesting, and delays.

Concrete Pavement Thickness

The Engineer accepts concrete pavement for thickness based on coring in the primary area, which is the area placed in 1 day for each thickness. Concrete pavement thickness must not be deficient by more than 0.05 foot.

After corrective grinding has been completed, core concrete pavement in the primary area under Section 40-3.16, "Obtaining Drilled Cores," at locations determined by the Engineer and in the Engineer's presence. The core specimen diameter must be 4 inches. To identify the limits of concrete pavement deficient in thickness by more than 0.05 foot, you may divide primary areas into secondary areas. Specifications that may affect concrete pavement thickness such as allowable tolerances for subgrade construction do not change the thickness specified for concrete pavement.

In each primary area, the Engineer measures concrete pavement thickness every 1,200 square yards and any remaining area. The Engineer measures cores under California Test 531 to the nearest 0.01 foot. Core at least 1 foot from existing, contiguous, and parallel concrete pavement not constructed as part of this contract.

You may request the Engineer make additional thickness measurements and use them to determine the average thickness variation. The Engineer determines the locations with random sampling methods.

If each thickness measurement in a primary area is less than 0.05 foot deficient, the Engineer calculates the average thickness deficiency in that primary area. The Engineer uses 0.02 foot for a thickness difference more than 0.02 foot over the specified thickness.

For each thickness measurement in a primary area deficient by more than 0.05 foot, the Engineer determines a secondary area where the thickness deficiency is more than 0.05 foot. The Engineer determines this secondary area by measuring the thickness of each concrete pavement slab adjacent to the measurement found to be more than 0.05 foot deficient. The

Engineer continues to measure the thickness until an area that is bound by slabs with thickness deficient by 0.05 foot or less is determined.

Slabs without bar reinforcement are defined as the areas bound by longitudinal and transverse joints and concrete pavement edges. Slabs with bar reinforcement are defined as the areas bound by longitudinal joints and concrete pavement edges and 15-foot lengths. Secondary area thickness measurements in a slab determine that entire slab's thickness.

The Engineer measures the remaining primary area thickness after removing the secondary areas from consideration for determining the average thickness deficiency.

The Engineer determines the slabs to remove and replace.

Required Use of Air-Entraining Admixtures

If air-entraining admixtures are specified, the Engineer may choose to accept concrete pavement for air content based on your air content quality control tests. The Engineer decides to use your air content quality control tests based on a *t*-test that determines the difference in the means of your test and the Engineer's verification tests. The Engineer calculates the t-value of the test data as follows:

$$t = \frac{\left|\overline{X}_c - \overline{X}_v\right|}{S_p\sqrt{\frac{1}{n_c} + \frac{1}{n_v}}} \qquad \text{and} \qquad S_p^2 = \frac{S_c^2(n_c - 1) + S_v^2(n_v - 1)}{n_c + n_v - 2}$$

where:

n_c = Number of your quality control tests (minimum of 6 required)
n_v = Number of verification tests (minimum of 2 required)
$\overline{X}_c$ = Mean of your quality control tests
$\overline{X}_v$ = Mean of the verification tests
S_p = Pooled standard deviation
(When $n_v = 1$, $S_p = S_c$)
S_c = Standard deviation of your quality control tests
S_v = Standard deviation of the verification tests (when $n_v > 1$)

The Engineer compares your quality control test results with the Department's verification test results at a level of significance of $\alpha = 0.01$. The Engineer compares the *t*-value to t_{crit}, determined from:

degrees of freedom (n_c+n_v-2)	t_{crit} (for $\alpha = 0.01$)
1	63.657
2	9.925
3	5.841
4	4.604
5	4.032
6	3.707
7	3.499
8	3.355
9	3.250
10	3.169

t_{crit}

If the *t*-value calculated is less than or equal to t_{crit}, your quality control test results are verified. If the *t*-value calculated is greater than t_{crit}, quality control test results are not verified.

If your quality control test results are not verified, core at least 3 specimens from concrete pavement under Section 40-3.16, "Obtaining Drilled Cores." The Engineer selects the core locations. Your approved third party independent testing laboratory must test these specimens for air content under ASTM C 457. The Engineer compares these test results with your quality control test results using the *t*-test method. If your quality control test results are verified based on this comparison, the Engineer uses the quality control test results for acceptance of concrete pavement for air content. If your quality control test results are not verified based on this comparison, the Engineer uses the air content of core specimens determined under ASTM C 457 for acceptance.

Dowel Bar and Tie Bar Placement

Dowel bar alignment must comply with section 40-3.06. Tie bar alignment must comply with Section 40-3.05. Except for CRCP, core specimens for:

1. Dowel bar placement
2. Tie bar placement
3. Concrete consolidation

Obtain cores under Section 40-3.16, "Obtaining Drilled Cores." The Engineer determines the core locations. Each core must have a nominal diameter of 4 inches. Core each day's paving within 2 business days in compliance with:

1. One test for every 700 square yards of doweled concrete pavement or remaining fraction of that area. Each dowel bar test consists of 2 cores, 1 on each dowel bar end to expose both ends and allow measurement.
2. One test for every 4,000 square yards of concrete pavement with tie bars or remaining fraction of that area. Each tie bar test consists of 2 cores, 1 on each tie bar end to expose both ends and allow measurement.

If the tests indicate dowel or tie bars are not placed within the specified tolerances or if there are air voids around the dowel or tie bars, core additional specimens to determine the limits of unacceptable work.

The Engineer determines the slabs to remove and replace.

If the Engineer approves your request, slabs may remain in place with an adjustment in payment for:

1. Dowel bars with centers from ±2 inches to ±3 inches from the saw cut of a transverse contraction joint or with deficient concrete consolidation around the dowel bars
2. Tie bars placed outside their specified placement and position or with deficient concrete consolidation around the tie bars

Bar Reinforcing Steel

The Engineer accepts concrete pavement for bar reinforcing steel based on inspection before concrete placement.

Curing Compound

Curing compound sampled from shipping containers from the manufacturer's supply source or from the job site must match the test results for viscosity, nonvolatile content, and pigment content within the specified tolerances listed in the precision and bias statements for the test methods.

40-2 MATERIALS

40-2.01 CONCRETE

40-2.01A General

Concrete must comply with Section 90, "Portland Cement Concrete."

40-2.01B Aggregate

The specifications for reduction in Operating Range and Contract Compliance for cleanness value and sand equivalent specified under Section 90-2.02A, "Coarse Aggregate," and Section 90-2.02B, "Fine Aggregate," do not apply to concrete pavement.

Combined aggregate gradings must comply with Section 90-3, "Aggregate Gradings," and the difference between the percent passing the 3/8-inch sieve and the percent passing the No. 8 sieve must not be less than 16 percent of the total aggregate.

40-2.01C Cementitious Material

Concrete for concrete pavement must contain from 505 pounds to 675 pounds cementitious material per cubic yard. Determine the minimum cementitious materials content. Use your value for minimum cementitious material content for *MC* in equation 1 and equation 2 of section 90-1.02B(3).

40-2.01D Mix Proportions

Your laboratory determining mix proportions must determine the minimum cementitious materials content or the maximum water to cementitious materials ratio and:

1. You must make trial mixtures no more than 24 months before field qualification.
2. Modulus of rupture used to determine the minimum cementitious materials content or maximum water to cementitious materials ratio must be 570 psi at 28 days age and 650 psi at 42 days age.

3. Your laboratory must determine an increase in the cementitious materials content or a decrease in the water to cementitious materials ratio from the trial mixtures to ensure concrete pavement complies with the specifications.

If changing an aggregate supply source or the mix proportions, produce a trial batch and field-qualify the new concrete. The Engineer does not adjust contract time for performing sampling, testing, and qualifying new mix proportions or changing an aggregate supply source.

40-2.01E Field Qualification

Proposed mix proportions must be field qualified before you place concrete pavement. Use an American Concrete Institute (ACI) certified "Concrete Laboratory Technician, Grade I" to perform field qualification tests and calculations.

The Engineer accepts field qualification if five beams made and tested under California Test 523 comply with the following:

1. At a minimum, beams are tested at 10, 21, and 28 days of age
2. At your choice of age not later than 28 days, no single beam's modulus of rupture is less than 550 psi and the average modulus of rupture is at least 570 psi

40-2.02 TIE BARS

Tie bars must be deformed bars.

If the project is not shown to be in high desert or any mountain climate region, tie bars must be one of the following:

1. Epoxy-coated bar reinforcement. Bars must comply with Section 52-1.02B, "Epoxy-coated Reinforcement" except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.
3. Low carbon, chromium-steel bars complying with ASTM A 1035/A 1035M.

If the project is shown to be in high desert or any mountain climate region, tie bars must be one of the following:

1. Epoxy-coated bar reinforcement. Bars must comply with "Epoxy-coated Prefabricated Reinforcement" in the special provisions except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.

Fabricate, sample, and handle epoxy-coated deformed tie bars at the job site under ASTM D 3963/D 3963M and Section 52-1.02B, "Epoxy-coated Reinforcement."

Do not bend tie bars.

40-2.03 DOWEL BARS

40-2.03A General

Dowel bars must be plain bars. Fabricate, sample, and handle epoxy-coated dowel bars under ASTM D 3963/D 3963M and section 52-1.02B, "Epoxy-coated Reinforcement," except each sample must be 18 inches long.

If the project is not shown to be in high desert or any mountain climate region, dowel bars must be one of the following:

1. Epoxy-coated bars. Bars must comply with ASTM A 615/A 615M, Grade 40 or 60. Epoxy coating must comply with either (1) Section 52-1.02B, "Epoxy-coated Reinforcement" or (2) "Epoxy-coated Prefabricated Reinforcement" in the special provisions.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.
3. Low carbon, chromium-steel bars under ASTM A 1035/A 1035M.

If the project is shown to be in high desert or any mountain climate region, dowel bars must be one of the following:

1. Epoxy-coated bars. Bars must comply with ASTM A 615/A 615M, Grade 40 or 60. Epoxy coating must comply with "Epoxy-coated Prefabricated Reinforcement" in the special provisions.
2. Stainless-steel bars. Bars must be descaled, pickled, polished, and solid stainless-steel bars under ASTM A 955/A 955M, Grade 60, UNS Designation S31603 or S31803.

40-2.03B Dowel Bar Lubricant

Dowel bar lubricant must be either (1) petroleum paraffin based or (2) curing compound no. 3. Paraffin-based lubricant must be either Dayton Superior DSC BB-Coat, Valvoline Tectyl 506, or an approved equal. Petroleum paraffin based lubricant must be factory-applied.

40-2.04 CURING COMPOUND

Curing compound must be curing compound (1) or (2) with white pigment under Section 90-7.01B, "Curing Compound Method."

Reflectance must be at least 60 percent when tested under ASTM E 1347.

40-2.05 CHEMICAL ADHESIVE (DRILL AND BOND)

Chemical adhesive for drilling and bonding dowels and tie bars must be prequalified. A list of prequalified chemical adhesives is available on the Department's Materials Engineering and Testing Services website. The prequalified list indicates the appropriate chemical adhesive system for the concrete temperature and installation conditions.

Each chemical adhesive system must clearly and permanently show the following:

1. Manufacturer's name
2. Model number of the system
3. Manufacture date
4. Batch number
5. Expiration date

6. Current International Conference of Building Officials Evaluation Report number
7. Directions for use
8. Warnings or precautions required by state and federal laws and regulations

40-2.06 DOWEL AND TIE BAR BASKETS

For dowel and tie bar baskets, wire must comply with ASTM A 82/A 82M and be welded under ASTM A 185/A 185M, Section 7.4. The minimum wire-size no. is W10. Use either U-frame or A-frame shaped assemblies.

If the project is not shown to be in high desert or any mountain climate region. Baskets may be epoxy-coated, and the epoxy coating must comply with either (1) Section 52-1.02B, "Epoxy-coated Reinforcement" or (2) "Epoxy-coated Prefabricated Reinforcement" in the special provisions.

If the project is shown to be in high desert or any mountain climate region, wire for dowel bar and tie bar baskets must be one of the following:

1. Epoxy-coated wire under "Epoxy-coated Prefabricated Reinforcement" in the special provisions
2. Stainless-steel wire. Wire must be descaled, pickled, and polished solid stainless-steel. Wire must comply with (1) the chemical requirements in ASTM A 276/A 276M, UNS Designation S31603 or S31803 and (2) the tension requirements in ASTM A 1022/ A 1022M.

Handle epoxy-coated tie bar and dowel bar baskets under ASTM D 3963/D 3963M and either (1) Section 52-1.02B, "Epoxy-coated Reinforcement" or (2) "Epoxy-coated Prefabricated Reinforcement" in the special provisions.

Fasteners must be driven fasteners under ASTM F 1667. Fasteners on lean concrete base or HMA must have a minimum shank diameter of 3/16 inch and a minimum shank length of 2-1/2 inches. For asphalt treated permeable base or cement treated permeable base, the shank diameter must be at least 3/16 inch and the shank length must be at least 5 inches.

Fasteners, clips, and washers must have a minimum 0.2-mil thick zinc coating applied either by electroplating or galvanizing.

40-2.07 BACKER RODS

Backer rods must be Type 1 under ASTM D 5249. Backer rod diameter must be at least 25 percent greater than the sawcut joint width. Backer rod material must be expanded, crosslinked, closed-cell polyethylene foam. No bond or adverse reaction may occur between the backer rod and sealant.

40-2.08 JOINT FILLER MATERIAL

Joint filler for isolation joints must be preformed expansion joint filler for concrete (bituminous type) under ASTM D 994.

40-2.09 HYDRAULIC CEMENT GROUT (NON-SHRINK)

Hydraulic cement grout (non-shrink) must comply with ASTM C 1107/ C 1107M. Use clean, uniform, rounded aggregate filler to extend the grout. Aggregate filler must not exceed 60 percent of the grout mass or the maximum recommended by the manufacturer, whichever is less.

Aggregate filler moisture content must not exceed 0.5 percent. Aggregate filler must comply with:

Aggregate Filler Grading

Sieve Size	Percentage Passing
1/2-inch	100
3/8-inch	85 - 100
No. 4	10 - 30
No. 8	0 - 10
No. 16	0 - 5

40-2.10 BAR REINFORCEMENT

Bar reinforcement must be deformed bars.

If the project is not shown to be in high desert or any mountain climate region, bar reinforcement must comply with section 52.

If the project is shown to be in high desert or any mountain climate regions, bar reinforcement must be one of the following:

1. Epoxy-coated bar reinforcement under section 52-2.03B except bars must comply with either ASTM A 706/A 706M; ASTM A 996/A 996M; or ASTM A 615/A 615M, Grade 40 or 60. Bars must be handled under ASTM D 3963/D 3963M and section 52-2.02C.
2. Low carbon, chromium steel bar complying with ASTM A 1035/A 1035M

40-2.11 JOINT SEALANT

40-2.11A General

Do not use hot-pour sealant that will melt the backer rod.

40-2.11B Silicone Joint Sealant

Silicone joint sealant must be prequalified. A list of prequalified silicone joint sealant available on the Department's Materials Engineering and Testing Services Web site at:

http://www.dot.ca.gov/hq/esc/approved_products_list/

40-2.11C Asphalt Rubber Joint Sealant

Asphalt rubber joint sealant must:

1. Be a mixture of paving asphalt and ground rubber containing not less than 22 percent ground rubber by weight. One hundred percent of ground rubber must pass a No. 8 sieve. Ground rubber must be vulcanized or a combination of vulcanized and devulcanized materials.
2. Comply with ASTM D 6690, Type II except:

    2.1. The cone penetration requirement must not exceed 120 at 77 F, 5 ounces, 5 seconds.
    2.2. The resilience requirement must be a minimum 50 percent recovery when tested at 77 F.

3. Have a Ring and Ball softening point of 135 °F minimum when tested under AASHTO T 53.

4. Be capable of being melted and applied to cracks and joints at temperatures below 400 °F.
5. Not be applied when the concrete pavement surface temperature is below 50 °F.

40-2.11D Preformed Compression Joint Seals

Preformed compression joint seals must comply with ASTM D 2628. Lubricant adhesive used with the seals must comply with ASTM D 2835. Preformed compression joint seals must have 5 or 6 cells, except seals for Type A2 and Type B joints may have 4 cells. Install preformed compression joint seals in compliance with the manufacturer's recommendations. Show evidence that the seals are compressed from 30 to 50 percent for the joint width at the time of installation.

40-2.12 WATER

Water for core drilling may be obtained from a potable water source, or submit proof that it does not contain:

1. More than 1,000 parts per million of chlorides as Cl
2. More than 1,300 parts per million of sulfates as SO_4
3. Impurities that cause pavement discoloration or surface etching

40-3 CONSTRUCTION

40-3.01 WATER SUPPLY

Before placing concrete pavement, develop enough water supply for the work.

40-3.02 SUBGRADE PREPARATION

Immediately before placing concrete, the subgrade to receive concrete pavement must be:

1. In compliance with the specified compaction and elevation tolerances
2. Free of loose and extraneous material
3. Uniformly moist, but free of standing or flowing water
4. Excavated for thickened parts of concrete pavement end anchors with no disturbed compaction outside the end anchor dimensions

If cement treated permeable base is specified, cover the base surface with asphaltic emulsion before placing concrete pavement. Apply the asphaltic emulsion uniformly at a rate of 0.1 gallons per square yard. Asphaltic emulsion must comply with anionic slow-setting type, SS1h grade in Section 94, "Asphaltic Emulsions." Repair damaged asphaltic emulsion before placing concrete pavement.

40-3.03 PROPORTIONING

Proportion aggregate and bulk cementitious materials under Section 90-5, "Proportioning."

40-3.04 PLACING CONCRETE

40-3.04A General

Place concrete pavement with stationary side forms or slip-form paving equipment.

Place consecutive concrete loads within 30 minutes of each other. Construct a transverse construction joint when concrete placement is interrupted by more than 30 minutes. The

transverse construction joint must coincide with the next contraction joint location, or you must remove fresh concrete pavement to the preceding transverse joint location.

Place concrete pavement in full slab widths separated by construction joints or monolithically in multiples of full lane widths with a longitudinal contraction joint at each traffic lane line.

Do not retemper concrete.

If the concrete pavement surface width is constructed as specified, you may construct concrete pavement sides on a batter not flatter than 6:1 (vertical:horizontal).

40-3.04B Concrete Pavement Widening

If concrete pavement is placed adjacent to existing pavement not constructed as part of the contract, grind the existing concrete pavement lane or shoulder adjacent to the new concrete pavement. Perform the grinding before new concrete pavement is placed. The new concrete pavement must match the elevation of the existing concrete pavement after grinding. Grind existing concrete pavement under Section 42-2, "Grinding," except profile index must comply with the pavement smoothness specifications in Section 40-1.03, "Quality Control and Assurance."

Use paving equipment with padded crawler tracks or rubber-tired wheels on the existing concrete pavement with enough offset to avoid breaking or cracking the existing concrete pavement's edge.

40-3.04C Concrete Pavement Transition Panel

For concrete pavement placed in a transition panel, texture the surface with a drag strip of burlap, a broom, or a spring steel tine device that produces scoring in the finished surface. The scoring must be either parallel with or transverse to the centerline. For the method you choose, texture at the time that produces the coarsest texture.

40-3.04D Stationary Side Form Construction

Stationary side forms must be straight and without defects including warps, bends, and indentations. Side forms must be metal except at end closures and transverse construction joints where other materials may be used.

You may build up side forms by attaching a section to the top or bottom. If attached to the top of metal forms, the attached section must be metal.

The side form's base width must be at least 80 percent of the specified concrete pavement thickness.

Side forms including interlocking connections with adjoining forms must be rigid enough to prevent springing from subgrading and paving equipment and concrete pressure.

Construct subgrade to final grade before placing side forms. Side forms must bear fully on the foundation throughout their length and base width. Place side forms to the specified grade and alignment of the finished concrete pavement's edge. Support side forms during concrete placing, compacting, and finishing.

After subgrade work is complete and immediately before placing concrete, true side forms and set to line and grade for a distance that avoids delays due to form adjustment.

Clean and oil side forms before each use.

Side forms must remain in place for at least 1 day after placing concrete and until the concrete pavement edge no longer requires protection from the forms.

Spread, screed, shape, and consolidate concrete with 1 or more machines. The machine must uniformly distribute and consolidate the concrete. The machines must operate to place the concrete pavement to the specified cross section with minimal hand work.

Consolidate the concrete without segregation. If vibrators are used:

1. The vibration rate must be at least 3,500 cycles per minute for surface vibrators and 5,000 cycles per minute for internal vibrators
2. Amplitude of vibration must cause perceptible concrete surface movement at least 1 foot from the vibrating element
3. Use a calibrated tachometer for measuring frequency of vibration
4. Vibrators must not rest on side forms or new concrete pavement
5. Power to vibrators must automatically cease when forward or backward motion of the paving machine is stopped

Use high-frequency internal vibrators within 15 minutes of depositing concrete on the subgrade to uniformly consolidate the concrete across the paving width including adjacent to forms. Do not use vibrators to shift the mass of concrete.

40-3.04E Slip-Form Construction

If slip-form construction is used, spread, screed, shape, and consolidate concrete to the specified cross section with slip-form machines and minimal hand work. Slip-form paving machines must be equipped with traveling side forms and must not segregate the concrete.

Do not deviate from the specified concrete pavement alignment by more than 0.1 foot.

Slip-form paving machines must use high frequency internal vibrators to consolidate concrete. You may mount vibrators with their axes parallel or normal to the concrete pavement alignment. If mounted with axes parallel to the concrete pavement alignment, space vibrators no more than 2.5 feet measured center to center. If mounted with axes normal to the concrete pavement alignment, space the vibrators with a maximum 0.5-foot lateral clearance between individual vibrators.

Each vibrator must have a vibration rate from 5,000 cycles per minute to 8,000 cycles per minute. The amplitude of vibration must cause perceptible concrete surface movement at least 1 foot from the vibrating element. Use a calibrated tachometer to measure frequency of vibration.

40-3.05 TIE BAR PLACEMENT

Place tie bars in compliance with the tolerances shown in the following table:

Tie Bar Tolerance

Dimension	Tolerance
Horizontal and vertical skew	10 degrees maximum
Longitudinal translation	±2 inch maximum
Horizontal offset (embedment)	±2 inch maximum
Vertical depth	1. Not less than 1/2 inch below the saw cut depth of joints 2. When measured at any point along the bar, not less than 2 inches clear of the pavement's surface and bottom

Install tie bars at longitudinal joints by 1 of the following methods:

1. Drill concrete and bond tie bars with chemical adhesive in compliance with the manufacturer's instructions. Clean and dry drilled holes before placing chemical adhesive and tie bars. After inserting tie bars into chemical adhesive, support the bars to prevent movement during curing. If the Engineer rejects a tie bar installation, cut the tie bar flush with the joint face and coat the exposed end of the tie bar with chemical

adhesive under Section 40-2, "Materials." Offset new holes 3 inches horizontally from the rejected hole's center.

2. Insert tie bars into plastic slip-formed concrete before finishing. Inserted tie bars must have full contact between the bar and the concrete. If tie bars are inserted through the plastic concrete surface, eliminate evidence of the insertion by reworking the concrete over the tie bars.
3. Use threaded tie bar splice couplers fabricated from deformed bar reinforcement free of external welding or machining.
4. Use tie bar baskets. Anchor baskets at least 200 feet in advance of concrete pavement placement activity. If you request a waiver, describe the construction limitations or restricted access preventing the advanced anchoring. After the baskets are anchored and before paving, demonstrate the tie bars do not move from their specified depth and alignment during paving. Use fasteners to anchor tie bar baskets.

If tie bars are not placed correctly, stop paving activities until you demonstrate to the Engineer correction of the cause.

40-3.06 DOWEL BAR PLACEMENT

Center dowel bars within 2 inches in the longitudinal direction on transverse contraction joints or construction joints.

If using curing compound as lubricant, apply the curing compound to dowels in 2 separate applications. Lubricate each dowel bar entirely with bond breaker before placement. The last application must be applied not more than 8 hours before placing the dowel bars. Apply each curing compound application at a rate of 1 gallon per 150 square feet.

If dowel bars are placed by mechanical insertion, eliminate evidence of the insertion by reworking the concrete over the dowel bars. If drilling and bonding dowel bars at construction joints, use a grout retention ring.

If using dowel bar baskets, anchor them with fasteners.

Use at least 10 fasteners for basket sections greater than 12 feet and less than or equal to 16 feet. Baskets must be anchored at least 200 feet in advance of the concrete placement activity unless the Engineer approves your waiver request. If requesting a waiver, describe the construction limitations or restricted access preventing the advanced anchoring. After the baskets are anchored and before the concrete is placed, cut and remove temporary spacer wires and demonstrate the dowel bars do not move from their specified depth and alignment during concrete placement.

Place dowel bars in compliance with:

Dowel Bar Tolerances

Dimension	Tolerance
Horizontal offset	±1 inch
Longitudinal translation	±2 inches
Horizontal skew	3/8 inch, max
Vertical skew	3/8 inch, max
Vertical depth	The minimum distance below the concrete pavement surface must be: DB = d/3 + 1/2 inch where: DB = vertical distance in inches, measured from concrete pavement surface to any point along the top of dowel bar d = concrete pavement thickness in inches The maximum distance below the depth shown must be 5/8 inch..

If dowel bars are not placed correctly, stop paving activities until you demonstrate to the Engineer correction of the cause.

Remove and replace the concrete pavement 3 feet on either side of a joint with a rejected dowel bar.

40-3.07 BAR REINFORCEMENT

Place bar reinforcement under Section 52, "Reinforcement." Bar reinforcement must be more than 1/2 inch below the saw cut depth at concrete pavement joints.

40-3.08 JOINTS

40-3.08A General

Concrete pavement joints consist of:

1. Longitudinal and transverse construction joints
2. Longitudinal and transverse contraction joints
3. Isolation joints

Construction joints must be normal to the concrete pavement surface.

Until contract acceptance and except for joint filler material, keep joints free of foreign material including soil, gravel, concrete, or asphalt mix.

Volunteer cracks are cracks not coincident with constructed joints.

Repair concrete pavement damaged during joint construction under Section 40-3.17B, "Repair of Spalls, Raveling, and Tearing."

Do not bend tie bars or reinforcement in existing concrete pavement joints.

40-3.08B Construction Joints

Construction joints form where fresh concrete is placed against hardened concrete, existing pavements, or structures.

Before placing concrete at construction joints, apply a curing compound under Section 90-7.01B, "Curing Compound Method," to the vertical surface of existing or hardened concrete and allow it to dry.

Use a metal or wooden bulkhead to form transverse construction joints. If dowel bars are specified, the bulkhead must allow dowel bar installation.

40-3.08C Contraction Joints

In multilane monolithic concrete pavement, use the sawing method to construct longitudinal contraction joints. Construct transverse contraction joints by the sawing method.

Construct transverse contraction joints within 1 foot of their specified spacing. If a slab length of less than 5 feet would be formed, adjust the transverse contraction joint spacing.

Construct transverse contraction joints across the full concrete pavement width regardless of the number or types of longitudinal joints crossed. In areas of converging and diverging pavements, space transverse contraction joints so their alignment is continuous across the full width where converging and diverging pavements are contiguous. Longitudinal contraction joints must be parallel with the concrete pavement centerline. Transverse and longitudinal contraction joints must not deviate by more than 0.1 foot from either side of a 12-foot straight line, except for longitudinal joints parallel to a curving centerline.

40-3.08D Isolation Joints

Construct isolation joints by saw cutting a minimum 1/8-inch width to full concrete pavement depth at the existing concrete pavement's edge and removing the concrete to expose a flat vertical surface. Before placing concrete, secure joint filler material that prevents new concrete from adhering to the existing concrete face.

Dispose of concrete saw cutting residue under Section 7-1.13, "Disposal of Materials Outside the Highway Right of Way."

40-3.08E Sawing Method

The sawing method is cutting a groove in the concrete pavement with a power driven concrete saw. Grooves for longitudinal and transverse contraction joints must be the minimum width possible for the type of saw used. If necessary, the top of the joint must be sawn wider to provide space for joint sealant. Immediately wash slurry from the joint with water under 100 psi maximum pressure.

Saw longitudinal and transverse contraction joints before volunteer cracking occurs and after the concrete is hard enough to saw without spalling, raveling, or tearing.

To keep foreign material out of grooves before joint sealant or compression seal installation, you may use joint filler in sawed contraction joints. Joint filler must not react adversely with the concrete or cause concrete pavement damage. After sawing and washing a joint, install joint filler material that keeps moisture in the adjacent concrete during the 72 hours after paving. If you install joint filler material, the specifications for spraying the sawed joint with additional curing compound under Section 40-3.13, "Curing," do not apply. If using absorptive filler material, moisten the filler immediately before or after installation.

40-3.09 JOINT SEALANT AND COMPRESSION SEAL INSTALLATION

40-3.09A General

At least 7 days after concrete pavement placement and not more than 4 hours before installing joint sealant or compression seal materials, use dry sand blasting and other methods to clean the joint walls of objectionable material such as soil, asphalt, curing compound, paint, and

rust. The maximum sand blasting nozzle diameter must be 1/4 inch. The minimum pressure must be 90 psi. Sand blast each side of the joint at least once, in at least 2 separate passes. Hold the nozzle at an angle to the joint from 1 to 2 inches from the concrete pavement. Using a vacuum, collect sand, dust, and loose material at least 2 inches on each side of the joint. Remove surface moisture and dampness at the joints with compressed air that may be moderately hot.

Before you install joint sealant or compression seal, the joint wall must be free of moisture, residue, or film.

If grinding or grooving over or adjacent to sealed joints, remove joint sealant or compression seal materials and dispose of them under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way." After grinding or grooving, replace the joint sealant or compression seal materials.

40-3.09B Liquid Sealant

Do not install liquid sealant in construction joints.

Install backer rods when the concrete pavement temperature is above the air dew point and when the air temperature is at least 40 °F.

Install liquid sealant immediately after installing the backer rod. Install sealant using a mechanical device with a nozzle shaped to introduce the sealant from inside the joint. Extrude sealant evenly and with continuous contact with the joint walls. Recess the sealant surface after placement. Remove excess sealant from the concrete pavement surface.

Do not allow traffic over sealed joints until the sealant is set.

40-3.09C Preformed Compression Seal

Install preformed compression seal in construction or isolation joints when specified in the special provisions.

Install longitudinal seals before transverse seals. Longitudinal seals must be continuous except splicing is allowed at intersections with transverse seals. Transverse seals must be continuous for the entire transverse length of concrete pavement except splices are allowed for widenings and staged construction. With a sharp instrument, cut across the longitudinal seal at the intersection with transverse construction joints. If the longitudinal seal does not relax enough to properly install the transverse seal, trim the longitudinal seal to form a tight seal between the 2 joints.

If splicing is authorized, splicing must comply with the manufacturer's written instructions.

Use a machine specifically designed for preformed compression seal installation. The machine must install the seal:

1. To the specified depth
2. To make continuous contact with the joint walls
3. Without cutting, nicking, or twisting the seal
4. With less than 4 percent stretch

Lay a length of preformed compression seal material cut to the exact length of the pavement joint to be sealed. The Engineer measures this length. After you install the length of preformed compression joint sealant, the Engineer measures the excess amount of material at the joint end. The Engineer divides the excess amount length by the original measured length to determine the percentage of stretch.

40-3.10 SHOULDER RUMBLE STRIP

If specified, construct shoulder rumble strips by rolling or grinding indentations in new concrete pavement.

Select the method and equipment for constructing ground-in indentations.

Do not construct shoulder rumble strips on structures or approach slabs.

Construct rumble strips within 2 inches of the specified alignment. Roller or grinding equipment must be equipped with a sighting device enabling the operator to maintain the rumble strip alignment.

Indentations must not vary from the specified dimensions by more than 1/16 inch in depth or more than 10 percent in length and width.

The Engineer orders grinding or removal and replacement of noncompliant rumble strips to bring them within specified tolerances. Ground surface areas must be neat and uniform in appearance.

The grinding equipment must be equipped with a vacuum attachment to remove residue.

Dispose of removed material under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way."

40-3.11 PRELIMINARY FINISHING

40-3.11A General

Preliminary finishing must produce a smooth and true-to-grade finish. After preliminary finishing, mark each day's concrete pavement with a stamp. The stamp must be approved by the Engineer before paving starts. The stamp must be approximately 1' x 2' in size. The stamp must form a uniform mark from 1/8 to 1/4 inch deep. Locate the mark 20 feet ± 5 feet from the transverse construction joint formed at each day's start of paving and 1 foot ± 0.25 foot from the concrete pavement's outside edge. The stamp mark must show the month, day, and year of placement and the station of the transverse construction joint. Orient the stamp mark so it can be read from the concrete pavement's outside edge.

Do not apply more water to the concrete pavement surface than can evaporate before float finishing and texturing are completed.

40-3.11B Stationary Side Form Finishing

If stationary side form construction is used, give the concrete a preliminary finish by the machine float method or the hand method.

If using the machine float method:

1. Use self-propelled machine floats.
2. Determine the number of machine floats required to perform the work at a rate equal to the concrete delivery rate. When the time from concrete placement to machine float finishing exceeds 30 minutes, stop concrete delivery . When machine floats are in proper position, you may resume concrete delivery and paving.
3. Machine floats must run on side forms or adjacent concrete pavement lanes. If running on adjacent concrete pavement, protect the adjacent concrete pavement surface under Section 40-3.15, "Protecting Concrete Pavement."
4. Floats must be hardwood, steel, or steel-shod wood. Floats must be equipped with devices that adjust the underside to a true flat surface.

If using the hand method, finish concrete smooth and true to grade with manually operated floats or powered finishing machines.

40-3.11C Slip-Form Finishing

If slip-form construction is used, the slip-form paver must give the concrete pavement a preliminary finish. You may supplement the slip-form paver with machine floats.

Before the concrete hardens, correct concrete pavement edge slump in excess of 0.02 foot exclusive of edge rounding.

40-3.12 FINAL FINISHING

After completing preliminary finishing, round the edges of the initial paving widths to a 0.04-foot radius. Round transverse and longitudinal construction joints to a 0.02-foot radius.

Before curing, texture the pavement. Perform initial texturing with a burlap drag or broom device that produces striations parallel to the centerline. Perform final texturing with a steel-tined device that produces grooves parallel with the centerline.

Construct longitudinal grooves with a self-propelled machine designed specifically for grooving and texturing concrete pavement. The machine must have tracks to maintain constant speed, provide traction, and maintain accurate tracking along the pavement surface. The machine must have a single row of rectangular spring steel tines. The tines must be from 3/32 to 1/8 inch wide, on 3/4-inch centers, and must have enough length, thickness, and resilience to form grooves approximately 3/16 inch wide. The machine must have horizontal and vertical controls. The machine must apply constant down pressure on the pavement surface during texturing. The machines must not cause ravels.

Construct grooves over the entire pavement width in a single pass except do not construct grooves 3 inches from the concrete pavement edges and longitudinal joints. Final texture must be uniform and smooth. Use a guide to properly align the grooves. Grooves must be parallel and aligned to the pavement edge across the pavement width. Grooves must be from 1/8 to 3/16 inch deep after concrete has hardened.

For irregular areas and areas inaccessible to the grooving machine, you may hand-construct grooves in compliance with the hand method under Section 40-3.11B, "Stationary Side Form Finishing." Hand-constructed grooves must comply with the specifications for machine-constructed grooves.

Initial and final texturing must produce a coefficient of friction of at least 0.30 when tested under California Test 342. Notify the Engineer when the concrete pavement is scheduled to be opened to traffic to allow at least 25 days for the Department to schedule for test for coefficient of friction. Notify the Engineer when the pavement is ready for testing which is the latter of:

1. Seven days after concrete placement
2. When the concrete pavement has attained a modulus of rupture of 550 psi

The Department tests for coefficient of friction within 7 days of receiving notification that the pavement is ready for testing.

Do not open the concrete pavement to traffic unless the coefficient of friction is at least 0.30.

Correct concrete pavement not complying with the Engineer's acceptance criteria for coefficient of friction by grooving or grinding under Section 42, "Groove and Grind Pavement."

Do not grind before:

1. Ten days after concrete pavement placement
2. Concrete has developed a modulus of rupture of at least 550 psi

Before opening to traffic, allow at least 25 days for the Department to retest sections for coefficient of friction after corrections are made.

40-3.13 CURING

Cure the concrete pavement's exposed area with waterproof membrane or curing compound (1) or (2) under Section 90-7.01, "Methods of Curing." When side forms are removed within 72 hours of the start of curing, also cure the concrete pavement edges.

If curing compound is used, apply it with mechanical sprayers. Reapply curing compound to sawcuts and disturbed areas.

40-3.14 EARLY USE OF CONCRETE PAVEMENT

If requesting early use of concrete pavement:

1. Furnish molds and machines for modulus of rupture testing
2. Sample concrete
3. Fabricate beam specimens
4. Test for modulus of rupture under California Test 523

When you request early use, concrete pavement must have a modulus of rupture of at least 350 psi. Protect concrete pavement under Section 40-3.15, "Protecting Concrete Pavement."

40-3.15 PROTECTING CONCRETE PAVEMENT

Protect concrete pavement under Section 90-8, "Protecting Concrete."

Maintain the concrete pavement temperature at not less than 40 °F for the initial 72 hours.

Protect the concrete pavement surface from activities that cause damage and reduce texture and coefficient of friction. Do not allow soil, gravel, petroleum products, concrete, or asphalt mixes on the concrete pavement surface.

Construct crossings for traffic convenience. If the Engineer approves your request, you may use rapid strength concrete for crossings. Do not open crossings until the Department determines by California Test 523 the concrete pavement's modulus of rupture is at least 550 psi.

Do not open concrete pavement to traffic or use equipment on the concrete pavement for 10 days after paving nor before the concrete has attained a modulus of rupture of 550 psi except:

1. If the equipment is for sawing contraction joints
2. If the Engineer approves your request, one side of paving equipment's tracks may be on the concrete pavement after a modulus of rupture of 350 psi has been attained, provided:

    2.1. Unit pressure exerted on the concrete pavement by the paver does not exceed 20 psi
    2.2. You change the paving equipment tracks to prevent damage or the paving equipment tracks travel on protective material such as planks
    2.3. No part of the track is closer than 1 foot from the concrete pavement's edge

If concrete pavement damage including visible cracking occurs, stop operating paving equipment on the concrete pavement and repair the damage.

40-3.16 OBTAINING DRILLED CORES

Drill concrete pavement cores under ASTM C 42/ C 42M. Core drilling equipment must use diamond impregnated bits.

Clean, dry, and fill core holes with hydraulic cement grout (non-shrink) or pavement concrete. Coat the core hole walls with epoxy under the specifications for epoxy adhesive for bonding new concrete to old concrete in Section 95, "Epoxy." The backfill must match the adjacent concrete pavement surface elevation and texture.

Do not allow residue from core drilling to fall on traffic, flow across shoulders or lanes occupied by traffic, or flow into drainage facilities including gutters.

40-3.17 REPAIR, REMOVAL, AND REPLACEMENT

40-3.17A General

Working cracks are full-depth cracks essentially parallel to a planned contraction joint beneath which a contraction crack has not formed. If the Engineer orders, take 4-inch nominal diameter cores on designated cracks under Section 40-3.16, "Obtaining Drilled Cores."

40-3.17B Repair of Spalls, Raveling, and Tearing

Before concrete pavement is open to traffic, repair spalls, raveling, and tearing in sawed joints. Make repairs in compliance with the following:

1. Saw a rectangular area with a diamond-impregnated blade at least 2 inches deep.
2. Remove unsound and damaged concrete between the saw cut and the joint and to the saw cut's depth. Do not use a pneumatic hammer heavier than 15 pounds. Do not damage concrete pavement to remain in place.
3. Dispose of removed concrete pavement under Section 7-1.13, "Disposal of Materials Outside the Highway Right of Way."
4. Clean the repair area's exposed surfaces with high pressure abrasive water blasting. Further clean and dry the exposed surfaces with compressed air free of moisture and oil.
5. Apply epoxy as specified for epoxy resin adhesive for bonding new concrete to old concrete under Section 95, "Epoxy." Apply the epoxy with a stiff bristle brush.
6. Apply a portland cement concrete or mortar patch immediately following the epoxy application. Install an insert to prevent bonding of the sides of planned joints.

Repair spalls if they are:

1. Deeper than 0.05 foot
2. Wider than 0.04 foot
3. Longer than 0.3 foot

40-3.17C Route and Seal Working Cracks

Treat working cracks within 0.5 foot of either side of a planned contraction joint in compliance with the following:

1. Route and seal the crack with epoxy resin in compliance with the following:

    1.1. Use a powered rotary router mounted on wheels, with a vertical shaft and a routing spindle that casters as it moves along the crack
    1.2. Form a reservoir 3/4 inch deep by 3/8 inch wide in the crack
    1.3. Use equipment that does not cause raveling or spalling
    1.4. Place liquid sealant

2. Treat the contraction joint adjacent to the working crack in compliance with the following:

    2.1. Use epoxy resin under ASTM C 881/C 881M, Type IV, Grade 2 for Type B joints and secondary saw cuts for Type A1 and Type A2 joints
    2.2. Pressure inject epoxy resin under ASTM C 881/C881M, Type IV, Grade 1 for narrow saw cuts including initial saw cuts for Type A1 and Type A2 joints

If a working crack intersects a contraction joint, route and seal the working crack and seal the contraction joint as specified for installing liquid sealant under Section 40-3.09, "Joint Seal and Joint Sealant Installation."

40-3.17D Removal and Replacement of Slabs

As specified, remove and replace slabs or partial slabs for:

1. Insufficient thickness
2. Dowel bar misalignment
3. Working cracks more than 0.5 foot from a planned contraction joint

40-4 MEASUREMENT AND PAYMENT

40-4.01 MEASUREMENT

Concrete pavement is measured by the cubic yard. The Engineer calculates the pay quantity volume based on the dimensions shown on the plans and as ordered

The contract items for sealing joints as designated in the Verified Bid Item List are measured by the linear foot. Sealing joints are measured from field measurements for each type of sealed joint.

The contract item for shoulder rumble strips is measured by the station along each shoulder on which the rumble strips are constructed without deductions for gaps between indentations.

40-4.02 PAYMENT

The contract price paid per cubic yard for concrete pavement as designated in the Verified Bid Item List includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the concrete pavement, complete in place including bar reinforcement, tie bars, dowel bars, anchors, fasteners, tack coat, and providing the facility for and attending the prepaving conference, as shown on the plans and as specified in these specifications and the special provisions, and as directed by the Engineer.

The Engineer adjusts payment for each primary area deficient in average thickness in compliance with the following:

Pay Adjustments for Deficient Thickness

Average Thickness Deficiency (foot)	Deficiency Adjustment ($/sq yd)
0.01	0.90
0.02	2.30
0.03	4.10
0.04	6.40
0.05	9.11

If the average thickness deficiency is less than 0.01 foot, the Engineer does not adjust payment for thickness deficiency. If the average thickness deficiency is more than 0.01 foot, the Engineer rounds to the nearest 0.01 foot and uses the adjustment table.

Full compensation for core drilling and backfilling the cores ordered by the Engineer for measuring concrete pavement thickness and determining full-depth cracks is included in the contract price paid per cubic yard for concrete pavement as designated in the Engineer's Estimate and no additional compensation will be allowed therefor. The Department does not pay for additional concrete pavement thickness measurements requested by the Contractor.

The Department does not pay for the portion of concrete that penetrates treated permeable base.

Full compensation for the quality control plan is included in the contract price paid per cubic yard for concrete pavement as designated in the Verified Bid Item List and no separate payment will be made therefor.

Full compensation for furnishing and applying asphaltic emulsion on cement treated permeable base is included in the contract price paid per cubic yard for concrete pavement as designated in the Engineer's Estimate and no separate payment will be made therefor.

Full compensation for repairing joints is included in the contract price paid per cubic yard for concrete pavement as designated in the Verified Bid Item List and no separate payment will be made therefor.

Full compensation for furnishing, calibrating, and operating profilograph equipment for Profile Index, for submitting profilograms, and for performing corrective work is included in the contract price paid per cubic yard for concrete pavement as designated in the Verified Bid Item List and no separate payment will be made therefor.

Full compensation for grooving and grinding for final finishing is included in the contract price paid per cubic yard for concrete pavement as designated in the Verified Bid Item List and no separate payment will be made therefor.

Full compensation for removing and replacing joint material for grooving and grinding is included in the contract price per cubic yard for concrete pavement as designated in the Verified Bid Item List and no separate payment will be made therefor.

Full compensation for removing and replacing slabs is included in the contract price paid per cubic yard for concrete pavement as designated in the Verified Bid Item List and no separate payment will be made therefor.

Full compensation for drilling holes and bonding tie bars with chemical adhesive is included in the contract price paid per cubic yard for concrete pavement as designated in the Verified Bid Item List and no additional compensation will be allowed therefor.

Full compensation for repairing damage caused by operating paving equipment on new concrete pavement is included in the contract price paid per cubic yard for concrete pavement as designated in the Verified Bid Item List and no separate payment will be made therefor.

The material and work necessary for the construction of crossings for public convenience, and their subsequent removal and disposal, will be paid for at the contract prices for the items of work involved and if there are no contract items for the work involved, payment for concrete pavement crossings will be made by extra work as specified in Section 4-1.03D, "Extra Work."

The Department will reduce payments to the Contractor by $56.12 per square yard for concrete pavement slabs allowed to remain in place represented by cores indicating dowel bars placed with their centers from ±2 inches to ±3 inches from the saw cut of a transverse contraction joint

The Engineer will calculate the reduced payment using the slab dimensions adjacent to and inclusive of the joints with misplaced dowel bars. This reduced payment is in addition to other specified payment reductions.

The Department will reduce payments to the Contractor by $59.56 per square yard for concrete pavement allowed to remain in place represented by cores indicating either of the following:

1. Tie bars placed outside their specified placement and position tolerances
2. Bar reinforcement placed outside their specified placement and position tolerances

The Engineer will calculate the reduced payment using the slab dimensions adjacent to and inclusive of the joints with misplaced tie bars. This reduced payment is in addition to other specified payment reductions.

Full compensation for core drilling for checking dowel or tie bar alignment and backfilling the cores is included in the contract price paid per cubic yard for concrete pavement as designated in the Engineer's Estimate and no additional compensation will be allowed therefor.

If the initial cores show that dowel bars or tie bars are out of tolerance for alignment and the Engineer orders additional dowel or tie bar coring, full compensation for drilling the additional cores is included in the contract price paid per cubic yard for concrete pavement as designated in the Verified Bid Item List and no additional compensation will be allowed therefor.

If the initial cores show that dowel bars or tie bars are within alignment tolerances and the Engineer orders more dowel or tie bar coring, the additional cores will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

The Department will not pay for additional coring to check dowel or tie bar alignment you request.

Full compensation for performing profilograph tests, furnishing the profilograms and electronic files to the Engineer, and for performing corrective work is included in the contract price paid per cubic yard for the type of concrete pavement as designated in the Verified Bid Item List and no additional compensation will be allowed therefor.

The contract prices paid per linear foot for seal pavement joint and seal isolation joint include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in sealing pavement joints and sealing isolation joints, complete in place, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

The contract price paid per station for shoulder rumble strip includes full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in constructing the rumble strip complete in place, as shown on the plans, as specified in these Standard Specifications and as directed by the Engineer.

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SECTION 41 PAVEMENT SUBSEALING AND JACKING
(Issued 01-05-07)

In Section 41-1.02 replace the 2nd and 3rd paragraphs with:

Cement for grout shall be Type II portland cement conforming to the provisions in Section 90-2.01A, "Cement."

Fly ash shall conform to the requirements in AASHTO Designation: M 295 for either Class C or for Class F. The brand of fly ash used in the work shall conform to the provisions for approval of admixture brands in Section 90-4.03, "Admixture Approval."

In Section 41-1.02 replace the 5th paragraph with:

Chemical admixtures and calcium chloride may be used. Chemical admixtures in the grout mix shall conform to the provisions in Section 90-4, "Admixtures." Calcium chloride shall conform to ASTM Designation: D 98.

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SECTION 42 GROOVE AND GRIND PAVEMENT
(Issued 05-15-09)

In Section 42-2.02 replace the 3rd paragraph with:

Existing portland cement concrete pavement not constructed as part of the project shall be ground as follows:

> Grinding shall be performed so that the pavement surface on both sides of all transverse joints and cracks has essentially the same depth of texture and does not vary from a true plane enough to permit a 0.006-foot thick shim 0.25-foot wide to pass under a 3-foot straightedge adjacent to either side of the joint or crack when the straightedge is laid on the pavement parallel to centerline with its midpoint at the joint or crack. After grinding has been completed, the pavement shall conform to the straightedge and profile requirements specified in Section 40-1.03, "Quality Control and Assurance."
> Abnormally depressed areas due to subsidence or other localized causes will be excluded from testing with the profilograph and 12-foot straightedge specified in Section 40-1.03. The accumulated total of the excluded areas shall not exceed 5 percent of the total area to be ground. Profilograph testing shall end 25 feet prior to excluded areas and shall resume 25 feet following the excluded areas.

In Section 42-2.03 replace the 2nd paragraph with:

Replacement concrete paving shall conform to the provisions in Section 40, "Concrete Pavement." Replacement pavement may be spread and shaped by any suitable powered finishing machines, supplemented by handwork as necessary. Consolidation of the concrete shall be by means of high-frequency internal vibrators within 15 minutes after the concrete is deposited on the subgrade. Vibrating shall be done with care and in such manner to assure adequate consolidation adjacent to forms and uniformly across the full paving width. Use of vibrators for extensive shifting of the mass of concrete will not be permitted. Methods of spreading, shaping and compacting that result in segregation, voids or rock pockets shall be discontinued, and the Contractor shall adopt methods which will produce dense homogeneous pavement conforming to the required cross section. Finishing may be performed by hand method, as specified in Section 40-3.11B, "Stationary Side Form Finishing."

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SECTION 49 PILING
(Issued 07-20-12)

In Section 49-1.03 replace the 4th paragraph with:

Modification to the specified installation methods and specified pile tip elevation will not be considered at locations where settlement, tension demands, or lateral load demands control design pile tip elevations or when the plans state that specified pile tip elevation shall not be revised.

In Section 49-1.03 in the 7th paragraph, replace the 2nd sentence with:

The loading apparatus described as "Tensile Load Applied by Hydraulic Jack(s) Acting Upward at One End of Test Beam(s)" shall not be used.

In Section 49-1.03 replace the 9th paragraph with:

The Contractor shall furnish piling of sufficient length to obtain the specified tip elevation shown on the plans or specified in the special provisions.

In Section 49-1.04 replace the 6th paragraph with:

The Contractor may use additional cementitious material in the concrete for the load test and anchor piles.

In Section 49-4.01 replace the 2nd paragraph with:

The drilling of holes shall conform to the provisions in these specifications. Concrete filling for cast-in-place concrete piles shall be prequalified in conformance with the provisions in Section 90-9, "Compressive Strength," and shall have a minimum 28-day compressive strength of 3,600 psi. At the option of the Contractor, the combined aggregate grading for the concrete shall be either the one-inch maximum grading, the 1/2-inch maximum grading, or the 3/8-inch maximum grading. Concrete shall conform to the provisions in Section 90, "Portland Cement Concrete," and Section 51, "Concrete Structures." Reinforcement shall conform to the provisions in Section 52, "Reinforcement."

In Section 49-6.01 replace the 1st paragraph with:

The length of timber, steel, and precast prestressed concrete piles, and of cast-in-place concrete piles consisting of driven shells filled with concrete, shall be measured along the longest side, from the tip elevation shown on the plans to the plane of pile cut-off.

In Section 49-6.02 add:

When pile tips are revised by the Engineer for timber, steel, and precast prestressed concrete piles, and for cast-in-place concrete piles consisting of driven shells filled with concrete, the additional length required, including all materials, equipment, and labor for furnishing, splicing,

and installing the piling, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work."

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SECTION 50 PRESTRESSING CONCRETE
(Issued 04-20-12)

In Section 50-1.02 replace the 2nd paragraph with:

The working drawings of the prestressing system shall show complete details and substantiating calculations of the method and materials the Contractor proposes to use in the prestressing operations, including any additions or rearrangement of reinforcing steel from that shown on the plans. The details shall outline the method and sequence of stressing and shall include complete specifications and details of the prestressing steel and anchoring devices, jacking stresses, elongation calculations, type of ducts and all other data pertaining to the prestressing, including the proposed arrangement of the prestressing steel in the members. The drawings shall also show (1) the exact location of anchorage system components, ducts, and other related elements and (2) the duct location data, including elevations at least every 1/8th point of the span for each span.

In Section 50-1.05 replace the 1st paragraph with:

Prestressing steel shall be high-tensile wire conforming to the requirements in ASTM Designation: A 421, including Supplement I; high-tensile seven-wire strand conforming to the requirements in ASTM Designation: A 416; or uncoated deformed (Type II) high-strength steel bars conforming to the requirements in ASTM Designation: A 722, including all supplementary requirements. The maximum weight requirement of ASTM Designation: A 722 will not apply.

In Section 50-1.05 in the 3rd paragraph, delete item A.

In Section 50-1.05 in the 3rd paragraph, replace item E with:

E. In addition to the requirements in Section 50-1.10, "Samples for Testing," four 4-foot-long samples of coated strand and one 5-foot-long sample of uncoated strand of each size and reel shall be furnished to the Engineer for testing. These samples, as selected by the Engineer, shall be representative of the material to be used in the work.

In Section 50-1.05 between the 3rd and 4th paragraphs, add:

The Contractor shall furnish to the Transportation Laboratory a representative 8-ounce sample from each batch of epoxy patching material to be used. Each sample shall be packaged in an airtight container identified with the manufacturer's name and batch number.

In Section 50-1.07 replace the 2nd paragraph with:

Ducts shall be fabricated with either welded or interlocked seams. Galvanizing of the welded seam will not be required. Ducts shall have sufficient strength to maintain their correct alignment during placing of concrete. Joints between sections of duct shall be positive metallic

connections which do not result in angle changes at the joints. Waterproof tape shall be used at the connections. Ducts shall be bent without crimping or flattening. Transition couplings connecting the ducts to anchoring devices shall be either ferrous metal or polyolefin. Ferrous metal transition couplings need not be galvanized.

Ducts shall have an inside cross-sectional area of at least:

1. 2.5 times the net area of the prestressing steel for multistrand tendons that will be placed by the pull-through method.
2. 2.0 times the net area of the prestressing steel for multistrand tendons that will not be placed by the pull-through method.

Ducts shall have an outside diameter not exceeding 50 percent of the girder web width.

In Section 50-1.07 replace the 7th paragraph with:

All ducts having a vertical duct profile change of 6 inches or more shall be vented. Vents shall be placed within 6 feet of every high point in the duct profile. Vents shall be 1/2 inch minimum diameter standard pipe or suitable plastic pipe. Connections to ducts shall be made with metallic or plastic structural fasteners. Plastic components, if selected, shall not react with the concrete or enhance corrosion of the prestressing steel and shall be free of water soluble chlorides. The vents shall be mortar tight, taped as necessary, and shall provide means for injection of grout through the vents and for sealing the vents. Ends of vents shall be removed one inch below the roadway surface after grouting has been completed.

In Section 50-1.08 replace the 2nd paragraph with:

The maximum temporary tensile stress (jacking stress) in prestressing steel of post-tensioned members shall not exceed 75 percent of the specified minimum ultimate tensile strength of the prestressing steel.

In Section 50-1.08 delete the 4th, 5th, and 6th paragraphs.

In Section 50-1.08 replace the 11th paragraph with:

Prestressing forces shall not be applied to cast-in-place concrete until at least 10 days after the last concrete has been placed in the member to be prestressed and until the concrete compressive strength has reached the strength shown on the plans or specified in the specifications.

In Section 50-1.08 replace the 15th paragraph with:

When prestressing steel in pretensioned members is tensioned at a temperature appreciably lower than the estimated temperature of the concrete and the prestressing steel at the time of initial set of the concrete, the calculated elongation of the prestressing steel shall be increased to compensate for the loss in stress.

The maximum temporary tensile stress in the prestressing steel of pretensioned members shall not exceed 80 percent of the specified minimum ultimate tensile strength of the prestressing steel.

Pretensioned prestressing steel shall be anchored at stresses that will result in the ultimate retention of working forces at not less than those shown on the plans.

In Section 50-1.09 replace the 2nd and 3rd paragraphs with:

Grout shall consist of cement and water and may contain an admixture if approved by the Engineer.

Cement shall conform to the provisions in Section 90-2.01A, "Cement."

In Section 50-1.10 between the 3rd and 4th paragraphs, add:

Each sample shall be identified by location and Contract number with weatherproof markings. A completed Sample Identification Card shall also be attached to each sample. The card is available from the Transportation Laboratory.

In Section 50-1.10 in the 5th paragraph, replace item A with:

A. For wire or bars, one 7-foot-long sample and for strand, one 4-foot-long sample, of each size shall be furnished for each heat or reel.

In Section 50-1.11 replace the 1st paragraph with:

No separate payment will be made for pretensioning precast concrete members. Payment for pretensioning precast concrete members shall be considered as included in the contract price paid for furnish precast members as provided for in Section 51, "Concrete Structures."

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SECTION 51 CONCRETE STRUCTURES
(Issued 08-05-11)

In Section 51-1.05 in the 11th paragraph, replace the 1st sentence with:

Form panels for exposed surfaces shall be furnished and placed in uniform widths of not less than 3 feet and in uniform lengths of not less than 6 feet, except at the end of continuously formed surfaces where the final panel length required is less than 6 feet.

In Section 51-1.06A(3) in the 1st paragraph, replace items E and F with:

E. When timber members are used to brace falsework bents which are located adjacent to roadways or railroads, all connections for the timber bracing shall be of the bolted type using 5/8-inch diameter or larger bolts or coil rod with a root diameter equal to that of the shank of a 5/8-inch diameter bolt.

F. Falsework member clearances must be at least those shown in the following table:

Falsework member	Clearances	
	To railing members, barriers, and anchored temporary railings	To unanchored temporary railings
Footings	0'-3"	2'-0"
Piles	1'-0"	2'-9"
Other members	2'-0"	2'-9"

In Section 51-1.06C in the 11th paragraph, replace the 1st sentence with:

Falsework for box culverts and other structures with decks lower than the roadway pavement and with span lengths of 14 feet or less shall not be released until the last placed concrete has attained a compressive strength of 1,600 psi, provided that curing of the concrete is not interrupted.

In Section 51-1.11 replace the 6th paragraph with:

Construction methods and equipment employed by the Contractor shall conform to the provisions in Section 7-1.02, "Load Limitations."

In Section 51-1.12D replace the 4th paragraph with:

Expanded polystyrene shall be a commercially available polystyrene board. Expanded polystyrene shall have a minimum flexural strength of 35 psi determined in conformance with the requirements in ASTM Designation: C 203 and a compressive yield strength of between 16 and 40 psi at 5 percent compression. Surfaces of expanded polystyrene against which concrete is placed shall be faced with hardboard. Hardboard shall be 1/8 inch minimum thickness, conforming to ANSI A135.4, any class. Other facing materials may be used provided they furnish equivalent protection. Boards shall be held in place by nails, waterproof adhesive, or other means approved by the Engineer.

In Section 51-1.12F replace the 3rd paragraph with:

Type A and AL joint seals shall consist of a groove in the concrete that is filled with field-mixed silicone sealant.

In Section 51-1.12F in the 6th paragraph, replace the table with:

Movement Rating (MR)	Seal Type
MR ≤ 1 inch	Type A or Type B
1 inch < MR ≤ 2 inches	Type B
2 inches < MR ≤ 4 inches	Joint Seal Assembly (Strip Seal)
MR > 4 inches	Joint Seal Assembly (Modular Unit) or Seismic Joint

In Section 51-1.12F(3)(a) replace the 1st and 2nd paragraphs with:

The sealant must consist of a 2-component silicone sealant that will withstand up to ±50 percent movement.

Silicone sealants must be tested under California Test 435 and must comply with the following:

Specification	Requirement
Modulus at 150 percent elongation	8-75 psi
Recovery	21/32 inch max.
Notch Test	Notched or loss of bond 1/4 inch, max.
Water Resistance	Notched or loss of bond 1/4 inch, max.
Ultraviolet Exposure ASTM Designation: G 154, Table X2.1,Cycle 2.	No more than slight checking or cracking.
Cone Penetration	4.5-12.0 mm

In Section 51-1.12F(3)(a) delete the 3rd and 8th paragraphs.

In Section 51-1.12F(3)(a) replace the 10th paragraph with:

A Certificate of Compliance accompanied by a certified test report must be furnished for each batch of silicone sealant in conformance with the provisions in Section 6-1.07, "Certificates of Compliance."

In Section 51-1.12F(3)(b) replace the 2nd paragraph with:

The preformed elastomeric joint seal must conform to the requirements in ASTM D 2628 and the following:

1. The seal must consist of a multichannel, nonporous, homogeneous material furnished in a finished extruded form.
2. The minimum depth of the seal measured at the contact surface must be at least 95 percent of the minimum uncompressed width of the seal as designated by the manufacturer.
3. When tested in conformance with the requirements in California Test 673 for Type B seals, joint seals must provide a movement rating (MR) of not less than that shown on the plans.
4. The top and bottom edges of the joint seal must maintain continuous contact with the sides of the groove over the entire range of joint movement.
5. The seal must be furnished full length for each joint with no more than 1 shop splice in any 60-foot length of seal.
6. The Contractor must demonstrate the adequacy of the procedures to be used in the work before installing seals in the joints.
7. One field splice per joint may be made at locations and by methods approved by the Engineer. The seals are to be manufactured full length for the intended joint, then cut at the approved splice section and rematched before splicing. The Contractor must submit splicing details prepared by the joint seal manufacturer for approval before beginning splicing work.
8. Shop splices and field splices must have no visible offset of exterior surfaces and must show no evidence of bond failure.
9. At all open ends of the seal that would admit water or debris, each cell must be filled to a depth of 3 inches with commercial quality open cell polyurethane foam or closed by other means subject to approval by the Engineer.

In Section 51-1.12F(3)(b) replace the 7th paragraph with:

The joint seal must be installed full length for each joint with equipment that does not twist or distort the seal, elongate the seal longitudinally, or otherwise cause damage to the seal or to the concrete forming the groove.

In Section 51-1.12F(3)(b) in the 11th paragraph, replace the 1st sentence with:

Samples of the prefabricated joint seals, not less than 3 feet in length, will be taken by the Engineer from each lot of material.

In Section 51-1.12H(1) in the 6th paragraph, replace the 4th and 5th sentences with:

Each ply of fabric shall have a breaking strength of not less than 800 pounds per inch of width in each thread direction when 3" x 36" samples are tested on split drum grips. The bond between double plies shall have a minimum peel strength of 20 pounds per inch.

In Section 51-1.12H(1) in the 8th paragraph in the table, replace the hardness (Type A) requirements with:

Hardness (Type A)	D 2240 with 2kg mass.	55 ±5

In Section 51-1.12H(2) in the 1st paragraph in item A, replace the 1st and 2nd sentences with:

The bearings shall consist of alternating steel laminates and internal elastomer laminates with top and bottom elastomer covers. Steel laminates shall have a nominal thickness of 0.075 inch (14 gage).

In Section 51-1.13 replace the 2nd, 3rd, and 4th paragraphs with:

Surfaces of fresh concrete at horizontal construction joints shall be thoroughly consolidated without completely removing surface irregularities. Additionally, surfaces of fresh concrete at horizontal construction joints between girder stems and decks shall be roughened to at least a 1/4-inch amplitude.

Construction joint surfaces shall be cleaned of surface laitance, curing compound, and other foreign materials using abrasive blast methods before fresh concrete is placed against the joint surface.

Construction joint surfaces shall be flushed with water and allowed to dry to a surface dry condition immediately before placing concrete.

In Section 51-1.135 replace the 1st paragraph with:

Mortar shall be composed of cementitious material, sand, and water proportioned and mixed as specified in this Section 51-1.135.

In Section 51-1.135 replace the 3rd paragraph with:

The proportion of cementitious material to sand, measured by volume, shall be 1 to 2 unless otherwise specified.

In Section 51-1.17 in 4th paragraph, replace the 3rd sentence with:

The surfaces shall have a profile trace showing no high points in excess of 0.25 inch, and the portions of the surfaces within the traveled way shall have a profile count of 5 or less in any 100 foot section.

Add:

51-1.17A Deck Crack Treatment

The Contractor shall use all means necessary to minimize the development of shrinkage cracks.

The Contractor shall remove all equipment and materials from the deck and clean the surface as necessary for the Engineer to measure the surface crack intensity. Surface crack intensity will be determined by the Engineer after completion of concrete cure, before prestressing, and before the release of falsework. In any 500 square foot portion of deck within the limits of the new concrete deck, should the intensity of cracking be such that there are more than 50 feet of cracks whose width at any location exceeds 0.02 inch, the deck shall be treated with a high molecular weight methacrylate (HMWM) resin system. The area of deck to be treated shall have a width that extends for the entire width of new deck inside the concrete barriers and a length that extends at least 5 feet beyond the furthest single continuous crack outside the 500 square foot portion, measured from where that crack exceeds 0.02 inch in width, as determined by the Engineer.

Deck crack treatment shall include furnishing, testing, and applying the HMWM resin system, with sand and absorbent material. If grinding is required, deck crack treatment shall take place before grinding.

51-1.17A(1) Submittals

Submit a HMWM resin system placement plan. When HMWM resin is to be applied within 100 feet of a residence, business, or public space including sidewalks under a structure, also submit a public safety plan. Submit plans under Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. The review time is 15 days.

The HMWM resin system placement plan must include:

1. Schedule of work and testing for each bridge
2. Description of equipment for applying HMWM resin
3. Range of gel time and final cure time for HMWM resin
4. Absorbent material to be used
5. Description of equipment for applying and removing excess sand and absorbent material
6. Procedure for removing HMWM resin from the deck, including equipment
7. Storage and handling of HMWM resin components and absorbent material
8. Disposal of excess HMWM resin and containers

The public safety plan must include:

1. A public notification letter with a list of delivery and posting addresses. The letter must state HMWM resin work locations, dates, times, and what to expect. Deliver the letter to residences and businesses within 100 feet of HMWM resin work locations and to local fire and police officials at least 7 days before starting work. Post the letter at the job site.

2. An airborne emissions monitoring plan prepared and executed by a certified industrial hygienist (CIH) certified in comprehensive practice by the American Board of Industrial Hygiene. The plan must have at least 4 monitoring points including the mixing point, application point, and point of nearest public contact. Monitor airborne emissions during HMWM resin work and submit emissions monitoring results after completing the work.
3. An action plan for protection of the public when airborne emissions levels exceed permissible levels.
4. A copy of the CIH's certification.

If the measures proposed in the safety plan are inadequate to provide for public safety associated with the use of HMWM resin, the Engineer will reject the plan and direct the Contractor to revise the plan. Directions for revisions will be in writing and include detailed comments. The Engineer will notify the Contractor of the approval or rejection of a submitted or revised plan within 15 days of receipt of that plan.

51-1.17A(2) Quality Control and Assurance

Submit samples of HMWM resin components 15 days before use under Section 6-3, "Testing," of the Standard Specifications. Notify the Engineer 15 days before delivery of HMWM resin components in containers over 55 gallons to the job site.

Complete a test area before starting work. Results from airborne emissions monitoring of the test area must be submitted to the Engineer before starting production work.

The test area must:

1. Be approximately 500 square feet
2. Be placed within the project limits outside the traveled way at an approved location
3. Be constructed using the same equipment as the production work
4. Replicate field conditions for the production work
5. Demonstrate proposed means and methods meet the acceptance criteria
6. Demonstrate production work will be completed within the time allowed
7. Demonstrate suitability of the airborne emissions monitoring plan

The test area will be acceptable if:

1. The treated deck surface is tack free and non-oily
2. The sand cover adheres and resists brushing by hand
3. Excess sand and absorbent material has been removed
4. The coefficient of friction is at least 0.35 when tested under California Test 342

51-1.17A(3) Materials

HMWM resin system consists of a resin, promoter, and initiator. HMWM resin must be low odor and comply with the following:

HMWM Resin

Property	Requirement	Test Method
Volatile Content*	30 percent, maximum	ASTM D 2369
Viscosity*	25 cP, maximum, (Brookfield RVT with UL adaptor, 50 RPM at 77°F)	ASTM D 2196
Specific Gravity*	0.90 minimum, at 77°F	ASTM D 1475
Flash Point*	180°F, minimum	ASTM D 3278
Vapor Pressure*	1.0 mm Hg, maximum, at 77°F	ASTM D 323
Tack-free Time	400 minutes, maximum, at 25°C	Specimens prepared per California Test 551
PCC Saturated Surface-Dry Bond Strength	3.5 MPa, minimum at 24 hours and 21 ± 1°C	California Test 551

* Test must be performed before adding initiator.

Sand for abrasive sand finish must:

1. Be commercial quality dry blast sand
2. Have at least 95 percent pass the No. 8 sieve and at least 95 percent retained on the No. 20 sieve when tested under California Test 205

Absorbent material must be diatomaceous earth, abrasive blast dust, or substitute recommended by the HMWM resin supplier and approved by the Engineer.

51-1.17A(4) Construction

HMWM resin system applied by machine must be:

1. Combined in volumetric streams of promoted resin to initiated resin by static in-line mixers
2. Applied without atomization

HMWM resin system may be applied manually. Limit the quantity of resin mixed for manual application to 5 gallons at a time.

Prepare the area to be treated by abrasive blasting. Curing compound, surface contaminants, and foreign material must be removed from the bridge deck surface. Sweep the deck surface clean after abrasive blasting and blow loose material from cracks using high-pressure air.

The deck surface must be dry when abrasive blast cleaning is performed. When abrasive blast cleaning within 10 feet of public traffic, remove dust and residue from abrasive blast cleaning using a vacuum attachment operating concurrently with blasting equipment . If the deck surface becomes contaminated before placing HMWM, abrasive blast clean the contaminated area and sweep the deck clean.

The deck must be dry before applying HMWM resin. The concrete surface must be at least 50 degrees F and at most 100 degrees F. Relative humidity must be expected to be at most 85 percent during the work shift.

Thoroughly mix all components of the HMWM resin system. Apply HMWM resin to the deck surface within 5 minutes of mixing at approximately 90 sq ft per gallon. The Engineer

determines the exact application rate. The resin gel time must be between 40 and 90 minutes. HMWM resin that thickens during application is rejected.

Spread the HMWM resin system uniformly. Completely cover surfaces to be treated and fill all cracks. Redistribute excess resin using squeegees or brooms within 10 minutes of application. For textured or grooved deck surfaces, excess resin must be removed from the texture indentations.

Apply the abrasive sand finish of at least 2 pounds per square yard or until saturation as determined by the Engineer no sooner than 20 minutes after applying resin. Apply absorbent material before opening lane to traffic. Remove excess sand and absorbent material by vacuuming or power sweeping.

Traffic or equipment will be allowed on the overlay after the Engineer has determined:

1. The treated deck surface is tack free and non-oily
2. The sand cover adheres and resists brushing by hand
3. Excess sand and absorbent material has been removed
4. No material will be tracked beyond limits of treatment by traffic

In Section 51-1.18C replace the 2nd paragraph with:

When Class 2 surface finish (gun finish) is specified, ordinary surface finish shall first be completed. The concrete surfaces shall then be abrasive blasted to a rough texture and thoroughly washed down with water. While the washed surfaces are damp, but not wet, a finish coating of machine applied mortar, approximately 1/4 inch thick, shall be applied in not less than 2 passes. The coating shall be pneumatically applied and shall consist of either (1) sand, cementitious material, and water mechanically mixed prior to its introduction to the nozzle, or (2) premixed sand and cementitious material to which water is added prior to its expulsion from the nozzle. The use of admixtures shall be subject to the approval of the Engineer as provided in Section 90, "Portland Cement Concrete." Unless otherwise specified, supplementary cementitious materials will not be required. The proportion of cementitious material to sand shall be not less than one to 4, unless otherwise directed by the Engineer. Sand shall be of a grading suitable for the purpose intended. The machines shall be operated and the coating shall be applied in conformance with standard practice. The coating shall be firmly bonded to the concrete surfaces on which it is applied.

In Section 51-1.18C replace the 5th paragraph with:

When surfaces to be finished are in pedestrian undercrossings, the sand shall be silica sand and the cementitious material shall be standard white portland cement.

In Section 51-1.23 add:

Full compensation for deck crack treatment, including the public safety plan, shall be considered as included in the contract price paid per cubic yard for structural concrete, bridge, and no additional compensation will be allowed therefor.

^^

SECTION 52 REINFORCEMENT
(Issued 06-05-09)

In Section 52-1.02(B) between the 3rd and 4th paragraphs, add:

The epoxy powder coating shall be selected from the Department's Pre-Qualified Products List.

In Section 52-1.02(B) replace the 14th paragraph with:

Except for lap splices, splices for epoxy-coated reinforcement shall be coated with a corrosion protection covering that is selected from the Department's Pre-Qualified Products List. The covering shall be installed in accordance with the manufacturer's recommendations.

In Section 52-1.07 in the 11th paragraph, replace the table with:

Height Zone (H) (Feet above ground)	Wind Pressure Value (psf)
$H \leq 30$	20
$30 < H \leq 50$	25
$50 < H \leq 100$	30
$H > 100$	35

In Section 52-1.08B(1) replace the 1st paragraph with:

Mechanical splices to be used in the work shall be selected from the Department's Pre-Qualified Products List.

In Section 52-1.08B(1) in the 2nd paragraph, replace the table with:

Reinforcing Bar Number	Total Slip
4	0.020-inch
5	0.020-inch
6	0.020-inch
7	0.028-inch
8	0.028-inch
9	0.028-inch
10	0.036-inch
11	0.036-inch
14	0.048-inch
18	0.060-inch

In Section 52-1.08B(1), in the 6th paragraph, delete item C.

In Section 52-1.08B(2) in the 6th paragraph, replace the subparagraph with:

The minimum preheat and interpass temperatures shall be 400° F for Grade 40 bars and 600° F for Grade 60 bars. Immediately after completing the welding, at least 6 inches of the bar on each side of the splice shall be covered by an insulated wrapping to control the rate of cooling. The insulated wrapping shall remain in place until the bar has cooled below 200° F.

Replace Section 52-1.08B(3) with:

52-1.08B(3) Resistance Butt Welds

Shop produced resistance butt welds shall be produced by a fabricator who is selected from the Department's Pre-Qualified Products List.

A Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," shall be furnished for each shipment of splice material. The Certificate of Compliance shall include heat number, lot number and mill certificates.

In Section 52-1.08C replace the 3rd paragraph with:

Testing on prequalification and production sample splices shall be performed at an approved independent testing laboratory. The laboratory shall not be employed or compensated by any subcontractor, or by other persons or entities hired by subcontractors who will provide other services or materials for the project.

The independent testing laboratory shall be selected from the Department's Pre-Qualified Products List.

In Section 52-1.08C replace the 5th paragraph with:

Prequalification and production sample splices and testing shall conform to California Test 670 and these specifications.

In Section 52-1.08C delete the 6th paragraph.

In Section 52-1.08C replace the 8th paragraph with:

Each sample splice, as defined herein, shall be identified as representing either a prequalification or production test sample splice.

In Section 52-1.08C in the 10th paragraph, delete the last sentence.

Replace Section 52-1.08C(1) with:

52-1.08C(1) Splice Prequalification Report

Before using any service splices or ultimate butt splices in the work, the Contractor shall submit a Splice Prequalification Report. The report shall include the following:

A. A copy of the manufacturer's product literature giving complete data on the splice material and installation procedures.
B. Names of the operators who will be performing the splicing.
C. Descriptions of the positions, locations, equipment, and procedures that will be used in the work.
D. Certifications from the fabricator for prequalification of operators and procedures based on sample tests performed no more than 2 years before submitting the report. Each operator shall be certified by performing 2 sample splices for each bar size of each splice type that the operator will be performing in the work. For deformation-dependent types of splice devices, each operator shall be certified by performing 2 additional samples for each bar size and deformation pattern that will be used in the work.

Prequalification sample splices shall be tested by an approved independent testing laboratory and shall conform to the appropriate production test criteria and slip requirements specified herein. When epoxy-coated reinforcement is required, resistance butt welded sample splices shall have the weld flash removed by the same procedure as will be used in the work, before coating and testing. The Splice Prequalification Report shall include the certified test results for all prequalification sample splices.

The QCM shall review and approve the Splice Prequalification Report before submitting it to the Engineer for approval. The Contractor shall allow 2 weeks for the review and approval of a complete report before performing any service splicing or ultimate butt splicing in the work.

In Section 52-1.08C(2)(a) replace the 1st, 2nd, 3rd, 4th, and 5th paragraphs with:

Production tests shall be performed by an approved independent testing laboratory for all service splices used in the work. A production test shall consist of testing 4 sample splices prepared for each lot of completed splices. The samples shall be prepared by the Contractor using the same splice material, position, operators, location, and equipment, and following the same procedure as used in the work.

At least one week before testing, the Contractor shall notify the Engineer in writing of the date and location where the testing of the samples will be performed.

The 4 samples from each production test shall be securely bundled together and identified with a completed sample identification card before shipment to the approved independent testing laboratory. The card will be furnished by the Engineer. Bundles of samples containing fewer than 4 samples of splices shall not be tested.

Before performing any tensile tests on production test sample splices, one of the 4 samples shall be tested for, and shall conform to, the requirements for total slip in Section 52-1.08B(1), "Mechanical Splices." Should this sample not meet the total slip requirements, one retest, in which the 3 remaining samples are tested for total slip, will be allowed. Should any of the 3 remaining samples not conform to the total slip requirements, all splices in the lot represented by this production test will be rejected.

If 3 or more sample splices from a production test conform to the provisions in this Section 52-1.08C(2), "Service Splice Test Criteria," all splices in the lot represented by this production test will be considered acceptable.

Replace Section 52-1.08C(2)(b) with:

52-1.08C(2)(b) Quality Assurance Test Requirements for Service Splices

In addition to the required production tests, the Contractor shall concurrently prepare 4 service quality assurance sample splices for:

A. The first production test performed.
B. One of every 5 subsequent production tests, or fraction thereof, randomly selected by the Engineer.

These service quality assurance sample splices shall be prepared in the same manner as specified herein for service production sample splices.

The service quality assurance sample splices shall be shipped to the Transportation Laboratory for quality assurance testing. Each set of 4 sample splices shall be securely bundled together and identified by location and contract number with weatherproof markings before

shipment. Bundles containing fewer than 4 samples of splices will not be tested. Sample splices not accompanied by the supporting documentation required in Section 52-1.08B(1), "Mechanical Splices," for mechanical splices, or in Section 52-1.08B(3), "Resistance Butt Welds," for resistance butt welds, will not be tested.

Quality assurance testing will be performed in conformance with the requirements for service production sample splices in Section 52-1.08C(2)(a), "Production Test Requirements for Service Splices."

Replace Section 52-1.08C(3) with:

52-1.08C(3) Ultimate Butt Splice Test Criteria

Ultimate production and quality assurance sample splices shall be tensile tested in conformance with the requirements described in ASTM Designation: A 370 and California Test 670.

Each sample splice shall be identified as representing a prequalification, production, or quality assurance sample splice.

The portion of hoop reinforcing bar, removed to obtain a sample splice, shall be replaced using a prequalified ultimate mechanical butt splice, or the hoop shall be replaced in kind.

Reinforcing bars, other than hoops, from which sample splices are removed, shall be repaired using ultimate mechanical butt splices conforming to the provisions in Section 52-1.08C(1), "Splice Prequalification Report," or the bars shall be replaced in kind. These bars shall be repaired or replaced such that no splices are located in any "No Splice Zone" shown on the plans.

Ultimate production and quality assurance sample splices shall rupture either: 1) in the reinforcing bar but outside of the affected zone, provided that the sample splice has visible necking or 2) anywhere, provided that the sample splice has achieved the strain requirement for necking.

When tested in conformance with the requirements in California Test 670, "Necking (Option I)," the visible necking shall be such that there is a visible decrease in the sample's cross-sectional area at the point of rupture.

When tested in conformance with the requirements in California Test 670, "Necking (Option II)," the strain requirement for necking shall be such that the largest measured strain is not less than 6 percent for No. 11 and larger bars, or not less than 9 percent for No. 10 and smaller bars.

The affected zone is the portion of the reinforcing bar where any properties of the bar, including the physical, metallurgical, or material characteristics, have been altered by fabrication or installation of the splice. The weld and one inch adjacent to the weld will be considered part of the affected zone.

In Section 52-1.08C(3)(a) replace the 1st paragraph with:

Production tests shall be performed for all ultimate butt splices used in the work. A production test shall consist of testing 4 sample splices removed from each lot of completed splices.

In Section 52-1.08C(3)(a) replace the 3rd paragraph with:

After notification has been received, the Engineer will randomly select the 4 sample splices to be removed from the lot and place tamper-proof markings or seals on them. These ultimate production sample splices shall be removed by the Contractor, and tested by an approved independent testing laboratory.

In Section 52-1.08(C)(3)(a) replace the 5th, 6th, and 7th paragraphs with:

A sample splice will be rejected if a tamper-proof marking or seal is disturbed before testing.

The 4 sample splices from each production test shall be securely bundled together and identified with a completed sample identification card before shipment to the approved independent testing laboratory. The card will be furnished by the Engineer. Bundles of samples containing fewer than 4 sample splices shall not be tested.

Before performing any tensile tests on production test sample splices, one of the 4 sample splices shall be tested for, and shall conform to, the requirements for total slip in Section 52-1.08B(1), "Mechanical Splices." Should this sample splice not meet these requirements, one retest, in which the 3 remaining sample splices are tested for total slip, will be allowed. Should any of the 3 remaining sample splices not conform to these requirements, all splices in the lot represented by this production test will be rejected.

Replace Section 52-1.08C(3)(b) with:

52-1.08C(3)(b) Quality Assurance Test Requirements for Ultimate Butt Splices

In addition to the required production tests, the Contractor shall concurrently prepare 4 ultimate quality assurance sample splices for:

A. The first production test performed.
B. One of every 5 subsequent production tests, or fraction thereof, randomly selected by the Engineer.

These ultimate quality assurance sample splices shall be prepared in the same manner as specified herein for ultimate production sample splices.

The ultimate quality assurance sample splices shall be shipped to the Transportation Laboratory for quality assurance testing. Each set of 4 sample splices shall be securely bundled together and identified by location and contract number with weatherproof markings before shipment. Bundles containing fewer than 4 samples of splices will not be tested. Sample splices not accompanied by the supporting documentation required in Section 52-1.08B(1), "Mechanical Splices," for mechanical splices, or in Section 52-1.08B(3), "Resistance Butt Welds," for resistance butt welds, will not be tested.

Quality assurance testing will be performed in conformance with the requirements for ultimate production sample splices in Section 52-1.08C(3)(a), "Production Test Requirements for Ultimate Butt Splices."

Replace Section 52-1.08D with:

A Production Test Report for all testing performed on each lot shall be prepared by the approved independent testing laboratory performing the testing and submitted to the QCM for review and approval. The report shall be signed by an engineer who represents the laboratory and is registered as a Civil Engineer in the State of California. The report shall include, as a minimum, the following information for each test: contract number, bridge number, lot number and location, bar size, type of splice, length of mechanical splice, length of test specimen, physical condition of test sample splice, any notable defects, total measured slip, and ultimate tensile strength of each splice. In addition, the report shall include location of visible necking area and largest measured strain for ultimate butt splices.

The QCM must review, approve, and forward each Production Test Report to the Engineer for review before the splices represented by the report are encased in concrete. The Engineer will have 3 working days to review each Production Test Report and respond in writing after a complete report has been received. Should the Contractor elect to encase any splices before receiving notification from the Engineer, it is expressly understood that the Contractor will not be relieved of the responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Material not conforming to these requirements will be subject to rejection.

Quality assurance test results for each bundle of 4 samples of splices will be reported in writing to the Contractor within 3 working days after receipt of the bundle by the Transportation Laboratory. In the event that more than one bundle is received on the same day, 2 additional working days shall be allowed for providing test results for each additional bundle received. A test report will be made for each bundle received. Should the Contractor elect to encase splices before receiving notification from the Engineer, it is expressly understood that the Contractor will not be relieved of the responsibility for incorporating material in the work that conforms to the requirements of the plans and specifications. Material not conforming to these requirements will be subject to rejection.

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SECTION 53 SHOTCRETE
(Issued 11-02-07)

In Section 53-1.01 replace the 3rd paragraph with:

The dry-mix process shall consist of delivering dry mixed aggregate and cementitious material pneumatically or mechanically to the nozzle body and adding water and mixing the materials in the nozzle body. The wet-mix process shall consist of delivering mixed aggregate, cement, and water pneumatically to the nozzle and adding any admixture at the nozzle.

In Section 53-1.02 replace the 1st through 4th paragraphs with:

Cementitious material, fine aggregate, and mixing water shall conform to the provisions in Section 90, "Portland Cement Concrete."

Shotcrete to be mixed and applied by the dry-mix process shall consist of one part cementitious material to not more than 4.5 parts fine aggregate, thoroughly mixed in a dry state before being charged into the machine. Measurement may be either by volume or by weight. The fine aggregate shall contain not more than 6 percent moisture by weight.

Shotcrete to be mixed and applied by the wet-mix process shall consist of cementitious material, fine aggregate, and water and shall contain not less than 632 pounds of cementitious material per cubic yard. A maximum of 30 percent pea gravel may be substituted for fine aggregate. The maximum size of pea gravel shall be such that 100 percent passes the 1/2 inch screen and at least 90 percent passes the 3/8 inch screen.

Admixtures may be added to shotcrete and shall conform to the provisions in Section 90-4, "Admixtures."

In Section 53-1.04 in the 3rd paragraph, replace item C with:

C. Aggregate and cementitious material that have been mixed for more than 45 minutes shall not be used unless otherwise permitted by the Engineer.

Replace Section 53-1.07 with:

53-1.07 MEASUREMENT

Quantities of shotcrete will be measured by the cubic yard computed from measurements, along the slope, of actual areas placed and the theoretical thickness shown on the plans. The Department does not pay for shotcrete placed outside the dimensions shown on the plans or to fill low foundation.

Replace Section 53-1.08 with:

53-1.08 PAYMENT

The contract price paid per cubic yard for shotcrete shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing shotcrete, including preparing the foundation, wire reinforcement, structure backfill, joint filling material, and if required by the plans, drains with sacked pervious backfill material, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

^^

SECTION 54 WATERPROOFING
(Issued 07-01-11)

In Section 54-1.02, replace the 1st paragraph with:

Waterproofing asphalt shall conform to the requirements in ASTM Designation: D 449, Type I for below ground and Type II for above ground.

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SECTION 55 STEEL STRUCTURES
(Issued 08-05-11)

In Section 55-1.01 replace the 4th paragraph with:

Design details, fabrication, and workmanship for steel railway bridges shall conform to the provisions in Chapter 15, "Steel Structures," of the AREMA Manual for Railway Engineering.

In Section 55-1.05 replace the 3rd paragraph with:

Construction methods and equipment employed by the Contractor shall conform to the provisions in Section 7-1.02, "Load Limitations."

In Section 55-2.01 replace the table in the 5th paragraph with:

Material Conforming to ASTM Designation: A 709/A 709M	CVN Impact Value (Ft. Lbs at Temp.)
Grade 36	15 at 40° F
Grade 50* (2 inches and under in thickness)	15 at 40° F
Grade 50W* (2 inches and under in thickness)	15 at 40° F
Grade 50* (Over 2 inches to 4 inches in thickness)	20 at 40° F
Grade 50W* (Over 2 inches to 4 inches in thickness)	20 at 40° F
Grade HPS 50W* (4 inches and under in thickness)	20 at 10° F
Grade HPS 70W (4 inches and under in thickness)	25 at -10° F
Grade 100 ($2\frac{1}{2}$ inches and under in thickness)	25 at 0° F
Grade 100W (Over $2\frac{1}{2}$ inches to 4 inches in thickness)	35 at 0° F

* If the yield point of the material exceeds 65,000 psi, the temperature for the CVN impact value for acceptability shall be reduced 15° F for each increment of 10,000 psi above 65,000 psi

In Section 55-2.01 replace the Structural Steel Materials table with:

Structural Steel Materials

Material	Specification
Structural steel:	
Carbon steel	ASTM: A 709/A 709M, Grade 36 or {A 36/A 36M}[a]
High strength low alloy columbium vanadium steel	ASTM: A 709/A 709M, Grade 50 or {A 572/A 572M, Grade 50}[a]
High strength low alloy structural steel	ASTM: A 709/A 709M, Grade 50W, Grade HPS 50W, or {A 588/A 588M}[a]
High strength low alloy structural steel plate	ASTM: A 709/A 709M, Grade HPS 70W
High-yield strength, quenched and tempered alloy steel plate suitable for welding	ASTM: A 709/A 709M, Grade 100 and Grade 100W, or {A 514/A 514M}[a]
Steel fastener components for general applications:	
Bolts and studs	ASTM: A 307
Anchor bolts	ASTM: F 1554 or A 307, Grade C
High-strength bolts and studs	ASTM: A 449, Type 1
High-strength threaded rods	ASTM: A 449, Type 1
High-strength nonheaded anchor bolts	ASTM: F 1554, Grade 105, Class 2A
Nuts	ASTM: A 563, including Appendix X1[b]
Washers	ASTM: F 844
Components of high-strength steel fastener assemblies for use in structural steel joints:	
Bolts	ASTM: A 325, Type 1
Tension control bolts	ASTM: F 1852, Type 1
Nuts	ASTM: A 563, including Appendix X1[b]
Hardened washers	ASTM : F 436, Type 1, Circular, including S1 supplementary requirements
Direct tension indicators	ASTM: F 959, Type 325, zinc-coated
Carbon steel for forgings, pins and rollers	ASTM: A 668/A 668M, Class D
Alloy steel for forgings	ASTM: A 668/A 668M, Class G
Pin nuts	ASTM: A 36/A 36M
Carbon-steel castings	ASTM: A 27/A 27M, Grade 65-35, Class 1
Malleable iron castings	ASTM: A 47/A 47M, Grade 32510 (Grade 22010)
Gray iron castings	ASTM: A 48, Class 30B
Carbon steel structural tubing	ASTM: A 500, Grade B or A 501
Steel pipe (Hydrostatic testing will not apply)	ASTM: A 53, Type E or S, Grade B; A 106, Grade B; or A 139, Grade B
Stud connectors	AASHTO/AWS D1.5

a Grades that may be substituted for the equivalent ASTM Designation: A 709 steel, at the Contractor's option, subject to the modifications and additions specified and to the requirements of A 709.

b Zinc-coated nuts that will be tightened beyond snug or wrench tight shall be furnished with a dry lubricant conforming to Supplementary Requirement S2 in ASTM Designation: A 563.

In Section 55-2.04 delete the 1st paragraph.

Delete Section 55-2.05.

In Section 55-3.05 replace the 1st paragraph with:

Surfaces of bearing and base plates and other metal surfaces that are to come in contact with each other or with ground concrete surfaces shall be flat to within 1/32-inch tolerance in 12 inches and to within 1/16-inch tolerance overall. Surfaces of bearing and base plates and other metal bearing surfaces that are to come in contact with preformed fabric pads, elastomeric

bearing pads, or mortar shall be flat to within 1/8-inch tolerance in 12 inches and to within 3/16-inch tolerance overall.

In Section 55-3.07 in the 1st paragraph, replace item B with:

B. The radius of bend measured to the concave face shall conform to the requirements in ASTM Designation: A6/A6M

In Section 55-3.10 in the 1st paragraph, replace item B with:

B. Internal threads shall conform to the requirements in ASTM Designation: A 563.

In Section 55-3.19 replace the 3rd paragraph with:

Immediately before setting bearing assemblies or masonry plates directly on ground concrete surfaces, the Contractor shall thoroughly clean the surfaces of the concrete and the metal to be in contact and shall apply a coating of nonsag polysulfide or polyurethane caulking conforming to the requirements in ASTM Designation: C 920 to contact areas to provide full bedding.

In Section 55-4.01 in the 1st paragraph, replace item D with:

D. To determine the pay quantities of galvanized metal, the weight to be added to the calculated weight of the base metal for the galvanizing will be determined from the table of weights of zinc coatings specified in ASTM Designation: A 153/A 153M.

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SECTION 56 SIGNS
(Issued 07-20-12)

In Section 56-1.01 in the 2nd paragraph, replace the 1st sentence with:

Sign structures shall be of the following types: truss, tubular, lightweight and bridge mounted.

In Section 56-1.02A replace the 1st paragraph with:

Bars and plates shall be structural steel complying with one or more of the following:

1. ASTM Designation: A36/A36M
2. ASTM Designation: A709/A709M, Grade 36 or 50
3. ASTM Designation: A572/A572M, Grade 50

Other open shapes shall be structural steel complying with one or more of the following:

1. ASTM Designation: A36/A36M

2. ASTM Designation: A709/A709M, Grade 36 or 50
3. ASTM Designation: A992/A992M

Light fixture mounting channel shall be a continuous slot channel made from one of the following:

1. Steel complying with ASTM Designation: A1011/A1011M, Designation SS, Grade 33
2. Extruded aluminum of alloy 6063-T6 complying with ASTM Designation: B221 or B221M

In Section 56-1.02B delete the 2nd paragraph.

In Section 56-1.02E replace the 1st paragraph with:

Pipe posts shall be welded or seamless steel pipe conforming to the requirements in ASTM Designation: A 53/A 53M, Grade B; ASTM Designation: A 106/A 106M, Grade B; or API Specification 5L PSL2 Grade B or Grade X42R or Grade X42M. At the option of the Contractor, posts may be fabricated from structural steel conforming to the requirements in ASTM Designation: A 36/A 36M.

Pipe posts shall not be spiral seam welded.

In Section 56-1.02F replace item B of the 1st paragraph with:

B. Material for gratings shall be structural steel conforming to the requirements in ASTM Designation: A 1011/A 1011M, Designation CS, Type B or Designation SS, Grade 36, Type 1.

In Section 56-1.03 replace the 5th paragraph with:

Clips, eyes, or removable brackets shall be affixed to all signs and all posts and shall be used to secure the sign during shipping and for lifting and moving during erection as necessary to prevent damage to the finished galvanized or painted surfaces. Brackets on tubular sign structures shall be removed after erection. Details of the devices shall be shown on the working drawings.

In Section 56-1.03 delete the 12th paragraph.

In Section 56-1.05 replace the 1st paragraph with:

Excepting tubular type, all ferrous metal parts of sign structures shall be galvanized and not painted, unless otherwise specified in the special provisions.

In Section 56-1.05 replace the 2nd paragraph with:

Except as herein provided, all exterior surfaces including those areas to be covered by sign panels of tubular type of sign structures shall be cleaned and painted as provided in Section 59-5, "Painting Sign Structures," and as provided in the special provisions. There shall be no chemical treatment of galvanized surfaces prior to cleaning and painting. Walkway gratings, walkway

brackets, gutters, safety railings, steel mountings for light fixtures, and all nuts, bolts, and washers for sign structures shall be galvanized after fabrication and shall not be painted.

In Section 56-1.05 replace the 3rd paragraph with:

Galvanizing shall conform to the provisions in Section 75-1.05, "Galvanizing," except that when permission is granted by the Engineer, surfaces may be coated with zinc by the metalizing process. Metalizing shall be performed in conformance with the AWS requirements. The thickness of the sprayed zinc coat shall be 10 ± 2 mils. The thickness of the sprayed zinc coat on faying surfaces shall not be more than 10 mils.

In Section 56-1.05, add:

Zinc solders or zinc alloys that contain tin shall not be used to repair a damaged galvanized surface.

In Section 56-1.07, add:

Bridge-mounted signs shall not be fastened to concrete elements of bridges or railings before the concrete attains a compressive strength of 2,500 psi.

In Section 56-1.10 replace the 4th paragraph with:

The contract price paid per pound for install sign structure of the type or types designated in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in installing sign structures, complete in place, including installing anchor bolt assemblies, removable sign panel frames, and sign panels and performing any welding, painting or galvanizing required during installation, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

In Section 56-2.03 replace the 4th paragraph with:

Backfill material for metal posts shall consist of minor concrete conforming to the provisions in Section 90-10, "Minor Concrete," and shall contain not less than 463 pounds of cementitious material per cubic yard.

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SECTION 59 PAINTING
(Issued 10-19-12)

In Section 59-1.01 add:

Coatings selected for use shall conform to the volatile organic compound limits specified for the air quality district where the project is located.

In Section 59-1.03 replace the 3rd paragraph with:

Painting shall be done in a neat and workmanlike manner. Unless otherwise specified, paint shall be applied by brush, or spray, or roller, or any combination of these methods. Gun extensions shall not be used.

In Section 59-1.03 replace the 5th paragraph with:

Unless otherwise specified, should 7 days elapse between paint applications, the painted surface shall be pressure rinsed prior to the next paint application. Pressure rinsing is defined as a pressurized water rinse with a minimum nozzle pressure of 1,160 psi. During rinsing, the tip of the pressure nozzle shall be placed between 12 inches and 18 inches from the surface to be rinsed. The nozzle shall have a maximum fan tip angle of 30°.

In Section 59-2.01 replace the 2nd paragraph with:

Unless otherwise specified, no painting Contractors or subcontractors will be permitted to perform work without having the following current "SSPC: The Society for Protective Coatings" (formerly the Steel Structures Painting Council) certifications in good standing throughout the duration of the contract:

A. For cleaning and painting structural steel in the field, certification in conformance with the requirements in Qualification Procedure No. 1, "Standard Procedure For Evaluating Painting Contractors (Field Application to Complex Industrial Structures)" (SSPC-QP 1).
B. For removing paint from structural steel, certification in conformance with the requirements in Qualification Procedure No. 2, "Standard Procedure for the Qualification of Painting Contractors (Field Removal of Hazardous Coatings from Complex Structures)" (SSPC-QP 2, Category A).
C. For cleaning and painting structural steel in a permanent painting facility, certification in conformance with the requirements in AISC-420-10/SSPC-QP 3, "Certification Standard for Shop Application of Complex Protective Coating Systems." All cleaning and painting of structural steel shall be performed in an Enclosed Shop.

In Section 59-2.03 replace the 3rd paragraph with:

Exposed steel or other metal surfaces to be blast cleaned shall be cleaned in conformance with the requirements in SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning," of the "SSPC: The Society for Protective Coatings." Blast cleaning shall leave all surfaces with a dense, uniform, angular anchor pattern of not less than 1.5 mil as measured in conformance with the requirements in ASTM Designation: D 4417.

Replace Section 59-2.05 with:

59-2.05 CLEANING PAINTED SURFACES

All previously painted surfaces shall be cleaned by pressure washing or steam cleaning before other cleaning or painting activities are performed. Gloss on the existing paint shall be removed without removing sound paint. Areas of gloss remaining after cleaning shall be roughened using 100 to 200-grit sandpaper. Any paint that becomes loose, curled, lifted, or that loses its bond after cleaning shall be removed to sound paint or metal.

Pressure washing includes cleaning surfaces using a pressure wash system with a nozzle pressure from 2,500 to 5,000 psi and a maximum fan tip angle of 45 degrees.

Steam cleaning includes cleaning dirt, grease, loose chalky paint, and other foreign material from surfaces using steam. The steam temperature at the nozzle shall be from 265 to 375 degrees F. A biodegradable detergent shall be used during steam cleaning. After steam cleaning, cleaned surfaces shall be rinsed clean with fresh water. Steam cleaning shall not be performed more than 2 weeks before painting or other phases of cleaning. Steam-cleaned surfaces shall not be painted until they are thoroughly dry and 24 hours have elapsed after steam cleaning.

In Section 59-2.12 replace the 3rd and 4th paragraphs with:

Contact surfaces of stiffeners, railings, built up members or open seam exceeding 6 mils in width that would retain moisture, shall be caulked with polysulfide or polyurethane sealing compound conforming to the requirements in ASTM Designation: C 920, Type S, Grade NS, Class 25, Use O, or other approved material.

The dry film thickness of the paint will be measured in place with a calibrated Type 2 magnetic film thickness gage in conformance with the requirements in SSPC-PA 2, "Measurement of Dry Coating Thickness with Magnetic Gages," of the "SSPC: The Society for Protective Coatings," except that there shall be no limit to the number or location of spot measurements to verify compliance with specified thickness requirements.

In Section 59-5.01 replace the 1st paragraph with:

Tubular sign structures shall be cleaned and painted in conformance with the provisions in Section 59-1, "General," and this Section 59-5. Sign structures, other than tubular sign structures, shall not be painted unless otherwise specified in the special provisions.

^^^

SECTION 63: CAST-IN-PLACE CONCRETE PIPE
(Issued 10-21-11)

Replace Section 63 with:

SECTION 63: (BLANK)

^^^

SECTION 64 PLASTIC PIPE
(Issued 06-05-09)

In Section 64-1.02 replace the 5th paragraph with:

HDPE compounds used in the manufacture of corrugated polyethylene pipe and fittings shall comply with AASHTO M 294 except that the mix shall contain not less than 2 nor greater than 4 percent well dispersed carbon black. HDPE compounds used in the manufacture of ribbed profile wall polyethylene pipe shall comply with ASTM F 894 except that Type E ultraviolet stabilizers shall not be allowed and carbon black shall be well dispersed in an amount not less than 2 percent nor greater than 4 percent.

Manufacturers of corrugated polyethylene pipe shall:

1. Participate in the National Transportation Product Evaluation Control Program (NTPEP) for each plant supplying corrugated polyethylene pipe and fittings for the project.
2. Conduct and maintain a quality control program under NTPEP.
3. Submit a copy to the Engineer of manufacturing plant audits and NTPEP test results from the current cycle of NTPEP testing for all pipe diameters supplied.

Type D corrugated polyethylene pipe is not allowed. Corrugated polyethylene pipe greater than 60 inches in nominal diameter is not allowed.

In Section 64-1.05 replace the 1st paragraph with:

Excavation, backfill, and shaped bedding shall comply with Section 19-3, "Structure Excavation and Backfill," except the following:

1. At locations where pipe is to be backfilled with concrete, the backfill shall comply with Section 64-1.06, "Concrete Backfill."
2. Corrugated polyethylene pipe that is greater than 48 inches in nominal diameter but not exceeding 60 inches in nominal diameter shall be backfilled with either controlled low strength material under the special provisions or slurry cement backfill under Section 19-3.062, "Slurry Cement Backfill."
3. Where cementitious or flowable backfill is used for structure backfill, the backfill shall be placed to a level not less than 12 inches above the crown of the pipe.

In Section 64-1.06 replace the 1st paragraph with:

At locations where pipe is to be backfilled with concrete as shown on the plans, the concrete backfill shall be constructed of minor concrete or Class 4 concrete conforming to the provisions in Section 90, "Portland Cement Concrete." Minor concrete shall contain not less than 380 pounds of cementitious material per cubic yard. The concrete to be used will be designated in the contract item or shown on the plans.

In Section 64-1.06 replace the 3rd paragraph with:

The surface of the concrete backfill shall be broomed with a heavy broom to produce a uniform rough surface if hot mix asphalt is to be placed directly thereon.

^^

SECTION 65 REINFORCED CONCRETE PIPE
(Issued 07-20-12)

In Section 65-1.02 replace the 1st paragraph with:

Cementitious material and aggregate shall conform to the provisions in Section 90-2, "Materials" except that grading requirements shall not apply to the aggregate. Use of supplemental cementitious material shall conform to AASHTO Designation: M 170.

In Section 65-1.02A(1) in the 11th paragraph, replace item c with:

c. Cementitious material and aggregate for non-reinforced concrete pipe shall conform to the provisions in Section 65-1.02, "Materials."

In Section 65-1.035 replace the 1st paragraph with:

At locations where pipe is to be backfilled with concrete as shown on the plans, the concrete backfill shall be constructed of minor concrete or Class 4 concrete in conformance with the provisions in Section 90, "Portland Cement Concrete." Minor concrete shall contain not less than 380 pounds of cementitious material per cubic yard. The concrete to be used will be designated in the contract item.

In Section 65-1.035 replace the 3rd paragraph with:

The surface of the concrete backfill shall be broomed with a heavy broom to produce a uniform rough surface if hot mix asphalt is to be placed directly thereon.

Replace Section 65-1.05 with:

65-1.05 (BLANK)

In Section 65-1.06 in the 2nd paragraph, replace the 1st subparagraph with:

Cement Mortar. - Mortar shall be composed of one part cementitious material and 2 parts sand by volume. Supplementary cementitious material will not be required.

In Section 65-1.10 in the 1st paragraph in the 1st sentence, delete "jacked reinforced concrete pipe."

In Section 65-1.10 delete the 2nd paragraph.

^^

SECTION 66 CORRUGATED METAL PIPE
(Issued 07-20-12)

In Section 66-1.045 replace the 1st paragraph with:

At locations where pipe is to be backfilled with concrete as shown on the plans, the concrete backfill shall be constructed of minor concrete or Class 4 concrete conforming to the provisions in Section 90, "Portland Cement Concrete." Minor concrete shall contain not less than 380 pounds of cementitious material per cubic yard. The concrete to be used will be designated in the contract item or shown on the plans.

In Section 66-1.045 replace the 3rd paragraph with:

The surface of the concrete backfill shall be broomed with a heavy broom to produce a uniform rough surface if hot mix asphalt is to be placed directly thereon.

Replace Section 66-3.10 with:

66-3.10 (BLANK)

In Section 66-4.02 delete the 2nd paragraph.

^^

SECTION 68 SUBSURFACE DRAINS
(Issued 07-31-07)

In Section 68-3.02D replace the 1st and 2nd paragraphs with:

Concrete for splash pads shall be produced from minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

Mortar placed where edge drain outlets and vents connect to drainage pipe and existing drainage inlets shall conform to the provisions in Section 51-1.135, "Mortar."

In Section 68-3.03 replace the 13th paragraph with:

Cement treated permeable material, which is not covered with hot mix asphalt within 12 hours after compaction of the permeable material, shall be cured by either sprinkling the material with a fine spray of water every 4 hours during daylight hours or covering the material with a white polyethylene sheet, not less than 6 mils thick. The above curing requirements shall begin at 7:00 a.m. on the morning following compaction of the cement treated permeable material and continue for the next 72 hours or until the material is covered with hot mix asphalt, whichever is less. The cement treated permeable material shall not be sprayed with water during the first 12 hours after compacting, but may be covered with the polyethylene sheet during the first 12 hours or prior to the beginning of the cure period.

In Section 68-3.03 replace the 17th and 18th paragraphs with:

Hot mix asphalt for backfilling trenches in existing paved areas shall be produced from commercial quality aggregates and asphalt and mixed at a central mixing plant. The aggregate shall conform to the 3/4 inch grading, or the 1/2 inch grading for Type A and Type B hot mix asphalt specified in Section 39-1.02E, "Aggregate." The amount of asphalt binder to be mixed with the aggregate shall be between 4 percent and 7 percent by weight of the dry aggregate, as determined by the Engineer.

Hot mix asphalt backfill shall be spread and compacted in approximately 2 equal layers by methods that will produce a hot mix asphalt surfacing of uniform smoothness, texture and density. Each layer shall be compacted before the temperature of the mixture drops below 250 °F. Prior to placing the hot mix asphalt backfill, a tack coat of asphaltic emulsion conforming to the provisions in Section 94, "Asphaltic Emulsions," shall be applied to the vertical edges of existing pavement at an approximate rate of 0.05 gallon per square yard.

In Section 68-3.03 replace the 20th paragraph with:

Type A pavement markers conforming to the details shown on the plans and the provisions in Section 85, "Pavement Markers," shall be placed on paved shoulders or dikes at outlet, vent and cleanout locations as directed by the Engineer. The waiting period for placing pavement markers on new hot mix asphalt surfacing will not apply.

Replace Section 68-3.05 with:

68-3.05 PAYMENT

The contract price paid per linear foot for plastic pipe (edge drain) of the size or sizes shown in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing edge drains complete in place, including excavation (and removal of any concrete deposits that may occur along the lower edge of the concrete pavement in Type 1 installations) and hot mix asphalt backfill for Type 1 edge drain installation, tack coat, filter fabric, and treated permeable material, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

The contract price paid per linear foot for plastic pipe (edge drain outlet) of the size or sizes shown in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing edge drain outlets, vents and cleanouts complete in place, including outlet and vent covers, expansion plugs, pavement markers, concrete splash pads, connecting outlets and vents to drainage facilities, and excavation and backfill [aggregate base, hot mix asphalt, tack coat, and native material] for outlets, vents, and cleanouts to be installed in embankments and existing shoulders, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

^^

SECTION 69 OVERSIDE DRAINS
(Issued 07-31-07)

In Section 69-1.01 replace the 1st paragraph with:

This work shall consist of furnishing and installing entrance tapers, pipe downdrains, tapered inlets, flume downdrains, anchor assemblies, reducers, slip joints and hot mix asphalt overside drains to collect and carry surface drainage down the roadway slopes as shown on the plans or as directed by the Engineer and as specified in these specifications and the special provisions.

Replace Section 69-1.02D with:

69-1.02D Hot Mix Asphalt

Hot mix asphalt for overside drains shall conform to the provisions in Section 39-1.13, "Miscellaneous Areas."

Replace Section 69-1.04 with:

69-1.04 HOT MIX ASPHALT OVERSIDE DRAINS

Hot mix asphalt overside drains shall be constructed as shown on the plans or as directed by the Engineer. The hot mix asphalt shall be placed in conformance with the provisions in Section 39-1.13, "Miscellaneous Areas."

In Section 69-1.06 replace the 2nd paragraph with:

Quantities of hot mix asphalt placed for overside drains will be paid for as provided in Section 39-5, "Measurement and Payment," for hot mix asphalt placed in miscellaneous areas.

^^

SECTION 70 MISCELLANEOUS FACILITIES
(Issued 01-20-12)

In Section 70-1.02C replace the 2nd paragraph with:

Precast concrete flared end sections shall conform to the requirements for Class III Reinforced Concrete Pipe in AASHTO Designation: M 170M. Cementitious materials and aggregate shall conform to the provisions in Section 90-2, "Materials," except that grading requirements shall not apply to the aggregate. Use of supplementary cementitious material shall conform to the requirements in AASHTO Designation: M 170. The area of steel reinforcement per linear foot of flared end section shall be at least equal to the minimum steel requirements for circular reinforcement in circular pipe for the internal diameter of the circular portion of the flared end section. The basis of acceptance of the precast concrete flared end section shall conform to the requirements of Section 5.1.2 of AASHTO Designation: M 170.

In Section 70-1.02C replace the 3rd paragraph with:

Plastic flared end sections shall conform to the requirements in ASTM Designation: D 3350.

In Section 70-1.02H replace the 1st paragraph with:

Precast concrete pipe risers and pipe reducers, and precast concrete pipe sections, adjustment rings and tapered sections for pipe energy dissipators, pipe inlets and pipe manholes shall conform to the requirements in AASHTO Designation: M 199M/M 199, except that the cementitious material and aggregate shall conform to the provisions in Section 90-2, "Materials," except that grading requirements shall not apply to the aggregate. Use of supplementary cementitious material shall conform to the requirements in AASHTO Designation: M 170.

In Section 70-1.03 replace the 2nd paragraph with:

Cutoff walls for precast concrete flared end sections shall be constructed of minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

^^

SECTION 72 SLOPE PROTECTION
(Issued 07-20-12)

In Section 72-4.04 replace the 6th paragraph with:

Pervious backfill material, if required by the plans, shall be placed as shown. A securely tied sack containing one cubic foot of pervious backfill material shall be placed at each weep hole and drain hole. The sack material shall conform to the requirements for filter fabric in Section 88-1.02, "Filtration."

Replace Section 72-5.05 with:

72-5.05 Measurement

Concreted-rock slope protection is measured by the ton or cubic yard.

Quantities of concreted-rock slope protection to be paid for by the cubic yard will be determined from the dimensions shown on the plans or the dimensions directed by the Engineer, and concreted-rock slope protection placed in excess of these dimensions will not be paid for.

Quantities of concreted-rock slope protection to be paid for by the ton will be determined from the weight of the rock in conformance with the provisions in Section 9-1.01, "Measurement of Quantities."

In Section 72-5.06 replace the 1st sentence with:

The contract price paid per cubic yard or per ton for concreted-rock slope protection designated in the Engineer's Estimate includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all work involved in constructing the

concreted-rock slope protection, complete in place, including excavating and backfilling footing trenches and furnishing and placing concrete, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

^^

SECTION 73 CONCRETE CURBS AND SIDEWALKS
(Issued 06-05-09)

In Section 73-1.01 in the 2nd paragraph, replace item 2 with:

2. Minor concrete shall contain not less than 463 pounds of cementitious material per cubic yard except that when extruded or slip-formed curbs are constructed using 3/8-inch maximum size aggregate, minor concrete shall contain not less than 505 pounds of cementitious material per cubic yard.

In Section 73-1.06 replace the 15th paragraph with:

Where hot mix asphalt or portland cement concrete pavements are to be placed around or adjacent to manholes, pipe inlets or other miscellaneous structures in sidewalk, gutter depression, island paving, curb ramps or driveway areas, the structures shall not be constructed to final grade until after the pavements have been constructed for a reasonable distance on each side of the structures.

^^

SECTION 74 PUMPING PLANT EQUIPMENT
(Issued 07-01-08)

In Section 74-1.02 delete the 2nd paragraph.

^^

SECTION 75 MISCELLANEOUS METAL
(Issued 07-01-11)

In Section 75-1.02 replace the 6th paragraph with:

Manhole frames and covers shall conform to AASHTO M 306.

In Section 75-1.02 replace the 10th paragraph with:

Unless otherwise specified, materials shall conform to the following specifications:

Material	Specification
Steel bars, plates and shapes	ASTM Designation: A 36/A 36M or A 575, A 576 (AISI or M Grades 1016 through 1030)
Steel fastener components for general applications:	
Bolts and studs	ASTM Designation: A 307
Headed anchor bolts	ASTM Designation: A 307, Grade B, including S1 supplementary requirements
Nonheaded anchor bolts	ASTM Designation: F 1554 or A 307, Grade C, including S1 supplementary requirements and S1.6 of AASHTO Designation: M 314 supplementary requirements, or AASHTO Designation: M 314, Grade 36 or 55, including S1 supplementary requirements
High-strength bolts and studs, threaded rods, and nonheaded anchor bolts	ASTM Designation: A 449, Type 1
Nuts	ASTM Designation: A 563, including Appendix X1*
Washers	ASTM Designation: F 844
Components of high-strength steel fastener assemblies for use in structural steel joints:	
Bolts	ASTM Designation: A 325, Type 1
Tension control bolts	ASTM Designation: F 1852, Type 1
Nuts	ASTM Designation: A 563, including Appendix X1*
Hardened washers	ASTM Designation: F 436, Type 1, Circular, including S1 supplementary requirements
Direct tension indicators	ASTM Designation: F 959, Type 325, zinc-coated
Stainless steel fasteners (Alloys 304 & 316) for general applications:	
Bolts, screws, studs, threaded rods, and nonheaded anchor bolts	ASTM Designation: F 593 or F 738M
Nuts	ASTM Designation: F 594 or F 836M
Washers	ASTM Designation: A 240/A 240M and ANSI B 18.22M
Carbon-steel castings	ASTM Designation: A 27/A 27M, Grade 65-35, Class 1
Malleable iron castings	ASTM Designation: A 47, Grade 32510 or A 47M, Grade 22010
Gray iron castings Inside a roadbed Outside a roadbed	 AASHTO M 306 AASHTO M306 except only AASHTO M105, Class 35B is allowed
Ductile iron castings	ASTM Designation: A 536, Grade 65-45-12
Cast iron pipe	Commercial quality
Steel pipe	Commercial quality, welded or extruded
Other parts for general applications	Commercial quality

*Zinc-coated nuts that will be tightened beyond snug or wrench tight shall be furnished with a dyed dry lubricant conforming to Supplementary Requirement S2 in ASTM Designation: A 563.

In Section 75-1.03 replace the 13th paragraph with:

Concrete anchorage devices shall be mechanical expansion or resin capsule types installed in drilled holes or cast-in-place insert types. The anchorage devices shall be selected from the Department's Pre-Qualified Products List. The qualification requirements for concrete anchorage devices may be obtained from the Pre-Qualified Products List Web site.

The anchorage devices shall be a complete system, including threaded studs, hex nuts, and cut washers. Thread dimensions for externally threaded concrete anchorage devices prior to zinc coating shall conform to the requirements in ASME Standard: B1.1 having Class 2A tolerances or ASME Standard: B1.13M having Grade 6g tolerances. Thread dimensions for internally threaded concrete anchorage devices shall conform to the requirements in ASTM A 563.

In Section 75-1.03 replace the 18th paragraph with:

Mechanical expansion anchors shall, when installed in accordance with the manufacturer's instructions and these specifications and tested in conformance with the requirements in California Test 681, withstand the application of a sustained tension test load of at least the following values for at least 48 hours with a movement not greater than 0.035 inch:

Stud Diameter (inches)	Sustained Tension Test Load (pounds)
*3/4	5,000
5/8	4,100
1/2	3,200
3/8	2,100
1/4	1,000

* Maximum stud diameter permitted for mechanical expansion anchors.

Resin capsule anchors shall, when installed in accordance with the manufacturer's instructions and these specifications and tested in conformance with the requirements in California Test 681, withstand the application of a sustained tension test load of at least the following values for at least 48 hours with a movement not greater than 0.010 inch:

Stud Diameter (inches)	Sustained Tension Test Load (pounds)
1-1/4	31,000
1	17,900
7/8	14,400
3/4	5,000
5/8	4,100
1/2	3,200
3/8	2,100
1/4	1,000

At least 25 days before use, the Contractor shall submit one sample of each resin capsule anchor per lot to the Transportation Laboratory for testing. A lot of resin capsule anchors is 100 units, or fraction thereof, of the same brand and product name.

In Section 75-1.03 replace the 20th paragraph with:

A Certificate of Compliance for concrete anchorage devices shall be furnished to the Engineer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance."

In Section 75-1.03 replace the 24th paragraph with:

Sealing compound, for caulking and adhesive sealing, shall be a polysulfide or polyurethane material conforming to the requirements in ASTM Designation: C 920, Type S, Grade NS, Class 25, Use O.

In Section 75-1.035 in the 3rd paragraph, replace the 1st sentence with:

Cables shall be 3/4 inch preformed, 6 x 19, wire strand core or independent wire rope core (IWRC), galvanized in conformance with the requirements in Federal Specification RR-W-410, right regular lay, manufactured of improved plow steel with a minimum breaking strength of 23 tons.

In Section 75-1.035 in the 4th paragraph, replace item C with:

C. Nuts shall conform to the requirements in ASTM Designation: A 563 including Appendix X1, except lubrication is not required.

In Section 75-1.035 replace the 12th paragraph with:

Concrete for filling cable drum units shall conform to the provisions in Section 90-10, "Minor Concrete," or at the option of the Contractor, may be a mix with 3/8-inch maximum size aggregate and not less than 675 pounds of cementitious material per cubic yard.

In Section 75-1.05 replace the 6th paragraph with:

Galvanizing of iron and steel hardware and nuts and bolts, when specified or shown on the plans, shall conform to the requirements in ASTM Designation: A 153/A 153M, except whenever threaded studs, bolts, nuts, and washers are specified to conform to the requirements in ASTM Designation: A 307, A 325, A 449, A 563, F 436, or F 1554 and zinc coating is required, they shall be hot-dip zinc coated or mechanically zinc coated in conformance with the requirements in the ASTM Designations. Unless otherwise specified, galvanizing shall be performed after fabrication.

In Section 75-1.05 replace the 8th paragraph with:

Tapping of nuts or other internally threaded parts to be used with zinc coated bolts, anchor bars or studs shall be done after galvanizing and shall conform to the requirements for thread dimensions and overtapping allowances in ASTM Designation: A 563.

^^

SECTION 80 FENCES
(Issued 01-05-07)

In Section 80-3.01F replace the 4th paragraph with:

Portland cement concrete for metal post and brace footings and for deadmen shall be minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

In Section 80-4.01C replace the 4th paragraph with:

Portland cement concrete for metal post and for deadmen shall be produced from minor concrete conforming to the provisions in Section 90-10, "Minor Concrete." Minor concrete shall contain not less than 470 pounds of cementitious material per cubic yard.

^^

SECTION 83 RAILINGS AND BARRIERS
(Issued 07-01-11)

In Section 83-1.02 replace the 7th paragraph with:

Mortar shall conform to the provisions in Section 51-1.135, "Mortar," and shall consist of one part by volume of cementitious material and 3 parts of clean sand.

In Section 83-1.02B in the 24th paragraph in the 8th subparagraph, replace the 1st sentence with:

Anchor cable shall be 3/4 inch preformed, 6 x 19, wire strand core or independent wire rope core (IWRC), galvanized in conformance with the requirements in Federal Specification RR-W-410, right regular lay, manufactured of improved plow steel with a minimum breaking strength of 23 tons.

In Section 83-1.02E in the 6th paragraph, replace the 2nd sentence with:

Cable shall be galvanized in conformance with the requirements in Federal Specification RR-W-410.

In Section 83-1.02I replace the 5th paragraph with:

Where shown on the plans, cables used in the frame shall be 5/16 inch in diameter, wire rope, with a minimum breaking strength of 5,000 pounds and shall be galvanized in conformance with the requirements in Federal Specification RR-W-410.

In Section 83-1.02I replace the 14th paragraph with:

Chain link fabric shall be 11-gage conforming to one of the following:

1. AASHTO Designation: M181, Type I, Class C
2. AASHTO Designation: M181, Type IV, Class A
3. ASTM F 1345, Class 2

In Section 83-2.02D(1) replace the 5th paragraph with:

When concrete barriers are to be constructed on existing structures, the dowels shall be bonded in holes drilled in the existing concrete. Drilling of holes and bonding of dowels shall conform to the following:

1. The bonding materials shall be either magnesium phosphate concrete, modified high alumina based concrete or portland cement based concrete. Magnesium phosphate concrete shall be either single component (water activated) or dual component (with a prepackaged liquid activator). Modified high alumina based concrete and portland cement based concrete shall be water activated. Bonding materials shall conform to the following requirements:

Property	Test Method	Requirements
Compressive Strength		
at 3 hours, MPa	California Test 551	21 min.
at 24 hours, MPa	California Test 551	35 min.
Flexure Strength		
at 24 hours, MPa	California Test 551	3.5 min.
Bond Strength: at 24 hours		
SSD Concrete, MPa	California Test 551	2.1 min.
Dry Concrete, MPa	California Test 551	2.8 min.
Water Absorption, %	California Test 551	10 max.
Abrasion Resistance		
at 24 hours, grams	California Test 550	25 max.
Drying Shrinkage at 4 days, %	ASTM Designation: C 596	0.13 max.
Soluble Chlorides by weight, %	California Test 422	0.05 max.
Water Soluble Sulfates by weight, %	California Test 417	0.25 max.

2. Magnesium phosphate concrete shall be formulated for minimum initial set time of 15 minutes and minimum final set time of 25 minutes at 70° F. The materials, prior to use, shall be stored in a cool, dry environment.
3. Mix water used with water activated material shall conform to the provisions in Section 90-2.03, "Water."
4. The quantity of water for single component type or liquid activator (for dual component type) to be blended with the dry component, shall be within the limits recommended by the manufacturer and shall be the least amount required to produce a pourable batter.
5. Addition of retarders, when required and approved by the Engineer, shall be in conformance with the manufacturer's recommendations.
6. Before using concrete material that has not been previously approved, a minimum of 45 pounds shall be submitted to the Engineer for testing. The Contractor shall allow 45 days for the testing. Each shipment of concrete material that has been previously

approved shall be accompanied by a Certificate of Compliance as provided in Section 6-1.07, "Certificates of Compliance."

7. Magnesium phosphate concrete shall not be mixed in containers or worked with tools containing zinc, cadmium, aluminum or copper metals. Modified high alumina based concrete shall not be mixed in containers or worked with tools containing aluminum.
8. The surface of any dowel coated with zinc or cadmium shall be coated with a colored lacquer before installation of the dowel. The lacquer shall be allowed to dry thoroughly before embedment of the dowels.
9. The holes shall be drilled by methods that will not shatter or damage the concrete adjacent to the hole. The diameter of the drilled hole shall be 1/2 inch larger than the nominal diameter of the dowels.
10. The drilled holes shall be clean and dry at the time of placing the bonding material and the steel dowels. Bonding material and dowel shall completely fill the drilled hole. The surface temperature shall be 40° F or above when the bonding material is placed.
11. After bonding, dowels shall remain undisturbed for a minimum of 3 hours or until the bonding material has reached a strength sufficient to support the dowels. Dowels that are improperly bonded, as determined by the Engineer, shall be removed. The holes shall be cleaned or new holes shall be drilled and the dowels replaced and securely bonded to the concrete. Removing, redrilling and replacing improperly bonded dowels shall be performed at the Contractor's expense. Modified high alumina based concrete and portland cement based concrete shall be cured in conformance with the provisions in Section 90-7.01B, "Curing Compound Method," of the Standard Specifications. Magnesium phosphate concrete shall not be cured.

In Section 83-2.02D(1) replace the 8th paragraph with:

Granular material for backfill between the 2 walls of concrete barrier (Types 50E, 60F, 60GE and 60SF), as shown on the plans, shall be placed without compaction.

In Section 83-2.02D(2) in the 1st paragraph, replace item b with:

b. If the 3/8-inch maximum size aggregate grading is used to construct extruded or slip-formed concrete barriers, the cementitious material content of the minor concrete shall be not less than 675 pounds per cubic yard.

In Section 83-2.02D(2) replace the 3rd paragraph with:

The concrete paving between the tops of the 2 walls of concrete barrier (Types 50E, 60F, 60GE, and 60SF) and the optional concrete slab at the base between the 2 walls of concrete barrier (Types 50E, 60F, 60GE, and 60SF) shall be constructed of minor concrete conforming to the provisions of Section 90-10, "Minor Concrete," except that the minor concrete shall contain not less than 505 pounds of cementitious material per cubic yard.

In Section 83-2.02D(2) replace the 8th paragraph with:

Granular material for backfill between the 2 walls of concrete barrier (Types 50E, 60F, 60GE and 60SF) shall be earthy material suitable for the purpose intended, having no rocks, lumps or clods exceeding1-1/2 inches in greatest dimension.

In Section 83-2.03 replace the 8th and 9th paragraphs with:

Concrete barriers, except Type 50E, Type 60F, Type 60GE, and Type 60SF will be measured along the top of the barrier.

Concrete barriers Type 50E, Type 60F, Type 60GE, and Type 60SF will be measured once along the centerline between the 2 walls of the barrier.

In Section 83-2.04 replace the 3rd paragraph with:

The contract prices paid per linear foot for concrete barrier of the type or types listed in the Engineer's Estimate shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in constructing the concrete barriers, complete in place, including bar reinforcing steel, steel dowels and drilling and bonding dowels in structures, hardware for steel plate barrier, miscellaneous metal, excavation, backfill (including concrete paving for, and granular material or concrete slab used as backfill in Type 50E, Type 60F, Type 60GE, and Type 60SF concrete barrier), and disposing of surplus material and for furnishing, placing, removing and disposing of the temporary railing for closing the gap between existing barrier and the concrete barrier being constructed, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

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SECTION 85 PAVEMENT MARKERS
(Issued 07-31-07)

In Section 85-1.06 replace the 6th paragraph with:

Pavement markers shall not be placed on new hot mix asphalt surfacing or seal coat until the surfacing or seal coat has been opened to public traffic for a period of not less than 7 days when hot melt bituminous adhesive is used, and not less than 14 days when epoxy adhesive is used.

In Section 85-1.06 in the 14th paragraph, replace the 2nd sentence with:

Cleaning shall be done by blast cleaning on all surfaces regardless of age or type, except that blast cleaning of clean, new hot mix asphalt and clean, new seal coat surfaces will not be required when hot melt bituminous adhesive is used.

^^

SECTION 86 SIGNALS, LIGHTING AND ELECTRICAL SYSTEMS
(Issued 01-20-12)

Replace Section 86 with:

SECTION 86 ELECTRICAL SYSTEMS

86-1 GENERAL

86-1.01 DESCRIPTION

Section 86 includes specifications for installing, modifying, and removing:

1. Traffic signal
2. Interconnect system
3. Ramp metering system
4. Flashing beacon system
5. Lighting system
6. Sign illumination system
7. Traffic monitoring station
8. Communication system
9. Electrical equipment in structure
10. Falsework lighting

Comply with Part 4 of the California MUTCD. Nothing in this Section 86 is to be construed as to reduce the minimum standards in this manual.

The locations of electrical system elements are approximate; the Engineer will approve final location.

86-1.015 DEFINITIONS

Definitions pertain only to Section 86, "Electrical Systems."

actuation: As defined in the California MUTCD.

channel: Discrete information path.

controller assembly: Controller unit and auxiliary equipment housed in a rainproof cabinet to control a system's operations.

controller unit: Part of the controller assembly performing the basic timing and logic functions.

detector: As defined in the California MUTCD.

electrolier: Complete assembly of lighting standard and luminaire.

flasher: Device to open and close signal circuits at a repetitive rate.

flashing beacon control assembly: Switches, circuit breakers, terminal blocks, flasher, wiring, and necessary electrical components all housed in a single enclosure to properly operate a beacon.

inductive loop detector: Detector capable of being actuated by inductance change caused by vehicle passing or standing over the loop.

lighting standard: Pole and mast arm supporting the luminaire.

luminaire: Assembly that houses the light source and controls the light emitted from the light source.

magnetic detector: Detector capable of being actuated by induced voltage caused by vehicle passing through the earth's magnetic field.

powder coating: A coating applied electrostatically using UV-stable polymer exterior grade powder.

pre-timed controller assembly: Operates traffic signals under a predetermined cycle length.

signal face: As defined in the California MUTCD.

signal head: As defined in the California MUTCD.
signal indication: As defined in the California MUTCD.
signal section: As defined in the California MUTCD.
signal standard: Pole and mast arm supporting one or more signal faces with or without a luminaire mast arm.
traffic-actuated controller assembly: Operates traffic signals under the varying demands of traffic as registered by detector actuation.
traffic phase: Signal phase as defined in the California MUTCD.
vehicle: As defined in the California Vehicle Code.

86-1.02 REGULATIONS AND CODE Electrical equipment must comply with one or more of the following:

1. ANSI
2. ASTM
3. 8 CA Code of Regs § 2299 et seq.
4. EIA
5. NEMA
6. NETA
7. UL

Materials and workmanship must comply with:

1. FCC
2. ITE
3. NEC
4. NRTL
5. Public Utilities Commission, General Order No. 95, "Rules for Overhead Electrical Line Construction"
6. Public Utilities Commission, General Order No. 128, "Rules for Construction of Underground Electric Supply and Communication Systems"

86-1.03 COST BREAK-DOWN

Determine quantities required to complete work. Submit the quantities as part of the cost breakdown.

The sum of the amounts for the units of work listed in the cost breakdown must equal the contract lump sum price bid for the work. Include overhead and profit for each unit of work listed in the cost breakdown. If mobilization is a bid item, include bond premium, temporary construction facilities, and material plants into the mobilization bid item, otherwise, include in each unit of work listed in the cost breakdown. Do not include costs for traffic control system in the cost breakdown.

The cost breakdown may be used to determine partial payment and to calculate payment adjustments for additional costs incurred due to a change order. If a change order increases or decreases the quantities, payment adjustment may be determined under Section 4-1.03B, "Increased or Decreased Quantities."

The cost breakdown must include type, size, and installation method for:

1. Foundations
2. Standards and poles

3. Conduit
4. Pull boxes
5. Conductors and cables
6. Service equipment enclosures
7. Telephone demarcation cabinet
8. Signal heads and hardware
9. Pedestrian signal heads and hardware
10. Pedestrian push buttons
11. Loop detectors
12. Luminaires and lighting fixtures

86-1.04 EQUIPMENT LIST AND DRAWINGS

Within 15 days of contract approval, submit for review a list of equipment and materials that you propose to install. Comply with Section 5-1.02, "Plans and Working Drawings." The list must include:

1. Name of manufacturer
2. Dimension
3. Item identification number
4. List of components

The list must be supplemented by other data as required, including:

1. Schematic wiring diagrams
2. Scale drawings of cabinets showing location and spacing of shelves, terminal blocks, and equipment, including dimensioning
3. Operation manual

Submit 2 copies of the above data. The Engineer will review within 15 days.

Electrical equipment that is manufactured as detailed on the plans will not require detailed drawings and diagrams.

Furnish 3 sets of computer-generated cabinet schematic wiring diagrams.

The cabinet schematic wiring diagram must be placed in a heavy duty plastic envelope and attached to the inside of the door of each cabinet.

Prepare diagrams, plans, and drawings using graphic symbols in IEEE 315, "Graphic Symbols for Electrical and Electronic Diagrams."

86-1.05 CERTIFICATE OF COMPLIANCE

Submit a Certificate of Compliance for all electrical material and equipment to the Engineer under Section 6-1.07, "Certificates of Compliance."

86-1.06 MAINTAINING EXISTING AND TEMPORARY ELECTRICAL SYSTEMS

Keep existing electrical system or approved temporary replacement in working order during the progress of the work. Shutdown is allowed for alteration or removal of the system. Traffic signal shutdown must be limited to normal working hours. Lighting system shutdown must not interfere with the regular lighting schedule.

Notify the Engineer before performing work on the existing system.

Notify the local traffic enforcement agency before traffic signal shutdown.

If existing or temporary system must be modified, work not shown on the plans or specified in the special provisions, but required to keep the system in working order will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

The State or local agency will:

1. Continue the operation and maintenance of existing electrical facilities
2. Continue to provide electrical energy to operate existing electrical facilities
3. Repair or replace existing facilities damaged by public traffic
4. Pay for electrical energy to operate existing or new facilities undergoing the functional tests described in Section 86-2.14C, "Functional Testing"

Verify location and depth of existing detectors, conduits, pull boxes, and other electrical facilities before using tools or equipment that may damage those facilities or interfere with an electrical system.

Notify the Engineer immediately if existing facility is damaged by your activities. Repair or replace damaged facility promptly. If you fail to complete the repair or replacement, promptly, the State will repair or replace and deduct the costs.

Damaged detectors must be replaced within 24 hours at your expense. If you fail to complete the repair within 24 hours, the State will repair and deduct the repair costs.

If roadway remains open to traffic while an existing lighting system is modified:

1. Keep existing system in working order
2. Make final connection so the modified circuit is in operation by nightfall

Keep temporary electrical installations in working order until no longer required. Remove temporary installations as specified in Section 86-7, "Removing, Reinstalling or Salvaging Electrical Equipment."

These provisions do not void your responsibilities as specified in Section 7-1.12, "Indemnification and Insurance," and Section 7-1.16, "Contractor's Responsibility for the Work and Materials."

During traffic signal system shutdown, place W3-1a, "STOP AHEAD," and R1-1, "STOP," signs in each direction to direct traffic through the intersection. For 2-lane approaches, place 2 R1-1 signs.

W3-1a and R1-1 signs must comply with Section 12-3.06, "Construction Area Signs." Use a minimum size of 30 inches for the R1-1 sign.

Cover signal faces when the system is shut down overnight. Cover temporary W3-1a and R1-1 signs when the system is turned on.

86-1.07 SCHEDULING OF WORK

Except service installation and service equipment enclosure, do not work above ground until all materials are on hand to complete electrical work at each location. Schedule work to allow each system to be completed and ready for operation before opening the corresponding section of the roadway to traffic.

If street lighting exists or is installed in conjunction with traffic signals, do not turn on the signals until the street lighting is energized.

Traffic signals will not be placed in operation until the roadways to be controlled are open to public traffic.

Lighting and traffic signals, including flashing operation, will not be placed in operation before starting the functional test period specified in Section 86-2.14, "Testing."

Do not pull conductors into conduit until:

1. Pull boxes are set to grade
2. Metallic conduit is bonded

In vehicular undercrossings, soffit lights must be in operation as soon as practicable after falsework has been removed from the structure. Lighting for pedestrian structures must be in operation before opening the structure to pedestrian traffic.

If the Engineer orders soffit lights or lighting for pedestrian structures to be activated before permanent power service is available, the cost of installing and removing temporary power service will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

The initial traffic signal turn-on must be made between 9:00 a.m. and 2:00 p.m. Before the initial turn-on, all equipment, including pedestrian signals, pedestrian push buttons, vehicle detectors, lighting, signs, and pavement delineation must be installed and in working order. Direct louvers, visors, and signal faces to maximize visibility.

Start functional tests on any working day except Friday or the day before a legal holiday. You must notify the Engineer 48 hours before the start of functional test.

86-1.08 (BLANK)

86-2 MATERIALS AND INSTALLATION

86-2.01 EXCAVATING AND BACKFILLING

Dispose of surplus excavated material under Section 7-1.13, "Disposal of Materials Outside the Highway Right of Way."

Backfill as specified in Section 19-3, "Structure Excavation and Backfill." Compact backfill in conduit trenches outside the hinge point of slopes and not under pavement to a minimum relative compaction of 90 percent. Compact backfill within hinge points and in areas where pavement is to be constructed to a minimum relative compaction of 95 percent.

Backfill trenches and restore sidewalk, pavement, and landscaping at one intersection before starting excavation at another intersection.

If excavating on a street or highway, restrict closure to 1 lane at a time.

86-2.02 REMOVING AND REPLACING IMPROVEMENTS

Replace or reconstruct sidewalk, curb, gutter, concrete pavement, asphalt concrete pavement, underlying material, lawn, plant, and other facilities damaged by your activities. Replacement material must be of equal or better quality than the material replaced. Work must be in a serviceable condition.

If a part of a square or slab of concrete sidewalk, curb, gutter, or driveway is broken or damaged, the entire square or slab must be removed and reconstructed.

Cut outline of PCC sidewalk or driveway to be removed:

1. Using a power-driven saw
2. On a neat line
3. To a 0.17-foot minimum depth

86-2.03 FOUNDATIONS

Except for concrete for cast-in-drilled-hole concrete pile foundation, PCC must comply with Section 90-10, "Minor Concrete."

Construct concrete foundation on firm ground.

After each post, standard, and pedestal is properly positioned, place mortar under the base plate. Finish exposed portion to present a neat appearance. Mortar must comply with Section 51-1.135, "Mortar," except mortar must have:

1. 1 part by volume of cementitious material
2. 3 parts by volume of clean sand

Reinforced cast-in-drilled-hole concrete pile foundation must comply with Section 49, "Piling," except:

1. Material resulting from drilling holes must be disposed of as specified in Section 86-2.01, "Excavating and Backfilling"
2. Concrete for cast-in-drilled-hole concrete pile will not be considered as designated by compressive strength

Form exposed portion of the foundation to present a neat appearance and true to line and grade. The top of a foundation for post and standard must be finished to curb or sidewalk grade. Forms must be rigid and securely braced in place. Conduit ends and anchor bolts must be placed at proper height and position. Anchor bolts must be installed a maximum of 1:40 from vertical and held in place by rigid top and bottom templates. Use a steel bottom template at least 1/2 inch thick that provides proper spacing and alignment of anchor bolts near the embedded bottom end. Install bottom template before placing footing concrete.

Provide new foundation and anchor bolts of the proper type and size for relocated standards.

Steel parts must be galvanized as specified in Section 75-1.05, "Galvanizing."

Provide 2 nuts and washers for the upper threaded part of each anchor bolt. Provide 3 nuts and washers for each anchor bar or stud.

Do not weld high-strength steel used for anchor bolt, anchor bar, or stud.

Before placing concrete, moisten forms and ground. Keep forms in place until the concrete sets for at least 24 hours and is strong enough to prevent damage to surface.

Except if located on a structure, construct foundation for post, standard, and pedestal monolithically.

Apply ordinary surface finish as specified in Section 51-1.18A, "Ordinary Surface Finish."

If a foundation must be extended for additional depth, the extension work will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

Do not erect post, pole, standard, pedestal, or cabinet until the foundation is set for a minimum of 7 days.

The Engineer will choose the plumbing or raking technique for posts, standards, and pedestals. Plumb or rake by adjusting the leveling nuts before tightening nuts. Do not use shims or similar devices. After final adjustments of both top nuts and leveling nuts on anchorage assemblies have been made, and each post, standard, and pedestal on 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. Use an indelible marker to mark the top nuts and base plate with lines showing relative alignment of the nut to the base plate.
3. Tighten top nuts, following a crisscross pattern, an additional 1/6th of a turn.

In unpaved areas, construct a raised PCC pad in front of each controller cabinet.

Completely remove foundations not to be reused or abandoned.

If abandoning a foundation, remove the top of foundation, anchor bolts, and conduits to a minimum depth of 0.5 foot below sidewalk surface or original ground. Backfill the resulting hole with material equivalent to the surrounding material.

86-2.04 STANDARDS, STEEL PEDESTALS AND POSTS

Bolts, including anchor bolts, nuts, and washers for signal and lighting support structures must comply with Section 55-2, "Materials." Except for bearing-type connection or slip-base, high-strength bolted connection must comply with Section 55-3.14, "Bolted Connections." Welding, nondestructive testing of welds, and acceptance and repair criteria for steel member nondestructive testing must comply with American Welding Society (AWS) D1.1.

Using stainless steel rivets, attach rectangular corrosion-resistant metal identification tag on all standards and poles, except Type 1:

1. Above the hand hole, near the base of standards and poles
2. On the underside of mast arms near the arm plate

The lettering on each identification tag must be depressed or raised, 1/4 inch tall, legible, and include the following information:

1. Name of the manufacturer
2. Date of manufacture
3. Identification number
4. Contract number
5. Unique identification code that is:

    5.1. Assigned by the manufacturer
    5.2. Traceable to a particular contract and the welds on that component
    5.3. Readable after the support structure is coated and installed

Type 1 standard and steel pedestal for controller cabinet must be manufactured of one of the following:

1. 0.12-inch or thicker galvanized steel
2. 4-inch standard weight galvanized steel pipe as specified in ASTM A 53
3. 4-inch Type 1 conduit with the top designed for post-top slip-fitter

Ferrous metal parts of a standard that has a shaft length of 15 feet or longer must comply with the provisions in Section 55-2, "Materials," and the following:

1. Standard must be manufactured from sheet steel of weldable grade having a minimum yield strength of 40,000 psi after manufacturing.
2. Certified test report verifying compliance with minimum yield strength requirements must be submitted. Test report may be the mill test report for the as-received steel or if the as-received steel has a lower yield strength than required you must provide test data assuring that your method of cold forming will consistently increase the tensile properties of the steel to meet the specified minimum yield strength. Test data must include tensile properties of the steel after cold forming for specific heats and thicknesses.

3. If a single-ply 5/16-inch thick pole is specified, a 2-ply pole with equivalent section modulus may be substituted.
4. Standard may be manufactured of full-length sheets or shorter sections. Each section must be manufactured from 1 or 2 pieces of sheet steel. If 2 pieces are used, the longitudinal welded seams must be directly opposite from one another. If the sections are butt-welded together, the longitudinal welded seams of adjacent sections must be placed to form continuous straight seams from base to top of standard.
5. Butt-welded circumferential joints of tubular sections requiring CJP groove welds must be made using a metal sleeve backing ring inside each joint. The sleeve must be 1/8 inch nominal thickness, or thicker, and manufactured from steel having the same chemical composition as the steel in the tubular sections to be joined. If the sections to be joined have different specified minimum yield strengths, the steel in the sleeve must have the same chemical composition as the tubular section having the higher minimum yield strength. The width of the metal sleeve must be consistent with the type of nondestructive testing selected and must be a minimum width of 1 inch. At fitting time, the sleeve must be centered at the joint and in contact with the tubular section at the point of the weld.
6. Welds must be continuous.
7. Weld metal at the transverse joint must extend to the sleeve, making the sleeve an integral part of the joint.
8. During manufacturing, longitudinal seams on vertical tubular members of cantilevered support structures must be centered on and along the side of the pole that the pole plate is located. Longitudinal seams on horizontal tubular members, including signal and luminaire arms, must be within ±45 degrees of the bottom of the arm.
9. Longitudinal seam weld in steel tubular section may be made by the electric resistance welding process.
10. Longitudinal seam weld must have 60 percent minimum penetration, except:

    10.1. Within 6 inches of circumferential weld, longitudinal seam weld must be CJP groove weld.
    10.2. Longitudinal seam weld on lighting support structure having telescopic pole segment splice must be CJP groove weld on the female end for a length on each end equal to the designated slip-fit splice length plus 6 inches.

11. Exposed circumferential weld, except fillet and fatigue-resistant weld, must be ground flush with the base metal before galvanizing or painting. Ground flush is specified as -0, +0.08-inch.
12. Circumferential weld and base plate-to-pole weld may be repaired only one time.
13. Exposed edges of the plates that make up the base assembly must be finished smooth and exposed corners of the plates must be broken. Provide shafts with slip-fitter shaft caps.
14. Surface flatness requirements of ASTM A 6 apply to plates:

    14.1. In contact with concrete, grout, or washers and leveling nuts
    14.2. In high-strength bolted connections
    14.3. In joints, where cap screws are used to secure luminaire and signal arms
    14.4. Used for breakaway slip-base assemblies

15. Standard must be straight with a maximum variation of:

15.1. 1 inch measured at the midpoint of a 30-foot to 35-foot standard
15.2. 3/4 inch measured at the midpoint of a 17-foot to 20-foot standard
15.3. 1 inch measured 15 feet above the base plate for Type 35 and Type 36 standards

16. Zinc-coated nuts used on fastener assemblies having a specified preload obtained by specifying a prescribed tension, torque value, or degree of turn must be provided with a colored lubricant, clean and dry to the touch. The lubricant color must contrast the zinc coating color on the nut so the presence of the lubricant is visually obvious. Lubricant must be insoluble in water or the fastener components must be shipped to the job site in a sealed container.
17. Do not make additional holes in structural members.
18. Standard with an outside diameter of 12 inches or less must be round. Standard with an outside diameter greater than 12 inches must be round or multisided. Multisided standard must be convex with a minimum of 12 sides and have a minimum bend radius of 4 inches.
19. Manufacture mast arm from material specified for standard.
20. Manufacture cast steel option for slip base from material of Grade 70-40, as specified in ASTM A 27/A 27M. Other comparable material may be used if approved by the Engineer. The casting tolerances must comply with the Steel Founders' Society of America's recommendations for green sand molding.
21. One casting from each lot of a maximum of 50 castings must be radiographed as specified in ASTM E 94. Casting must comply with the acceptance criteria for severity level 3 or better for the types and categories of discontinuities in ASTM E 186 and E 446. If the casting fails the inspection, 2 additional castings must be radiographed. If the 2 additional castings fail the inspection, the entire lot will be rejected.
22. Material certification, consisting of physical and chemical properties, and radiographic film of the casting must be filed at the manufacturer's office. Certification and film must be available for inspection.
23. High-strength bolts, nuts, and flat washers used to connect slip-base plate must comply with ASTM A 325 or A 325M and be galvanized as specified in Section 75-1.05, "Galvanizing."
24. Plate washers must be manufactured by saw cutting and drilling steel plate. Steel plate must comply with AISI 1018 and be galvanized as specified in Section 75-1.05, "Galvanizing." Before galvanizing, remove burrs and sharp edges and chamfer both sides of holes to allow the bolt head to make full contact with the washer without tension.
25. High-strength cap screws for attaching arms to standards must comply with ASTM A 325, A 325M, or A 449, and the mechanical requirements in ASTM A 325 or A 325M after galvanizing. Cap screws must be galvanized as specified in Section 75-1.05, "Galvanizing." Coat threads of cap screws with a colored lubricant, clean and dry to the touch. Lubricant color must contrast the zinc-coating color on the cap screw so the presence of the lubricant is visually obvious. Lubricant must be insoluble in water or the fastener components must be shipped to the job site in a sealed container.
26. Bolted connection attaching signal or luminaire arm to pole must be considered slip critical. Galvanized faying surfaces of plates on luminaire, signal arm, and pole must be roughened by hand using a wire brush before assembly and must comply with requirements for Class C surface conditions for slip-critical connections in "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts," a specification approved by the Research Council on Structural Connections (RCSC). Paint for faying surfaces must be as specified in the RCSC specification for Class B coating.

27. The Engineer will randomly take samples of fastener components from each production lot and submit to the Transportation Laboratory with test reports as specified in ASTM fastener specifications for QA testing and evaluation. The Engineer will determine sample sizes for each fastener component.

Change in mast arm configuration is allowed as long as the mounting height and stability are maintained.

Before manufacturing, details must be adjusted to ensure that cap screw heads can be turned using conventional installation tools. During manufacturing process, to avoid interference with the cap screw heads, the position of the luminaire arm on the arm plate must be properly located.

Configure mast arm as a smooth curving arm.

Push button post, pedestrian barricade, and guard post must comply with ASTM A 53.

Assemble and tighten slip base when pole is on the ground. Threads of heavy hex nuts for each slip-base bolt must be coated with additional lubricant that is clean and dry to the touch. Tighten high strength slip-base bolts to within ±10 foot-pounds of the following:

Slip-Base Bolt-Tightening Requirements

Standard Type	Torque (foot-pounds)
15-SB	150
30	150
31	200
36-20A	165

Hole in shaft of existing standard, due to removal of equipment or mast arms, must be sealed by fastening a galvanized steel disk to cover the hole. Fasten using a single central galvanized steel fastener. Seal edges of disk and hole with polysulfide or polyurethane sealing compound of Type S, Grade NS, Class 25, and Use O, as specified in ASTM C 920.

If existing standard is ordered to be relocated or reused, remove large dents, straighten shafts, and replace parts that are in poor condition. You must furnish anchor bolts or bars and nuts required for relocating or reusing standard. Repair and replacement work will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

New nuts, bolts, cap screws, and washers must be provided if:

1. Standard or mast arm is relocated
2. Used standard or mast arm is State furnished

If the standard has a slip base, a new keeper plate must be provided.

86-2.05 CONDUIT

Run conductors in conduit except for overhead and where conductors are run inside poles.

You may use a larger size conduit than specified as long as you use it for the entire length between outlets. Do not use reducing coupling.

New conduit must not pass through existing foundations for standards.

86-2.05A Material

Conduit and conduit fitting must be UL or NRTL listed and comply with the following:

Conduit and Conduit Fitting Requirements

Type 1	Hot-dip galvanized rigid steel conduit and conduit couplings must comply with UL 6 and ANSI C80.1. Zinc coating testing must comply with copper sulfate test requirements in UL 6. Conduit couplings for rigid steel conduit must be electrogalvanized.
Type 2	Hot-dip galvanized rigid steel conduit must comply with requirements for Type 1conduit and be coated with polyvinyl chloride (PVC) or polyethylene. Exterior thermoplastic coating must have a minimum thickness of 35 mils. Internal coating must have a minimum thickness of 2 mils. Coated conduit must comply with UL 6; NEMA RN 1; or NRTL PVC-001.
Type 3	Rigid nonmetallic PVC conduit must comply with UL 651. Type A extruded rigid PVC conduit and extruded rigid HDPE conduit must comply with UL 651A. Coilable, smooth-wall, continuous length HDPE conduits must comply with UL 651B. Install at underground locations only.
Type 4	Waterproof flexible metal conduit must consist of conduit with a waterproof non-metallic sunlight-resistant jacket over an inner flexible metal core. Type4 conduit must be UL listed for use as the grounding conductor.
Type 5	Intermediate steel conduit and conduit couplings must comply with UL 1242 and ANSI C80.6. Zinc coating testing must comply with copper sulfate test requirements in UL 1242. Conduit couplings for intermediate rigid steel conduit must be electrogalvanized. Type 5 conduit must only be used if specified.

Bonding bushings to be installed on metal conduit must be insulated and either galvanized or zinc alloy type.

Fittings for steel conduit and for watertight flexible metal conduit must be UL listed at UL 514B.

86-2.05B Use

Install Type 1 conduit on all exposed surfaces and at the following locations:

1. In concrete structures
2. Between a structure and nearest pull box

Exposed conduit installed on painted structure must be painted the same color as the structure.

Change or extend existing conduit runs using the same material. Install pull box if an underground conduit changes from the metallic type to Type 3.

Minimum trade size of conduit must be:

1. 1-1/2 inches from electrolier to adjacent pull box
2. 1 inch from pedestrian push button post to adjacent pull box
3. 2 inches from signal standard to adjacent pull box
4. 3 inches from controller cabinet to adjacent pull box
5. 2 inches from overhead sign to adjacent pull box
6. 2 inches from service equipment enclosure to adjacent pull box
7. 1-1/2 inches if unspecified

Two conduits must be installed between controller cabinet and adjacent pull box.

86-2.05C Installation

Whether shop or field cut, ream ends of conduit to remove burrs and rough edges. Make cuts square and true. Slip joints and running threads are not allowed for coupling conduit. If a standard coupling cannot be used for coupling metal type conduit, use a threaded union coupling that is UL or NRTL listed. Tighten couplings for metal conduit to maintain a good electrical connection through conduit run.

Cut Type 3 conduit with tools that will not deform the conduit. Use solvent weld for connections.

Cut Type 2 conduit with pipe cutters; do not use hacksaws. Coated conduit must be threaded with standard conduit-threading dies. Tighten conduit into couplings or fittings using strap wrenches or approved groove-joint pliers.

Protect shop-cut threads from corrosion as follows:

Shop-Cut Thread Protection

Steel conduit and conduit couplings	ANSI C80.1
Electrical intermediate metal conduit and conduit couplings	ANSI C80.6

Paint conduits as specified in Section 91, "Paint." Apply 2 coats of approved unthinned zinc-rich primer of organic vehicle type. Do not use aerosol cans. Paint the following parts of conduits:

1. All exposed threads
2. Field-cut threads before installing conduit couplings to steel conduit
3. Damaged surfaces on metal conduit

Do not remove shop-installed conduit couplings.

Damaged Type 2 conduit or conduit coupling must be wrapped with at least 1 layer of 2 inch wide, 20 mil minimum thickness PVC tape, as specified in ASTM D 1000, with a minimum tape overlap of 1/2 inch. Before applying the tape, conduit or fitting must be cleaned and painted with 1 coat of rubber-resin based adhesive as recommended by the tape manufacturer. You may repair damaged spots in the thermoplastic coating by painting over with a brushing type compound supplied by the conduit manufacturer instead of the tape wrap.

The ends of Types 1, 2, or 5 conduit must be threaded and capped with standard pipe caps until wiring is started. The ends of Types 3 and 4 conduit must be capped until wiring is started. If caps are removed, replace with conduit bushings. Fit insulated bonding bushings on the end of metal conduit ending in pull box or foundation. Bell or end bushings for Type 3 conduit must be non-metallic type.

Conduit bends, except factory bends, must have a radius of not less than 6 times the inside diameter of the conduit. If factory bends are not used, bend the conduit without crimping or flattening using the longest radius practicable. Bend conduits as follows:

Conduit-Bending Requirements

Type 1	By methods recommended by the conduit manufacturer and with equipment approved for the purpose.
Type 2	Use standard bending tool designed for use on thermoplastic coated conduit. Conduit must be free of burrs and pits.
Type 3	By methods recommended by the conduit manufacturer and with equipment approved for the purpose. Do not expose conduit to direct flame.
Type 4	--
Type 5	By methods recommended by the conduit manufacturer and with equipment approved for the purpose.

Install pull tape in conduit that is to receive future conductors. The pull tape must be a flat woven lubricated soft-fiber polyester tape with a minimum tensile strength of 1,800 pounds and have printed sequential measurement markings every 3 feet. At least 2 feet of pull tape must be doubled back into the conduit at each end.

Existing underground conduit to be incorporated into a new system must be cleaned with a mandrel or cylindrical wire brush and blown out with compressed air.

Install conduit to a depth of not less than 30 inches below finished grade, except in sidewalk and curbed paved median areas, where it must be at least 18 inches below grade. You may lay conduit on existing pavement within new curbed median.

Conduit coupling must be a minimum of 6 inches from face of foundation.

Place a minimum of 2 inches of sand bedding in the trench before installing Type 2 or Type 3 conduit. Place a minimum of 4 inches of same material over conduit before placing additional backfill material.

Obtain approval from the Engineer before disturbing pavement. If obstruction is encountered, obtain approval from Engineer to cut small holes in the pavement to locate or remove obstruction If jacking or drilling method is used, keep jacking or drilling pit 2 feet away from edge of pavement. Pavement must not be weakened or subgrade softened from excess water use.

Conduit used for drilling or jacking must be removed; install new conduit for completed work. If a hole larger than the conduit is pre-drilled and you install conduit by hand or by method recommended by the conduit manufacturer with equipment approved for purpose, you may install Type 2 or Type 3 conduit under pavement.

If trenching in pavement method is specified, conduit installation under pavement that is not a freeway lane or freeway to freeway connector ramp, must comply with the following:

1. Use Type 3 conduit. Place conduit under pavement in a trench approximately 2 inches wider than the outside diameter of conduit, but not exceeding 6 inches in width. Trench depth must not exceed the greater of 12 inches or conduit trade size plus 10 inches, except that at pull boxes the trench may be hand dug to required depth. The top of the installed conduit must be a minimum of 9 inches below finished grade.
2. Trenching installation must be completed before placing final pavement layer.
3. Cut pavement to be removed with a rock cutting excavator. Minimize shatter outside the removal area.
4. Place conduit in bottom of trench and backfill with minor concrete as specified in Section 90-10, "Minor Concrete.". Minor concrete must contain a minimum of 590 pounds of cementitious material per cubic yard. If the trench is in asphalt concrete pavement and pavement overlay is not placed, backfill the top 0.10 foot of trench with minor HMA.
5. Before spreading HMA, apply tack coat as specified in Section 39, "Hot Mix Asphalt."
6. Backfill trenches, except for the top 0.10 foot, by the end of each day. The top 0.10 foot must be filled within 3 days after trenching.

Conduit installed beneath railroad tracks must be:

1. Type 1 or 2
2. 1-1/2-inch minimum diameter
3. Placed a minimum depth of 42 inches below bottom of the rail

If jacking or drilling method is used, construct jacking pit to a minimum of 13 feet from the centerline of track at the near side of jacking pit. Cover jacking pit with substantial planking if left overnight.

Conduit ending in standard or pedestal must not extend more than 3 inches vertically above the foundation and must be sloped toward the handhole opening. Conduit entering through the side of non-metallic pull box must end inside the box within 2 inches of the wall and 2 inches above the bottom and be sloped toward the top of box to facilitate pulling of conductors. Conduit entering through the bottom of a pull box must end 2 inches above the bottom and be located near the end walls to leave the major portion of the box clear. At outlet, conduit must enter from the direction of the run.

Underground conduit runs, including under sidewalks, that are adjacent to gasoline service stations or other underground gasoline or diesel storage, piping, or pumps and that lead to a controller cabinet, circuit breaker panel, service, or enclosure where an arc may occur during normal operations must be sealed if the conduit is within the limits specified in the NEC for Class 1, Division 1. Use Type 1 or Type 2 conduit for these runs.

Conduit for future use in structures must be threaded and capped. Conduit leading to soffit, wall, or other lights or fixtures below pull box grade must be sealed and made watertight, except where conduit ends in a No. 9 or No. 9A pull box.

Support for conduit in or on wall or bridge superstructure must comply with the following:

1. Steel hangers, steel brackets, and other fittings must comply with Section 75-1.03, "Miscellaneous Bridge Metal."
2. Construct precast concrete conduit cradles using minor concrete and commercial quality welded wire fabric. Minor concrete must comply with Section 90-10, "Minor Concrete," and contain a minimum of 590 pounds of cementitious material per cubic yard.. The cradles must be moist cured for a minimum of 3 days. Bond precast concrete cradles to structure with epoxy adhesives specified in one of the following:

    2.1. Section 95-2.03, "Epoxy Resin Adhesive for Bonding New Concrete to Old Concrete"
    2.2. Section 95-2.04, "Rapid Set Epoxy Adhesive for Pavement Markers"
    2.3. Section 95-2.05, "Standard Set Epoxy Adhesive for Pavement Markers"

3. Use pipe sleeve or form opening for conduit through bridge superstructure concrete. Sleeve or opening through either prestressed member or conventionally reinforced precast member must be:

    3.1. Transverse to the member
    3.2. Through the web
    3.3. Not more than 3 inches maximum gross opening in concrete

4. Where conduits pass through the abutment concrete, wrap conduit with 2 layers of asphalt-felt building paper securely taped or wired in place. Fill space around conduit that runs through bridge abutment wall with mortar as specified in Section 51-1.135, "Mortar," except the proportion of cementitious material to sand must be 1 to 3. Fill the space around conduits that run through abutments after prestressing is completed.
5. Run surface-mounted conduit straight and true, horizontal or vertical on the wall, and parallel to wall on ceiling or other similar surfaces. Support conduit at a maximum of 5-foot intervals or closer where necessary to prevent vibration or unsightly deflection. The supports must include galvanized malleable iron conduit clamps and clamp backs secured with expansion anchorage devices as specified for concrete anchorage devices in Section 75-1.03, "Miscellaneous Bridge Metal." Threaded studs must be galvanized and be of the largest diameter that will pass through the mounting hole in conduit clamp.
6. Where pull boxes are placed in conduit runs, conduit must be fitted with threaded bushings and bonded.
7. Mark location of conduit end in structure, curb, or wall with a "Y" that is a minimum of 3 inches tall, directly above conduit.

86-2.05D Expansion Fittings

Install expansion fitting where the conduit crosses an expansion joint in structure. Each expansion fitting for metal conduit must include a copper bonding jumper having the ampacity specified in NEC.

Each expansion-deflection fitting for expansion joints of 1-1/2-inch movement rating must be watertight and include a molded neoprene sleeve, a bonding jumper, and 2 silicon bronze or zinc-plated iron hubs. Each fitting must allow a minimum of 3/4-inch expansion, contraction, and lateral deflection.

86-2.06 PULL BOXES

86-2.06A (Blank)

86-2.06B Cover Marking

Marking must be clearly defined, uniform in depth, and parallel to either the long or short sides of cover.

Marking letters must be 1 inch to 3 inches high.

Before galvanizing steel or cast iron cover, apply marking by one of the following methods:

1. Use cast iron strip at least 1/4 inch thick with letters raised a minimum of 1/16 inch. Fasten strip to cover with 1/4 inch flathead stainless steel machine bolts and nuts. Peen bolts after tightening.
2. Use sheet steel strip at least 0.027-inch thick with letters raised a minimum of 1/16 inch. Fasten strip to cover by spot welding, tack welding, or brazing, with 1/4 inch stainless steel rivets or 1/4 inch roundhead stainless steel machine bolts and nuts. Peen bolts after tightening.
3. Bead weld the letters on cover so that letters are raised a minimum of 3/32 inch.

86-2.06C Installation and Use

Space pull boxes no more than 200 feet apart. You may install additional pull boxes to facilitate the work.

You may use a larger standard size pull box than that shown on the plans or specified.

A pull box in ground or sidewalk area must be installed as follows:

1. Embed bottom of pull box in crushed rock.
2. Place a layer of roofing paper on the crushed rock.
3. Place mortar over the layer of roofing paper. Mortar must be 0.50 inch to 1 inch thick and sloped toward the drain hole.
4. Make a 1-inch drain hole in center of pull box through mortar and roofing paper.
5. Place mortar between pull box and pull box extension, and around conduits.

The top of the pull box must be flush with the surrounding grade or the top of an adjacent curb, except in unpaved areas where the pull box is not immediately adjacent to and protected by a concrete foundation, pole, or other protective construction. Place the pull box 1-1/4 inches above the surrounding grade. Where practical, place a pull box shown in the vicinity of curbs or adjacent to a standard on the side of the foundation facing away from traffic, unless otherwise directed. If a pull box is installed in a sidewalk area, adjust the depth of the pull box so that the top of the pull box is flush with the sidewalk.

Reconstruct the sump of an existing pull box if it is disturbed by your operations. Remove old grout and replace with new if the sump was grouted.

86-2.07 TRAFFIC PULL BOXES

Comply with Sections 86-2.06B, "Cover Marking," and 86-2.06C, "Installation and Use."

Traffic pull box and cover must comply with ASTM C857, "Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures," for HS20-44 loading. You must be able to place the load anywhere on box and cover for 1 minute without causing cracks or permanent deformations.

Frame must be anchored to the box with 1/4" x 2-1/4" concrete anchors. Four concrete anchors must be included for No. 3-1/2(T) pull box; one placed in each corner. Six concrete anchors for must be included for No. 5(T) and No. 6(T) pull boxes; one placed in each corner and one near the middle of each of the longer sides.

Nuts must be zinc plated carbon steel, vibration resistant, and have a wedge ramp at the root of the thread.

After installation of traffic pull box, install steel cover and keep bolted down when your activities are not in progress at the pull box. When steel cover is placed for final time, cover and Z bar frame must be cleaned of debris and tightened securely.

Steel cover must be countersunk approximately 1/4 inch to accommodate bolt head. When tightened, bolt head must not exceed more than 1/8 inch above the top of cover.

Concrete placed around and under traffic pull box must be minor concrete as specified in Section 90-10, "Minor Concrete."

86-2.08 CONDUCTORS AND CABLES

Conductor must be copper wire that complies with ASTM B 3 and B 8.

Wire size must comply with the following:

Wire Size Requirements

Conductor usage	Requirement
In loop detector lead-in cable	ASTM B 286
Everywhere except in loop detector lead-in cable	American Wire Gage (AWG)[a]

[a]Except conductor diameter must not be less than 98 percent of specified AWG diameter.

Single conductor and cable, except detector lead-in cable, must have clear, distinctive, and permanent markings on the outer surface throughout its length. The markings must include the manufacturer's name or trademark, insulation type letter designation, conductor size, voltage, and temperature rating, and for cables, it must also include number of conductors.

86-2.08A Conductor Identification

Conductor insulation must be a solid color with a permanent stripe as specified below. The solid color must be homogeneous through the full depth of insulation. Identification stripe must be continuous throughout the length of conductor. For conductor sizes No. 2 and larger, the insulation may be black and the ends of the conductors must be taped for a minimum length of 20 inches with electrical insulating tape of the required color.

Conductor Identification

Circuit	Signal Phase or Function	Identification			Size
		Insulation Color[i]			
		Base	Stripe[a]	Band Symbols[f]	
Vehicle Signals[a,b,d]	2,6	Red, Yel, Brn	Blk	2,6	14
	4,8	Red, Yel, Brn	Ora	4,8	14
	1,5	Red, Yel, Brn	None	1,5	14
	3,7	Red, Yel, Brn	Pur	3,7	14
	Ramp Meter 1	Red, Yel, Brn	None	NBR	14
	Ramp Meter 2	Red, Yel, Brn	Blk	NBR	14
Pedestrian Signals[d]	2p,6p	Red, Brn	Blk	2p,6p	14
	4p,8p	Red, Brn	Ora	4p,8p	14
	1p,5p	Red, Brn	None	1p,5p	14
	3p,7p	Red, Brn	Pur	3p,7p	14
Pedestrian Push Buttons[d]	2p,6p	Blu	Blk	P-2,P-6	14
	4p,8p	Blu	Ora	P-4,P-8	14
	1p,5p	Blu	None	P-1,P-5	14
	3p,7p	Blu	Pur	P-3,P-7	14
Traffic Signal Controller Cabinet	Ungrounded Circuit Conductor	Blk	None	CON-1	6
	Grounded Circuit Conductor	Wht	None	CON-2	6
Highway Lighting Pull Box to Luminaire	Ungrounded-Line 1	Blk	None	NBR	14
	Ungrounded-Line 2	Red	None	NBR	14
	Grounded	Wht	None	NBR	14
Multiple Highway Lighting	Ungrounded-Line 1	Blk	None	ML1	10
	Ungrounded-Line 2	Red	None	ML2	10
Lighting Control	Ungrounded to PEU	Blk	None	C1	14
	Switching leg from PEU unit or SM transformer	Red	None	C2	14

Service	Ungrounded-Line 1 (Signals)	Blk	None	NBR[e]	6
	Ungrounded-Line 2 (Lighting)	Red[h]	None	NBR[e]	8
Sign Lighting	Ungrounded-Line 1	Blk	None	SL-1	10
	Ungrounded-Line 2	Red	None	SL-2	10
Flashing Beacons[g]	Ungrounded between Flasher and Beacons	Red or Yel	None	F-Loc.[c]	14
Grounded and Common	Pedestrian Push Buttons	Wht	Blk	NBR	14
	Signals and Multiple Lighting	Wht	None	NBR	10
	Flashing Beacons and Sign Lighting	Wht	None	NBR	12
	Lighting Control	Wht	None	C-3	14
	Multiple Service	Wht	None	NBR	14
Railroad Preemption		Blk	None	R	14
Spares		Blk	None	NBR	14

NBR = No Band Required PEU=Photoelectric unit

[a]On overlaps, insulation is striped for 1st phase in designation. e.g., phase (2+3) conductor is striped as for phase 2.

[b]Band for overlap and special phases as required.

[c]Flashing beacons having separate service do not require banding.

[d]These requirements do not apply to signal cable.

[e]"S" if circuit is switched on line side of service equipment by utility.

[f]Band conductors in each pull box and near ends of termination points. On signal light circuits, a single band may be placed around 2 or 3 ungrounded conductors comprising a phase.

[g]Ungrounded conductors between service switch and flasher mechanism must be black and banded.

[h]Black acceptable for size No. 2 and larger. Tape ends for 20 inches with indicated color.

[i]Color Code: Yel-Yellow, Brn-Brown, Blu-Blue, Blk-Black, Wht-White, Ora-Orange, Pur-Purple.

86-2.08B Multiple Circuit Conductors

Conductor for multiple circuit must be UL or NRTL listed and rated for 600 V(ac) operation. Insulation for No. 14 to No. 4 conductors must be one of the following:

1. Type TW PVC as specified in ASTM D 2219
2. Type THW PVC
3. Type USE, RHH, or RHW cross-linked polyethylene

Minimum insulation thickness must comply with the following:

Insulation Thickness

Insulation Type	Conductor Size	Insulation Thickness (mils)
USE, RHH, or RHW	No. 14 to No. 10	39
	No. 8 to No. 2	51
THW or TW	No. 14 to No. 10	27
	No. 8	40
	No. 6 to No. 2	54

Insulation for No. 2 and larger conductor must be one of the types listed above or Type THWN.

Conductor for wiring wall and soffit luminaire must be stranded copper with insulation rated for use at temperatures up to 125 °C.

86-2.08C Signal Cable

Signal cable, except for the 28-conductor type, must:

1. Not be spliced
2. Be marked in each pull box with the signal standard information it is connecting to

Signal cable must comply with the following:

1. Cable jacket must be:

   1.1. Black polyethylene with an inner polyester binder sheath
   1.2. Rated for 600 V(ac) and 75 °C

2. Filler material, if used, must be polyethylene material.
3. Conductor must be solid copper with Type THWN insulation as specified in Section 86-2.08, "Conductors and Cables," and ASTM B 286. The minimum thickness of Type THWN insulation must be 12 mils for conductor sizes No. 14 to No. 12 and 16 mils for conductor size No. 10. The minimum thickness of nylon jacket must be 4 mils.

Conductor Signal Cable Requirements

Cable Type[a]	Conductor Quantity and Type	Cable Jacket Thickness (mils)		Maximum Nominal Outside Diameter (inch)	Conductor Color Code	Remarks
		Average	Minimum			
3CSC	3 - No. 14	44	36	0.40	blue/black, blue/orange, white/black stripe	Use for pedestrian push buttons and spare
5CSC	5 - No. 14	44	36	0.50	red, yellow, brown, black, white	
9CSC	8 - No. 14 1 - No. 12	60	48	0.65	No. 12 - white No. 14 - red, yellow, brown, black, and red/black, yellow/black, brown/black, white/black stripe	
12CSC	11 - No. 14 1 - No. 12	60	48	0.80	No. 12 - white No. 14 - see "12CSC Color Code and Functional Connection" table	Use for vehicle signals, pedestrian signals, spares, and signal common
28CSC	27 - No. 14 1 - No. 10	80	64	0.90	No. 10 - white No. 14 - see "28CSC Color Code and Functional Connection" table	Keep signal commons in each cable separate except at the signal controller. Label each cable as "C1" or "C2" in pull box. Use "C1" for signal phases 1, 2, 3, and 4. Use "C2" for phases 5, 6, 7, and 8.

[a]Conductor signal cable description starts with the number of conductors, followed by "CSC". (e.g., a signal cable with 3 conductors is labeled "3CSC.")

12CSC Color Code and Functional Connection

Color Code	Termination	Phase
Red	Vehicle signal red	2, 4, 6, or 8
Yellow	Vehicle signal yellow	2, 4, 6, or 8
Brown	Vehicle signal green	2, 4, 6, or 8
Red/black stripe	Vehicle signal red	1, 3, 5, or 7
Yellow/black stripe	Vehicle signal yellow	1, 3, 5, or 7
Brown/black stripe	Vehicle signal green	1, 3, 5, or 7
Black/red stripe	Spare, or use as required for red or DONT WALK	
Black/white stripe	Spare, or use as required for yellow	
Black	Spare, or use as required for green or WALK	
Red/white stripe	Ped signal DONT WALK	
Brown/white stripe	Ped signal WALK	

28CSC Color Code and Functional Connection

Color Code	Termination	Phase
Red/black stripe	Vehicle signal red	2 or 6
Yellow/black stripe	Vehicle signal yellow	2 or 6
Brown/black stripe	Vehicle signal green	2 or 6
Red/orange stripe	Vehicle signal red	4 or 8
Yellow/orange stripe	Vehicle signal yellow	4 or 8
Brown/orange stripe	Vehicle signal green	4 or 8
Red/silver stripe	Vehicle signal red	1 or 5
Yellow/silver stripe	Vehicle signal yellow	1 or 5
Brown/silver stripe	Vehicle signal green	1 or 5
Red/purple stripe	Vehicle signal red	3 or 7
Yellow/purple stripe	Vehicle signal yellow	3 or 7
Brown/purple stripe	Vehicle signal green	3 or 7
Red/2 black stripes	Ped signal DONT WALK	2 or 6
Brown/2 black stripes	Ped signal WALK	2 or 6
Red/2 orange stripes	Ped signal DONT WALK	4 or 8
Brown/2 orange stripes	Ped signal WALK	4 or 8
Red/2 silver stripes	Overlap A, C red	OLA, OLC
Brown/2 silver stripes	Overlap A, C green	OLA, OLC
Red/2 purple stripes	Overlap B, D red	OLB, OLD
Brown/2 purple stripes	Overlap B, D green	OLB, OLD
Blue/black stripe	Ped push button	2 or 6
Blue/orange stripe	Ped push button	4 or 8
Blue/silver stripe	Overlap A, C yellow	OLA(y), OLC(y)
Blue/purple stripe	Overlap B, D yellow	OLB(y), OLD(y)
White/black stripe	Ped push button common	
Black/red stripe	Railroad preemption	
Black	Spare	

86-2.08D Signal Interconnect Cable (SIC)

Signal interconnect cable must be a 3-pair or 6-pair type with stranded tinned copper No. 20 conductors. Each conductor insulation must be 13 mils minimum nominal thickness, color-coded, polypropylene material. Conductors must be in twisted pairs. Color coding distinguishes each pair. Each pair must be wrapped with an aluminum polyester shield and must have a No. 22 or larger stranded tinned copper drain wire inside the shielded pair.

Cable jacket must be black, high density polyethylene, rated for a minimum of 300 V(ac) and 60 °C, and must have a minimum nominal wall thickness of 40 mils. Cable jacket or moisture-resistant tape directly under the outer jacket must be marked as specified in Section 86-2.08.

You must have a minimum of 6 feet of slack at each controller cabinet. Splicing is allowed only if shown on the plans.

Insulate conductor splice with heat-shrink tubing and overlap at least 0.6 inch. Cover overall cable splice with heat-shrink tubing and overlap the cable jacket at least 1-1/2 inch.

86-2.09 WIRING

Run conductors in conduit, except for overhead and temporary installations and where conductors are run inside poles.

Solder by hot iron, pouring, or dipping method, connectors and terminal lugs for conductor sizes No. 8 and smaller. Do not perform open-flame soldering.

86-2.09A Circuitry

Do not run traffic signal indication conductors to a terminal block on a standard unless connected to a mounted signal head.

Use only 1 conductor to connect to each terminal of a pedestrian push button.

The common for pedestrian push button circuit must be separate from traffic signal circuit grounded conductor.

86-2.09B Installation

Use a UL- or NRTL-listed inert lubricant for placing conductors in conduit.

Pull conductors into conduit by hand using pull tape specified in Section 86-2.05C, "Installation." Do not use winches or other power-actuated pulling equipment.

If adding new conductors or removing existing conductors, remove all conductors, clean conduit as specified in Section 86-2.05C, "Installation," and pull all conductors in conduit as 1 unit.

If traffic signal conductors are run in lighting standard containing street lighting conductors from a different service point, you must encase the traffic signal conductors or the lighting conductors with a flexible or rigid metal conduit for a length until the 2 types of conductors are no longer in the same raceway.

If less than 10 feet above grade, enclose temporary conductors in flexible or rigid metal conduit.

Leave slack for each conductor as follows:

Conductor Slack Requirements

Location	Slack (feet)
Signal standard	1
Lighting standard	1
Signal and lighting standard	1
Pull box	3
Splice	3
Standards with slip base	0

After conductors are installed, seal ends of conduits with an approved sealing compound.

To form a watertight seal, tape ends of spare conductors and conductors ending in pull boxes.

Conductors and cables inside fixture or cabinet must be neatly arranged and tied together by function with self-clinching nylon cable ties or enclosed in plastic tubing or raceway.

Identify conductors for signal overlap phase as specified for vehicle signals in the table titled "Conductor Identification."

Permanently identify conductors by function. Place identification on each conductor, or each group of conductors forming a signal phase, at each pull box and near the end of conductors.

Label, tag, or band conductors by mechanical methods. Identification must not move along the conductors.

86-2.09C Connectors and Terminals

Connectors and terminals must be UL- or NRTL-listed crimp type. Use manufacturer-recommended tool for connectors and terminals to join conductors. Comply with MIL-T-7928.

Terminate stranded conductors smaller than No. 14 in crimp style terminal lugs.

86-2.09D Splicing and Terminations

Splices are allowed for:

1. Grounded conductors in pull box.
2. Pedestrian push button conductors in pull box.
3. Conductors in pull box adjacent to each electrolier or luminaire.
4. Ungrounded traffic signal conductors in pull box, if traffic signals are modified.
5. Ungrounded traffic signal conductors to a terminal compartment or signal head on a standard with conductors of the same phase in the pull box adjacent to the standard.
6. Ungrounded lighting circuit conductors in pull box, if lighting circuits are modified.

86-2.09E Splice Insulation

Splice must function under continuous submersion in water.

Multi-conductor cable must be spliced and insulated to form a watertight joint and to prevent moisture absorption by the cable.

Low-voltage tape must be:

1. UL or NRTL listed
2. Self-fusing, oil and flame-resistant, synthetic rubber
3. PVC, pressure-sensitive adhesive of 6 mils minimum thickness

Insulating pad must be a combination of an 80-mils thick electrical grade PVC laminate and a 120-mils thick butyl splicing compound with removable liner.

Heat-shrink tubing must comply with the following:

1. Be medium or heavy wall thickness, irradiated polyolefin tubing with an adhesive mastic inner wall.
2. Before contraction, minimum wall thickness must be 40 mils.
3. Heating must be as recommended by the manufacturer. Do not perform open-flame heating.
4. When heated, the inner wall must melt and fill crevices and interstices of the covered object and the outer wall must shrink to form a waterproof insulation.
5. After contraction, each end of the heat-shrink tubing or the open end of end cap of heat-shrink tubing must overlap the conductor insulation at least 1-1/2 inches. Coat ends and seams with electrical insulation coating.
6. Comply with requirements for extruded insulated tubing at 600 V(ac) in UL Standard 468D and ANSI C119.1, and the following requirements:

Heat-Shrink Tubing Requirements

Shrinkage Ratio	33 percent, maximum, of supplied diameter when heated to 125 °C and allowed to cool to 25 °C
Dielectric Strength	350 kV per inch, minimum
Resistivity	25^{13} Ω per inch, minimum
Tensile Strength	2,000 psi, minimum
Operating Temperature	-40 °C to 90 °C (135 °C in emergency)
Water Absorption	0.5 percent, maximum

7. If 3 or more conductors are to be enclosed in 1 splice, place mastic around each conductor before placing inside tubing. Use mastic type recommended by heat-shrink tubing manufacturer.

You may use "Method B" as an alternative method for splice insulation. Use at least 2 thicknesses of electrical insulating pad. Apply pad to splice as recommended by manufacturer.

86-2.095 FUSED SPLICE CONNECTORS

Install a fused disconnect splice connector in each ungrounded conductor, between the line and the ballast, in the pull box adjacent to each luminaire. Connector must be accessible in the pull box.

For 240 and 480 V(ac) circuits, each connector must simultaneously disconnect both ungrounded conductors. Connector must not have exposed metal parts, except for the head of stainless steel assembly screw. Recess head of stainless steel assembly screw a minimum of 1/32 inch below top of plastic boss that surrounds the head.

Splice connector must protect fuse from water or weather damage. Contact between fuse and fuseholder must be spring loaded. Splice connector terminals must be:

1. Rigidly crimped, using a tool recommended by manufacturer of fused splice connector, onto ungrounded conductors
2. Insulated
3. Watertight

Fuses must be standard midget ferrule type, with "Non-Time-Delay" feature, and 13/32" x 1-1/2".

86-2.10 BONDING AND GROUNDING

Secure all metallic components, mechanically and electrically, to form a continuous system that is effectively grounded.

Bonding jumper must be copper wire or copper braid of the same cross sectional area as a No. 8 or larger to match the load. Equipment grounding conductors must be color coded as specified in NEC or be bare.

Attach bonding jumper to standard as follows:

Bonding Jumper Attachment

Standard type	Requirements
Standard with handhole and traffic pull box lid cover	Use UL-listed lug and 3/16-inch diameter or larger brass or bronze bolt. Run jumper to conduit or bonding wire in adjacent pull box. Grounding jumper must be visible after the standard is installed and mortar pad is placed on foundation.
Standard without handhole	Use UL-listed ground clamp on each anchor bolt.
Slip-base standard	Use UL-listed ground clamp on each anchor bolt or attach UL-listed lug to bottom slip-base plate with 3/16-inch diameter or larger brass or bronze bolt.

Ground one side of secondary circuit of step-down transformer.

Ground metal conduit, service equipment, and grounded conductor at service point as specified by NEC and service utility, except grounding electrode conductor must be No. 6 or larger.

Equipment bonding and grounding conductors are required in conduit. Run a No. 8 minimum bare copper wire continuously in conduit system. The bonding wire must be sized as specified in the NEC.

Ground electrode must be:

1. 1 piece
2. 10-foot minimum length of one of the following:

    2.1. Galvanized steel rod or pipe not less than 3/4 inch in diameter
    2.2. Copper clad steel rod not less than 5/8 inch in diameter

3. Installed as specified in NEC
4. Bonded to service equipment using one of the following:

    4.1. Ground clamp
    4.2. Exothermic weld
    4.3. No. 6 or larger copper conductor

On wood pole, metallic equipment mounted less than 8 feet above ground surface must be grounded.

Bond metallic conduit in non-metallic pull box using bonding bushing or bonding jumper.

Bond metallic conduit in metal pull box using bonding bushings and bonding jumpers connected to bonding wire running in the conduit system.

86-2.11 SERVICE

Electrical service installation and materials must comply with service utility requirements.

If service equipment is to be installed on utility-owned pole, you must furnish and install conduit, conductors, and other necessary material to complete service installation. Service utility will decide riser and equipment position.

Install service equipment early on to allow service utility to schedule its work before project completion.

Furnish each service with a circuit breaker that simultaneously disconnects all ungrounded service entrance conductors.

Circuit breakers must:

1. Be quick-break on either automatic or manual operation.
2. Have operating mechanism that is enclosed and trip-free from operating handle on overload.
3. Be trip indicating.
4. Have frame size plainly marked.
5. Have trip rating clearly marked on operating handle.
6. Have overload tripping of breakers not influenced by ambient temperature range of -18 °C to 50 °C.
7. Be internal trip type.
8. Be UL or NRTL listed and comply with UL 489 or equal.
9. Have minimum interrupting capacity of 10,000 A, rms, if used as service disconnect.

Service equipment enclosure must be a NEMA 3R enclosure with dead-front panel and a hasp with a 7/16-inch hole for a padlock. Enclosure must be field marked as specified in the NEC to warn qualified persons of potential electric arc flash hazards.

Service equipment enclosure, except Types II and III, must be galvanized or have a factory-applied rust-resistant prime coat and finish coat.

Types II and III service equipment enclosures must be manufactured from one of the following:

1. Galvanized sheet steel
2. Sheet steel plated with zinc or cadmium after manufacturing
3. Aluminum

Manufacture service equipment enclosure as specified in Section 86-3.04A, "Cabinet Construction." Overlapping exterior seams and doors must comply with requirements for NEMA 3R enclosures in the NEMA Enclosure Standards.

If an alternative design is proposed for Type II or III service equipment enclosure, submit plans and shop drawings to the Engineer for approval before manufacturing.

Except for falsework lighting and power for your activities, when you submit a written request, the Engineer will arrange:

1. With the service utility to complete service connections for permanent installations and the Department will pay all costs and fees required by the service utility. Submit request at least 15 days before service connections are required.
2. For furnishing electrical energy. Energy used before contract completion will be charged to you, except cost of energy used for public benefit as ordered by the Engineer will be paid by the Department or local authorities.

Full compensation for furnishing and installing State-owned or permanent service poles, service equipment, conduit, conductors, and pull boxes, including equipment, conduit, and conductors placed on utility-owned poles, is included in the contract item of electrical work involved and no additional compensation will be allowed therefor.

If the service point is indeterminate and is shown on the plans as "approximate location" or "service point not yet established," the labor and materials required for making the connection between the service point, when established, and the nearest pull box shown on the plans will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

86-2.12 WOOD POLES

Wood poles must comply with the following:

1. Class 5 or larger as specified in ANSI O 5.1
2. Less than 180-degree twist in grain over the full length
3. 4-inch or less sweep
4. Beveled top
5. Placed in ground at least 6 feet
6. Length must be:

    6.1. 25 feet for service pole
    6.2. 35 feet for other

After each pole is set in ground, backfill space around pole with selected earth or sand, free of rocks and other deleterious material, placed in 4-inch thick layers. Moisten each layer and thoroughly compact.

Manufacture mast arm from standard pipe, free from burrs. Each mast arm must have an insulated wire inlet and wood pole mounting brackets for mast arm and tie-rod cross arm. Manufacture tie rod from structural steel and pipe.

Mount mast arm for luminaire to provide a 34-foot mounting height for a 200 W high pressure sodium luminaire and 40-foot mounting height for 310 W high pressure sodium luminaire. Traffic signals and flashing beacons on mast arm must provide a minimum vertical clearance of 17 feet from bottom of equipment to pavement.

After manufacturing, pressure-treat pole as specified in Section 58, "Preservative Treatment of Lumber, Timber and Piling," and AWPA Use Category System: UC4B, Commodity Specification D.

If specified, treat pole with waterborne wood preservative.

86-2.13 LIGHTING AND SIGN ILLUMINATION CONTROL

Enclosure for the circuit breaker for lighting and sign illumination control must:

1. Be NEMA 3R
2. Be galvanized, cadmium plated, or powder-coated
3. Include dead front panel and a hasp with a 7/16 inch diameter hole for padlock

86-2.14 TESTING

86-2.14A Materials Testing

Deliver material and equipment to be tested to either the Transportation Laboratory or a testing location ordered by the Engineer.

Allow 30 days for acceptance testing from the time material or equipment is delivered to test site. You must pay for all shipping, handling, and related transportation costs associated with testing. If equipment is rejected, you must allow 30 days for retesting. Retesting period starts when corrected equipment is delivered to test site. You must pay for all retesting costs. Delays resulting from submittal of non-compliant materials do not relieve you from executing the contract within the allotted time.

If equipment submitted for testing does not comply with specifications, remove the equipment within 5 business days after notification that the equipment is rejected. If equipment is not removed within that period, it may be shipped to you at your expense.

When testing is complete, you will be notified. You must pick up the equipment at the test site and deliver it to the job site.

Testing and quality control procedures for all other traffic signal controller assemblies must comply with NEMA TS Standards for Traffic Control Systems.

86-2.14B Field Testing

Before starting functional testing, perform the following tests in the presence of the Engineer:

86-2.14B(1) Continuity

Test each circuit for continuity.

86-2.14B(2) Ground

Test each circuit for grounds.

86-2.14B(3) Insulation Resistance

Perform insulation resistance test at 500 V(dc) on each circuit between the circuit and a ground. Insulation resistance must be 10 MΩ minimum on all circuits, except for inductive loop detector circuits that must have an insulation resistance value at least 100 MΩ.

86-2.14C Functional Testing

Test periods must comply with Section 86-1.07, "Scheduling of Work."

Acceptance of new or modified traffic signal will be made only after all traffic signal circuits have been thoroughly tested.

Perform functional test to show that each part of the system functions as specified.

Functional test for each new or modified system must include at least 5 business days of continuous, satisfactory operation. If unsatisfactory performance of the system occurs, the condition must be corrected and the system retested until the 5 business days of continuous, satisfactory operation is obtained.

Except for new or modified parts of existing lighting circuit and sign illumination system, the State or local agency will maintain the system during test period and pay the electrical energy cost. Except for electrical energy, you must pay the cost of necessary maintenance performed by the State or local agency on new circuits or on the portions of existing circuits modified under the contract.

Shutdown of electrical system caused by traffic from a power interruption or from unsatisfactory performance of State-furnished materials does not constitute discontinuity of the functional test.

86-2.15 GALVANIZING

Galvanize as specified in Section 75-1.05, "Galvanizing." Cabinet material may be galvanized before manufacturing as specified in ASTM A 653/653M, Coating Designation G 90.

Steel pipe standard and pipe mast arm must be hot-dip galvanized after manufacturing and must comply with Section 75-1.05, "Galvanizing." . Remove spikes from galvanized surfaces.

A minimum of 10 inches of upper end of anchor bolts, anchor bars or studs, and nuts and washers must be galvanized as specified in Section 75-1.05, "Galvanizing."

After galvanizing, bolt threads must accept galvanized standard nuts without requiring tools or causing removal of protective coatings.

Galvanizing existing materials in an electrical installation will not be required.

86-2.16 PAINTING

Paint electrical equipment and material as specified in Section 59, "Painting," and the following:

1. Use paint material specified in Section 91, "Paint."
2. Factory or shop cleaning methods for metals are acceptable if equal to the methods specified.
3. Instead of temperature and seasonal restrictions for painting as specified in Section 59, "Painting," paint may be applied to equipment and materials for electrical installations if ordered by the Engineer.
4. Ungalvanized ferrous surface to be painted must be cleaned before applying prime coat. Blast cleaning is not required.
5. If an approved prime coat is applied by manufacturer, and in good condition, the 1st primer application is not required.
6. Existing equipment to be painted in the field, including State-furnished equipment, must be washed with a stiff bristle brush using a solution of water containing 2 tablespoons of heavy duty detergent powder per gallon. After rinsing, surface must be wire-brushed with a coarse, cup-shaped, power-driven brush to remove badly bonded paint, rust, scale, corrosion, grease, or dirt. Dust or residue remaining after wire brushing must be removed before priming.
7. Do not paint galvanized metal guard post, galvanized equipment, State-furnished controller cabinet, and wood poles for traffic signal or flashing beacon.
8. New galvanized metal surface to be painted in the field must be cleaned as specified for existing equipment before applying the prime coat. Do not wire brush new galvanized surface.
9. After erection, examine exterior surface for damaged primer, clean, and spot coat with primer.
10. Paint Types II and III steel service equipment enclosures with a polymeric or an enamel coating system matching Color No. 14672, light green, of Federal Standard 595B. Coating must be commercially smooth and free of flow lines, paint washout, streaks, blisters, and other defects that would impair serviceability or detract from general appearance. Coating must comply with the following:

    10.1. Coating hardness - Finish must have pencil lead hardness of HB, minimum, using an Eagle Turquoise pencil.

    10.2. Salt spray resistance - Undercutting coating system's film must not exceed 1/8-inch average, from lines scored diagonally and deep enough to expose the base metal, after 336 hours of exposure in a salt spray cabinet complying with ASTM B 117.

    10.3. Adherence - Must not have coating loss when tested as specified in California Test 645. Perform testing by applying coating to 4" x 8" x 0.024" test specimens of the same material as the cabinet, using the same application method.

11. Finish interior of metal signal visor, louver, and front face of back plates with 2 applications of lusterless black exterior grade latex paint formulated for application to properly prepared metal surface. Good condition factory finish will be acceptable.

12. Finish metal signal section, signal head mounting, brackets and fittings, outside of visor, pedestrian push button housing, pedestrian signal section and visor, and back face of back plate with 2 applications of lusterless black or dark olive green exterior grade latex paint formulated for application to properly prepared metal surface. Match dark olive green color to Color Chip No. 68 filed at the Transportation Laboratory.
13. Prepare and finish conduit and conduit fitting above ground the same as adjacent standard or post.
14. Relocated, reset or modified equipment previously finished as specified in this section, except for previously-finished galvanized standard with traffic signal yellow enamel, must be given a spot finishing application on newly primed areas and 1 finishing application over the entire surface. If signal face or mounting brackets are required to be painted under this section, all signal faces and mounting brackets on the same mounting must be repainted.
15. Small rusted or repaired areas of relocated or reset galvanized equipment must be cleaned and painted as specified in Section 75-1.05, "Galvanizing," for repairing damaged galvanized surfaces.
16. Stencil equipment number neatly on the standard or adjacent structure. Obtain number from the Engineer.
17. Perform painting neatly. The Engineer reserves the right to require use of brushes if the work performed by paint spraying machine is unsatisfactory.

86-3 CONTROLLER ASSEMBLIES

86-3.01 CONTROLLER ASSEMBLIES

A controller assembly houses a complete mechanism for controlling the operation of traffic signals or other systems.

Model 170 and Model 2070, specified as a Model 170/2070 controller assembly, includes a Model 170, 170E or 2070 controller unit, a wired cabinet, and all auxiliary equipment required to control the system.

86-3.02 (BLANK)

86-3.03 (BLANK)

86-3.04 CONTROLLER CABINETS

Controller cabinets for controller assemblies other than Model 170/2070 must comply with the following:

86-3.04A Cabinet Construction

Cabinet must be rainproof and the top crowned 1/2 inch or slanted toward the back to prevent standing water.

Cabinet and door must be manufactured from one of the following:

1. 0.073-inch minimum thickness cold-rolled steel with continuously-welded exterior seams
2. 0.073-inch minimum thickness stainless steel with overlapping exterior seams complying with Type 4 enclosures of the NEMA Enclosure Standards
3. 0.125-inch minimum thickness aluminum with continuously-welded exterior seams

Exterior welds must be ground smooth and edges filed to a radius of at least 0.03 inch.

Cabinet manufactured from cold-rolled steel must comply with Section 86-2.16, "Painting," and the following:

1. Cabinet manufactured from cold-rolled steel must be finished with a polymeric or an enamel coating system conforming to Color No. 14672 of Federal Standard 595B.
2. Cabinet must not have coating loss when 2 test specimens, 4" x 8", of the same material and coating as the cabinet are tested. Two 9-inch-diagonal scratches exposing bare metal will be made on a specimen. Soak specimen in demineralized water for 192 hours. Tightly affix a 1-inch wide strip of masking tape to the surface and remove with one quick motion. Specimen showing evidence of blistering, softening, or peeling of paint or coating from the base metal will be rejected. Testing must comply with California Test 645, except passing 180 Degree Bend Test is not required.
3. Metal must be prepared by the 3-step, iron phosphate conversion coating bonderizing technique.
4. Inside walls, doors, and ceiling of the housing must be the same as the outside finish.

Cabinet manufactured from stainless steel must comply with the following:

1. Use annealed or quarter-hard stainless steel that complies with ASTM A 666 for Type 304, Grades A or B.
2. Use gas tungsten arc welding (GTAW) process with bare stainless steel welding electrodes. Electrodes must comply with AWS A5.9 for ER308 chromium-nickel bare arc welding electrodes.
3. Procedures, welder, and welding operator must comply with requirements and practices recommended in AWS C5.5.
4. Ground or brush exposed, exterior surfaces of stainless steel cabinet to a 25 to 50-microinch finish using iron-free abrasives or stainless steel brushes.
5. After grinding or brushing, cabinet must not show rust discoloration when:

    5.1. Exposed for 48 hours in a salt spray cabinet as specified in ASTM B 117
    5.2. Exposed 24 hours in a tap water spray cabinet with the water temperature between 38 °C and 45 °C

6. After the test, cabinet showing rust discoloration anywhere on its surface will be rejected. Rejected cabinets may be cleaned, passivated, and resubmitted for testing.

Cabinet manufactured from aluminum sheet must comply with ASTM B 209 or B 209M for 5052-H32 aluminum sheet, and the following:

1. Use gas metal arc welding (GMAW) process with bare aluminum welding electrodes. Electrodes must comply with AWS A5.10 for ER5356 aluminum alloy bare welding electrodes.
2. Procedures, welder, and welding operator for welding must comply with requirements in AWS B3.0, "Welding Procedure and Performance Qualification," and to practices recommended in AWS C5.6.
3. Surface finish of each aluminum cabinet must comply with MIL-A-8625 for a Type II, Class I coating, except anodic coating must have a minimum thickness of 0.0007 inch and a minimum coating weight of 0.001 ounce per square inch. The anodic coating must

be sealed in a 5 percent aqueous solution of nickel acetate, pH 5.0 to 6.5, for 15 minutes at 97 °C. Before applying anodic coating, clean and etch cabinets using the steps below:

3.1. Clean by immersing into inhibited alkaline cleaner, Oakite 61A, Diversey 909, or equal, 6 to 8 ounces per gallon at 71 °C for 5 minutes.
3.2. Rinse in cold water.
3.3. Etch in solution of 1-1/2 ounce of sodium fluoride and 4 to 6 ounces of sodium hydroxide per gallon of distilled water at 60 °C to 65 °C for 5 minutes.
3.4. Rinse in cold water.
3.5. Immerse in 50 percent by volume nitric acid solution at room temperature for 2 minutes.
3.6. Rinse in cold water.

Cabinet must have:

1. Single front door with:

1.1. 44-inch maximum door width.
1.2. Lock, when closed and latched, that is locked.
1.3. Police panel mounted on door, equipped with a keyed lock and 2 police keys. Each police key must have a shaft at least 1-3/4 inch in length.

2. Dust-tight gasketing on all door openings, permanently bonded to the metal. Mating surface of the gasketing must be covered with silicone lubricant to prevent sticking.
3. Handle that:

3.1. Allows padlocking in closed position
3.2. Has a minimum length of 7 inches
3.3. Has a 5/8-inch, minimum, steel shank
3.4. Is manufactured of cast aluminum, or zinc-plated or cadmium-plated steel

4. Cabinet door frame with:

4.1. Latching mechanism that:

4.1.1. Holds tension on and forms a firm seal between door gasketing and frame.
4.1.2. Is a 3-point cabinet latch with nylon rollers that have a minimum diameter of 3/4 inch and equipped with ball bearings.
4.1.3. Has a center catch and a pushrod made of zinc-plated or cadmium-plated steel. Pushrod must be at least 1/4" x 3/4" and turned edgewise at outer supports. Cadmium plating must comply with MIL-QQ-416. Zinc plating must comply with MIL-QQ-325.

4.2. Hinging that:

4.2.1. Has 3-bolt butt hinges, each having a stainless steel fixed pin. Hinges must be stainless steel or may be aluminum for aluminum cabinet.
4.2.2. Is bolted or welded to the cabinet. Hinge pins and bolts must not be accessible when door is closed.

4.2.3. Has a catch to hold the door open at 90 degrees and 180 degrees, ± 10 degrees, if a door is larger than 22 inches in width or 6 square feet in area. Catch must be at least 3/8-inch diameter, stainless steel plated rod capable of holding door open at 90 degrees in a 60 mph wind at an angle perpendicular to the plane of the door.

5. Lock that:

   5.1. Is solid brass, 6-pin tumbler, rim type
   5.2. Has rectangular, spring-loaded bolts
   5.3. Is left hand and rigidly mounted with stainless steel machine screws approximately 2 inches apart
   5.4. Extends 1/8 to 3/8 inch beyond the outside surface of door

6. 2 keys that are removable in the locked and unlocked positions.

Submit alternative design details for review and approval before manufacturing cabinet.
Use metal shelves or brackets that will support controller unit and auxiliary equipment.
Machine screws and bolts must not protrude outside the cabinet wall.

86-3.04B Cabinet Ventilation

Each controller cabinet must have:

1. 8 screened, 1/2-inch diameter or larger, raintight vent holes, in lower side or bottom of cabinet. You may use louvered vents with a permanent metal mesh or 4-ply woven polypropylene air filter held firmly in place, instead.
2. Electric fan with ball or roller bearings and capacity of at least 100 cubic feet per minute. Fan must be thermostatically controlled and manually adjustable to turn on between 32 °C and 65 °C with a differential of not more than 6 °C between automatic turn on and turn off. Fan circuit must be fused at 125 percent of ampacity of installed fan motor.

Fan and cabinet vent holes must be positioned to direct bulk of airflow over controller unit or through ventilating holes of controller unit.

86-3.04C Cabinet Wiring

Conductors used in controller cabinet wiring must:

1. Be neatly arranged and laced, or enclosed in plastic tubing or raceway.
2. End with properly sized captive or spring-spade terminal or be soldered to a through-panel solder lug on the back side of the terminal block. Apply crimp-style connector with proper tool to prevent opening of handle until crimp is completed.

Controller cabinet must have an equipment grounding conductor bus that is grounded to the cabinet and connected to metal conduit system or other approved ground with a No. 8, or larger, grounding conductor.

With all cabinet equipment in place and connected, resistance between grounded conductor terminal bus and equipment grounding conductor bus must be 50 MΩ, minimum, when measured with an applied voltage of 150 V(dc).

If direct current is to be grounded, connect to equipment ground only.

Use two or more terminal blocks for field connection. Install field terminal within 22 inches from front of cabinet and orient for screwdriver operation. Terminal must be a minimum of 5 inches above foundation.

No more than 3 conductors per terminal are allowed. Two flat metal jumpers, straight or U shaped, may be placed under terminal screw. At least 2 full threads of terminal screws must be fully engaged when screw is tightened. Live parts must not extend beyond the barrier.

86-3.05 CABINET ACCESSORIES

86-3.05A Labels

Include permanently printed, engraved, or silk-screened label for equipment and removable items of equipment.

Labeling must match cabinet wiring diagram. Label for shelf-mounted equipment must be on shelf face below item. Label for wall-mounted equipment must be below item.

86-3.05B Convenience Receptacle

Mount convenience receptacle in a readily accessible location inside the cabinet.

Convenience receptacle must be a duplex, 3-prong, NEMA 5-15R grounding type outlet that complies with UL Standard 943.

86-3.05C Surge Arrestor

Surge arrestor must reduce effects of power line voltage transients and have ratings as follows:

Surge Arrestor Requirements

Recurrent peak voltage	184 V(ac)
Energy rating, maximum	20 J
Power dissipation, average	0.85 W
Peak current for pulses less than 7 μs	1,250 A

Standby current must be 1 mA or less for 120 V(ac), 60 Hz sinusoidal input.

86-3.05D Terminal Blocks

Terminal block must be rated 600 V(ac), minimum, and have nickel-, silver-, or cadmium-plated brass binder head screw terminal.

Heavy duty terminal block must be rated at 20 A and have 12 position with No. 10 x 5/16-inch nickel-plated brass binder head screws and nickel-plated brass inserts. Each position must have 2 screw-type terminals. Terminal block must be barrier type with shorting bars in each of the 12 positions, and must have integral type marking strips.

Light duty terminal block must be rated at 5 A and have 12 positions with No. 6 x 1/8 inch binder head screws. Each position must have 1 screw-type terminal.

86-3.06 COMPONENTS

86-3.06A Toggle Switches

Toggle switch must:

1. Have poles as required
2. Be rated at 200 percent of circuit current for circuits of 10 A or less and 125 percent of circuit current for circuits over 10 A

86-3.06B Cartridge Fuses

Install cartridge fuse in panel-mounted fuseholder. Fuse type and rating must be as recommended by the fuse manufacturer for protecting the load.

86-3.06C Circuit Breakers

Circuit breaker must comply with Section 86-2.11, "Service," except breaker must have a minimum interrupting capacity of 5,000 A, rms.

86-3.06D Connectors

Use connector designed to interconnect various parts of circuit together and constructed for the application involved. Design connector for positive connection of circuit and easy insertion and removal of mating contacts. Connector must be permanently keyed to prevent improper connection of circuit.

Connector, or device plugging into connector, must have positive connection to prevent a circuit from breaking due to vibration, a pull on connecting cable, or similar disruptive force.

86-4 TRAFFIC SIGNAL FACES AND FITTINGS

86-4.01 VEHICLE SIGNAL FACES

Each vehicle signal face must:

1. Be adjustable and allow for 360-degree rotation about vertical axis
2. Comply with ITE publication ST-017B, "Vehicle Traffic Control Signal Heads"
3. Comply with California Test 604, except for arrow and "X" faces
4. Have 3 sections arranged vertically: red at top, yellow at center, and green at bottom
5. Be of the same manufacturer and material, if more than 1 is installed at an intersection, except for programmed visibility type
6. Be sealed with neoprene gasket at top opening
7. Be LED modules

86-4.01A Signal Sections

Each signal section must comply with the following:

1. Maximum height must be 10-1/4 inches for an 8-inch section and 14-3/4 inches for a 12-inch section.
2. Housing must:

    2.1. Be either die-cast or permanent mold-cast aluminum, or if specified, be structural plastic.
    2.2. Comply with ITE publication ST-017B if die-cast or permanent mold-cast aluminum is used.
    2.3. Have a 1-piece, hinged, square-shaped door designed to allow access for relamping without the use of tools. Door must be secured to hold the door closed during loading tests. Module or lens must be watertight and mounted in the door.

3. Hinge pins, door latching devices, and other exposed hardware must be Type 304 or 305 stainless steel. Interior screws and fittings must be stainless steel, or steel with a corrosion resistant plating or coating.

4. Opening must be placed on top and bottom to receive 1-1/2-inch pipe. The 8-inch and 12-inch sections of an individual manufacturer must be capable of joining to form a signal face in any combination. This interchangeability is not required between metal and plastic sections.
5. Gaskets must be made of a material that is not affected if installed in a section with metal or plastic housing that is continuously operated for 336 hours.

Structural failure is described as follows:

Signal Section Structural Failure

Signal Section Type	Requirements	Description of Structural Failure
Metal	California Test 666	Fracture within housing assembly or deflection of more than half the lens diameter of signal section during wind load test
Plastic	California Test 605	Fracture within housing assembly or deflection of more than 10 degrees in either the vertical or horizontal plane after wind load has been removed from front of signal face, or deflection of more than 6 degrees in either the vertical or horizontal plane after wind load has been removed from back of signal face

86-4.01A(1) Metal Signal Sections

Each metal signal section must have a metal visor. Metal signal faces requiring backplates must have metal backplates.

86-4.01A(2) Plastic Signal Sections

Housing must be molded in 1 piece, or fabricated from 2 or more pieces and joined into a single piece. Plastic must have ultraviolet stability, be unaffected by lamp heat, and be self-extinguishing. Housing and door must be colored throughout and be black, matching Color No. 17038, 27038, or 37038 of Federal Standard 595B.

Each face section must be joined to adjacent section by one of the following:

1. Minimum of 3 machine screws for 8-inch sections and 4 machine screws for 12-inch sections, installed through holes near front and back of housing. Each screw must be a No. 10 and have a nut, flat washer, and lock washer.
2. Two machine screws, each with a nut, flat washer, and lock washer, installed through holes near the front of the housing, and a fastening through the 1-1/2-inch pipe opening. Fastening must have 2 large flat washers to distribute the load around the pipe opening and 3 carriage bolts, each with a nut and lock washer. Minimum screw size must be No. 10. Minimum carriage bolt size must be 1/4 inch.

Supporting section of each signal face supported only at top or bottom must have reinforcement.

Reinforcement plate must be either sheet aluminum, galvanized steel, or cast aluminum. Each plate must be a minimum of 0.11-inch thick and have a hole concentric with 1-1/2-inch pipe-mounting hole in the housing. Place reinforcement plate as follows:

Reinforcement Plate Placement

Type of Reinforcement Plate	Placement
Sheet aluminum	Inside and outside of housing
Galvanized steel	Inside of housing
Cast aluminum	Outside of housing

Reinforcement plates placed outside of the housing must be finished to match signal housing color and be designed to allow proper serrated coupling between signal face and mounting hardware. Minimum of 3 No. 10 machine screws must be installed through holes in each plate and matching holes in the housing. Each screw must have a round or binder head, a nut, and lock washer.

If signal face is supported by a Type MAS side attachment slip-fitter inserted between 2 sections, place spacers between the 2 sections. Vertical dimension of spacers must allow proper seating of serrations between the slip-fitter and the 2 sections. In addition to the fastening through the large openings in housing, the 2 sections must join with at least 2 machine screws through holes near the front of housing and the spacers, and through matching holes in a reinforcing plate installed in housing. Machine screws must be No. 10 minimum size. Spacers must be made of same material as signal housing.

If reinforcing webs are used to connect back of housing to top, bottom, and sides, reinforcing plates are not required.

Holes for machine screws must be either cast or drilled during signal section manufacturing. Surround each hole with a 1/8-inch minimum width boss to allow contact between signal sections about axis of hole.

Each plastic signal section must have a plastic or metal visor. Plastic signal faces requiring backplates must have plastic backplates.

Serrated nylon washer must be inserted between each plastic signal section and metal mounting assembly. Each washer must be between 3/16- and 1/4-inch thick. Serrations must match those on signal section and mounting assembly.

86-4.01B Electrical Components

Conductors must be connected to a terminal block mounted inside, at the back of housing. Terminal block must have enough screw type terminals or NEMA type tab connectors to end all field and module or lamp conductors independently. Permanently identify terminal with field conductors attached or color code conductors to facilitate field wiring.

86-4.01C Visors

Include removable visor with each signal section. Comply with ITE publication ST-017B. Visors are classified by lens enclosure as full circle, tunnel or cap. Bottom opens for tunnel type and both, bottom and lower sides open for cap type. Visors must be tunnel type.

Visor must have a downward tilt between 3 and 7 degrees with a length of:

1. 9-1/2-inch minimum for nominal 12-inch round lenses
2. 7 inch for nominal 8-inch round lenses

Metal visor must be formed from 0.050-inch, minimum thickness, aluminum alloy sheet.

Plastic visor must be either formed from sheet plastic or assembled from one or more injection, rotational, or blow-molded plastic sections. Material must be of a black homogeneous color with lusterless finish. Sections must be joined using thermal, chemical, or ultrasonic bonding, or with aluminum rivets and washers permanently colored to match visor.

Secure each visor to its door and prevent removal or permanent deformation when wind load specified in California Test 605 for plastic visors or 666 for metal visors is applied to its side for 24 hours.

If directional louvers are used, fit louvers snuggly into full-circular signal visors. Outside cylinder must be constructed of 0.030-inch nominal thickness, or thicker, sheet steel and vanes must be constructed of 0.016-inch nominal thickness, or thicker, sheet steel, or the cylinder and vanes must be constructed of 5052-H32 aluminum alloy of equal thickness.

86-4.02 (BLANK)

86-4.03 (BLANK)

86-4.04 BACKPLATES

Background light must not be visible between backplate and signal face or between sections.

Plastic backplates must be either formed from sheet plastic or assembled from extruded, molded, or cast sections. Sections must be factory joined using one of the following:

1. Appropriate solvent cement
2. Aluminum rivets and washers painted or permanently colored to match backplate
3. No. 10 machine screws with washers, lock washers, and nuts, painted to match backplate

Backplate material must be of black homogeneous color with a lusterless finish. Secure each plastic backplate to the plastic signal face in a manner that prevents its removal or permanent deformation when the wind-load test is applied to either the front or back of signal face. Permanent deformation of any portion of backplate must not exceed 5 degrees forward or backward after wind loading is applied for 24 hours.

If plastic backplate requires field assembly, join with at least 4 No. 10 machine screws at each field-assembled joint. Each machine screw must have an integral or captive flat washer, a hexagonal head slotted for a standard screwdriver, and either a locking nut or a nut and lockwasher. Machine screws, nuts, and washers must be stainless steel or steel with a zinc or black-oxide finish.

If a metal backplate has 2 or more sections, fasten sections with rivets or aluminum bolts peened after assembly to avoid loosening.

Instead of the screws shown on the plans, you may use self-threading No. 10 steel screws to fasten plastic backplates to plastic signal face. Each screw must have an integral or captive flat washer, a hexagonal head slotted for a standard screwdriver, and is stainless steel or steel with a zinc or black-oxide finish.

86-4.05 PROGRAMMED VISIBILITY VEHICLE SIGNAL FACES

Programmed visibility signal face and its installation must comply with Section 86-4.01, "Vehicle Signal Faces," Section 86-4.04, "Backplates," and Section 86-4.08, "Signal Mounting Assemblies."

Each programmed visibility signal section must:

1. Have a nominal 12-inch diameter circular or arrow indication
2. Comply with ITE publication ST-017B for color and arrow configuration
3. Have a cap visor

4. Have an adjustable connection that provides incremental tilting from 0 to 10 degrees above or below horizontal while maintaining a common vertical axis through couplers and mountings

Terminal connection must allow external adjustment about the mounting axis in 5-degree increments.

Signal must be mountable with ordinary tools and capable of servicing without tools. Preset adjustment at 4 degrees below horizontal.

Visibility of each programmed visibility signal face must be capable of adjustment or programming, within the face. When programmed, each signal face's indication must be visible only in those areas or lanes to be controlled, except that during dusk and darkness a faint glow to each side is allowed.

You must program the head as recommended by the manufacturer.

86-4.06 PEDESTRIAN SIGNAL FACES

Message symbols for pedestrian signal faces must be white "WALKING PERSON" and Portland orange "UPRAISED HAND." Comply with ITE Standards: "Pedestrian Traffic Control Signal Indications" and California MUTCD. Each symbol's height must be at least 10 inches and width must be at least 6-1/2 inches.

Luminance of "UPRAISED HAND" symbol must be 1,100 foot-lamberts, minimum, and luminance of "WALKING PERSON" symbol must be 1,550 foot-lamberts, minimum, when tested as specified in California Test 606.

Uniformity ratio of an illuminated symbol must not exceed 4 to 1 between the highest luminance area and the lowest luminance area.

Luminance difference between a nonilluminated symbol and the background around the symbol must be less than 30 percent when viewed with the visor and front screen in place and at a low sun angle.

Each housing, including front screen, must have maximum overall dimensions of 18-1/2-inch width, 19-inch height, and 11-1/2-inch depth.

All new pedestrian signal faces installed at an intersection must be the same make and type.

86-4.06A Type A

Each Type A pedestrian signal face must include a housing, 1 LED pedestrian signal combo module and a front screen.

86-4.06B Front Screen

Front screen installation for each Type A signal must comply with one of the following:

1. Install, tilting downward, at an angle of 15±2 degrees out from the top, an aluminum honeycomb screen with 0.2-inch cells, 3/8-inch thick, or a plastic screen of 3/8-inch squares, 1/2-inch thick with wall thickness of 1/16-inch. Completely cover message plate. Include a clear front cover of 1/8-inch minimum thickness acrylic plastic sheet or 1/16-inch minimum thickness polycarbonate plastic. Hold screen and cover firmly in place with stainless steel or aluminum clips or stainless steel metal screws.
2. Install a 1-1/2-inch deep eggcrate or Z crate type screen of 1/32-inch nominal thickness polycarbonate. Mount screening in a frame constructed of 0.040-inch minimum thickness aluminum alloy or polycarbonate. Install screen parallel to face of message plate and hold in place with stainless steel screws.

The Department will test screens in a horizontal position with its edges supported. When a 3-inch diameter, 4-pound steel ball is dropped on the screen from a height of 4 feet above, the front screen must not fracture, separate at the welds, or compress more than 1/8-inch. When pedestrian housing is used to support front screen during test, remove message plate from pedestrian signal housing, so there is no back support for the screen.

Screen and frame must be one of the following:

1. Manufactured from aluminum anodized flat black
2. Finished with lusterless black exterior grade latex paint formulated for application to properly prepared metal surfaces
3. Manufactured from flat black plastic

86-4.06C Housing

Pedestrian signal housing must comply with Section 86-4.01A, "Signal Sections."

86-4.06D Finish

Paint exterior of each housing as specified in Section 86-2.16, "Painting."

86-4.06E Control

Pedestrian signals must be controllable by solid-state switching devices specified for traffic signal controller assemblies.

86-4.06F Terminal Blocks

Include light duty terminal block, as specified in Section 86-4.01B, "Electrical Components," with each pedestrian signal face.

86-4.07 (BLANK)

86-4.08 SIGNAL MOUNTING ASSEMBLIES

Signal mounting assembly must include:

1. 1-1/2-inch standard steel pipe or galvanized conduit
2. Pipe fitting made of ductile iron, galvanized steel, aluminum alloy Type AC-84B No. 380, or bronze
3. Mast arm and post top slip-fitters, and terminal compartments made of cast bronze or hot-dip galvanized ductile iron

After installation, clean and paint exposed threads of galvanized conduit brackets and bracket areas damaged by wrench or vise jaws. Use wire brush to clean and apply 2 coats of approved unthinned zinc-rich primer, organic vehicle type, as specified in Section 91, "Paint." Do not use aerosol can.

Fit each terminal compartment with a terminal block having a minimum of 12 positions, each with 2 screw-type terminals. Each terminal must accommodate at least five No. 14 conductors. Include a cover on compartment for ready access to terminal block. Terminal compartment used to bracket mount signals must be bolted securely to pcle or standard.

Horizontal dimension of mounting assembly members between vertical centerline of terminal compartment or slip-fitter, and the vertical centerline of each signal face must not exceed 11

inches, except where required for proper signal face alignment or to allow programming of programmed visibility signal faces.

Mounting assembly members must be plumb or level, symmetrically arranged, and securely assembled.

Mounting assembly must be watertight, and free of sharp edges or protrusions that might damage conductor insulation. Include positive locking serrated fittings that, if mated with similar fittings on signal faces, will prevent faces from rotating.

Orient each mounting assembly to allow maximum horizontal clearance to adjacent roadway.

Use slip-fitter for post-top mounting of signals. Fit slip-fitter over a 4-1/2-inch outside diameter pipe or tapered standard end. Include cadmium-plated steel set screws. Include an integral terminal compartment for each slip-fitter used to post-top mount signals with brackets.

Do not install signal faces at an intersection until all other signal equipment, including complete controller assembly, is in place and ready for operation. You may mount signal faces if covered or not directed toward traffic.

86-4.09 FLASHING BEACONS

Flashing beacon must include:

1. Single section traffic signal face with yellow or red LED module indications
2. Backplate
3. Tunnel visor
4. Flashing beacon control assembly

Beacon flasher unit must be independent of intersection flasher unit.

86-4.09A Flashing Beacon Control Assembly

86-4.09A(1) Enclosure

Enclosure must be:

1. NEMA 3R with a dead front panel and a hasp with a 7/16-inch hole for a padlock
2. Powder coated, hot-dip galvanized, or factory-applied rust resistant prime coat and finish coat

86-4.09A(2) Circuit Breakers and Switches

Circuit breakers must comply with Section 86-2.11, "Service."

Switch for manually operating sign lighting circuit must be a single-hole-mounting toggle type with a single pole and throw and rated at 12 A, 120 V(ac). Furnish switch with an indicating nameplate reading "Auto-Test."

86-4.09A(3) Flasher

Comply with Section 8, "Solid-State Flashers," of NEMA Standards publication No. TS 1.

Flasher must be a solid-state device with no contact points or moving parts.

Include 2 output circuits to allow alternate flashing of signal faces. Flasher must be able to carry a minimum of 10 A per circuit at 120 V(ac).

86-4.09A(4) Wiring

Conductors and wiring in the enclosure must comply with Section 86-2.09B(1), "Cabinet and Enclosure Installation."

86-4.09A(5) Terminal Blocks

Terminal blocks must be:

1. Rated 25 A, 600 V(ac)
2. Molded phenolic or nylon material
3. Barrier type with plated brass screw terminals and integral marking strips

86-5 DETECTORS

86-5.01 VEHICLE DETECTORS

Sensor unit and isolator must comply with TEES.

86-5.01A Inductive Loop Detectors

86-5.01A(1) General

Inductive loop detector includes a completely installed loop or group of loops, in the roadway, lead-in cable, and a sensor unit, with power supply installed in a controller cabinet.

86-5.01A(2) (Blank)

86-5.01A(3) Construction Materials

Conductor for each inductive loop detector must be continuous, unspliced, and one of the following:

Conductor Options for Inductive Loop Detector

Option	Specifications
Type 1 loop wire	Type RHW-USE neoprene-jacketed or Type USE cross-linked polyethylene insulated, No. 12, stranded copper wire with a 40 mils minimum thickness at any point.
Type 2 loop wire	Type THWN or Type XHHW, No. 14, stranded copper wire in a plastic tubing. Plastic tubing must be polyethylene or vinyl, rated for use at 105 °C, and resistant to oil and gasoline. Outside diameter of tubing must be 0.27 inch maximum with a wall thickness of 0.028 inch minimum.

Conductor for loop detector lead-in cable must be two No. 16, 19 x 29, stranded, tinned copper wires, comply with the calculated cross sectional area of ASTM B 286, Table 1, and be one of the following:

Conductor Options for Loop Detector Lead-In Cable

Option	Specifications
Type B lead-in cable	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 No. 20, minimum, copper drain wire must be connected to equipment ground within 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 lead-in cable	Comply with International Municipal Signal Association (IMSA) Specification No. 50-2. A No. 20, minimum, copper drain wire must be connected to equipment ground within cabinet.

86-5.01A(4) Installation Details

Install loop conductors without splices and end in nearest pull box. Seal open end of cable jacket or tubing similar to splicing requirements to prevent water from entering. Do not make final splices between loops and lead-in cable until loop operations under actual traffic conditions is approved.

Splice all loop conductors for each direction of travel for same phase of a traffic signal system, in same pull box, to a detector lead-in cable that runs from pull box adjacent to loop detector to a sensor unit mounted in controller cabinet.

End all loop conductors in a pull box or terminal strip in the cabinet.

Identify and band conductors for inductive loop installations. Band, in pairs, by lane, in the pull box adjacent to the loops and near the end of conductors in the cabinet. Bands must comply with Section 86-2.09, "Wiring."

If HMA surfacing is to be placed, install loop conductors before placing uppermost layer of HMA. Install conductors in compacted layer of HMA immediately below the uppermost layer. Install conductors as shown on the plans, except fill slot with sealant flush to the surface.

When cutting loops:

1. Residue from slot cutting activities must not be allowed to flow across shoulders or lanes occupied by public traffic and must be removed from the pavement surface before residue flows off. Dispose of residue from slot cutting activities under Section 7-1.13, "Disposal of Materials Outside the Highway Right of Way."
2. Surplus sealant must be removed from adjacent road surface without using solvents before setting.

Sealant for filling slots must comply with one of the following:

Elastomeric Sealant

Polyurethane material that will, within stated shelf life, cure only in the presence of moisture. Sealant must be suitable for use in both HMA and PCC.

The cured sealant must have the following performance characteristics:

Performance Characteristics of Cured Sealant

Specification	ASTM	Requirement
Hardness (indentation) at 25 °C and 50% relative humidity. (Type A, Model 1700 only)	D 2240 Rex.	65-85
Tensile Strength: Pulled at 508 mm per minute	D 412 Die C	3.45 MPa, min.
Elongation: Pulled at 508 mm per minute	D 412 Die C	400%, min.
Flex at -40 °C: 0.6-mm free film bend (180°) over 13-mm mandrel	--	No cracks
Weathering Resistance: Weatherometer 350 h, cured 7 days at 25 °C @ 50% relative humidity	D 822	Slight chalking
Salt Spray Resistance: 28 days at 38 °C with 5% NaCl, Die C & pulled at 508 mm per minute	B 117	3.45 MPa, min. tensile 400%, min. elongation
Dielectric Constant over a temperature range of -30 °C to 50 °C	D 150	Less than 25% change

Asphaltic Emulsion Sealant

Comply with State Specification 8040-41A-15. Use for filling slots in HMA pavement that are a maximum of 5/8 inch in width. Do not use where the slope causes the material to run from the slot. Material must not be thinned beyond manufacturer's recommendations. Place material when air temperature is at least 7 °C.

Hot-Melt Rubberized Asphalt Sealant

Hot-melt rubberized asphalt must be:

1. In solid form at room temperature and fluid at application temperature of 190 °C to 205 °C. Fumes must be non-toxic.
2. Suitable for use in both HMA and PCC.
3. Melted in a jacketed, double-boiler type melting unit. Temperature of heat transfer medium must not exceed 245 °C.
4. Applied with a pressure feed applicator or pour pot, when the pavement surface temperature is greater than 4 °C.
5. Packaged in containers clearly marked "Detector Loop Sealant" and specifying manufacturer's batch and lot number.

The cured sealant must have the following performance characteristics:

Performance Characteristics of Cured Sealant

Specification	ASTM	Requirement
Cone Penetration, 25 °C, 150 g, 5 s	D 5329, Sec. 6	3.5 mm, max
Flow, 60 °C	D 5329, Sec. 8	5 mm, max
Resilience, 25 °C	D 5329, Sec. 12	25%, min
Softening Point	D 36	82 °C, min
Ductility, 25 °C, 50 mm/min	D 113	300 mm, min
Flash Point, COC, °C	D 92	288 °C, min
Viscosity, Brookfield Thermosel, No. 27 Spindle, 20 rpm, 190 °C	D 150	Less than 25% change

86-5.01B Magnetic Detectors

Cable from pull box, adjacent to magnetic detector sensing element, to the field terminals in the controller cabinet must be the type specified for inductive loop detectors.

86-5.02 PEDESTRIAN PUSH BUTTON ASSEMBLIES

Housing must be either die-cast or permanent mold-cast aluminum, or ultraviolet stabilized, self-extinguishing structural plastic, if specified. Plastic housing must be black matching Color No. 17038, 27038 or 37038 of Federal Standard 595B, and colored throughout. Assembly must be rainproof and shockproof in any weather condition.

Switch must be a single-pole, double-throw, switching unit, with screw type terminals, rated 15 A at 125 V(ac), and must have:

1. Plunger actuator and a U frame to allow recessed mounting in push button housing
2. Operating force of 3.5 pounds
3. 1/64-inch maximum pretravel
4. 7/32-inch minimum overtravel
5. 0.0004- to 0.002-inch differential travel

6. 2-inch minimum diameter actuator

Where pedestrian push button is attached to a pole, shape housing to fit the pole curvature and secure. Include saddles to make a neat fit if needed.

Where a pedestrian push button is mounted on top of a 2-1/2-inch diameter post, fit housing with a slip-fitter and use screws for securing rigidly to post.

Pedestrian push button signs must be porcelain enameled metal or structural plastic.

Install push button and sign on crosswalk side of pole.

Point arrows on push button signs in the same direction as the corresponding crosswalk.

Attach sign on Type B push button assembly.

For Type C pedestrian push button assembly, mount instruction sign on the same standard as the push button assembly, using 2 straps and saddle brackets. Straps and saddle brackets must be corrosion-resisting chromium nickel steel and comply with ASTM A 167, Type 302B. Theft-proof bolts must be stainless steel with a chromium content of at least 17 percent and a nickel content of at least 8 percent.

86-6 LIGHTING

86-6.01 HIGH PRESSURE SODIUM LUMINAIRES

High pressure sodium luminaires must be the enclosed cutoff type.

Housing must be manufactured from aluminum. Painted or powder-coated housing must withstand a 1,000-hour salt spray test as specified in ASTM B 117.

Other metal parts must be corrosion resistant.

Each housing must include a slip-fitter that can be mounted on a 2-inch pipe tenon and can be adjusted 5 degrees from the axis of the tenon. Clamping brackets of slip-fitter must not bottom out on housing bosses when adjusted within the ±5 degree range.

The slip-fitter mounting bracket must not permanently set in excess of 0.020-inch when the 3/8-inch diameter cap screw used for mounting is tightened to 10 foot-pounds.

Luminaire to be mounted horizontally on mast arm, when tested as specified in California Test 611, must be capable of withstanding cyclic loading for a minimum of 2 million cycles without failure of any luminaire parts as follows:

Cyclic Loading

Plane	Internal Ballast	Minimum Peak Acceleration Level[a]
Vertical	Removed	3.0 G peak-to-peak sinusoidal loading (same as 1.5 G peak)
Horizontal[b]	Installed	1.5 G peak-to-peak sinusoidal loading (same as 0.75 G peak)
Vertical	Installed	1.0 G peak-to-peak sinusoidal loading (same as 0.5 G peak)

[a]G = Acceleration of gravity

[b]Perpendicular to direction of mast arm

If a photoelectric unit receptacle is included, a raintight shorting cap must be installed. If luminaire housing has a hole for the receptacle, hole must be permanently closed, covered, and sealed with weatherproof material.

Optical system must be in a sealed chamber and include:

1. Reflector shaped so that a minimum of light is reflected through the arc tube of the lamp. Reflector surface must be specular and protected by either an anodized finish or a silicate film on its specular surface.

2. Refractor or lens mounted in a door frame that is hinged to the housing and secured with a spring-loaded latch. Refractor must be made of glass or polycarbonate plastic. Lens must be made of heat- and impact-resistant glass.
3. Lamp socket that is a porcelain enclosed mogul-multiple type. Shell must include integral lamp grips to assure electrical contact under conditions of normal vibration. Socket must be mounted in the luminaire to allow presetting a variety of specified light distribution patterns. Socket must be rated for 1,500 W and 600 V(ac), and a 4 kV pulse.
4. Lamp.

Sealing must be provided by a gasket between the reflector and:

1. Refractor or lens
2. Lamp socket

Chamber must allow for filtered flow of air in and out of the chamber from lamp heat. Filtering must be accomplished by either a separate filter or a filtering gasket.

If components are mounted on a down-opening door, door must be hinged and secured to luminaire housing separately from refractor or flat lens frame. Door must be easily removable and replaceable, and secured to housing to prevent accidental opening when refractor or flat lens frame is opened.

Field wires connected to luminaire must terminate on a barrier-type terminal block secured to the housing. Terminal screws must be captive and equipped with wire grips for conductors up to No. 6. Each terminal positions must be clearly identified.

Minimum light distribution for each luminaire must meet the isolux diagrams.

Maximum brightness of each cutoff luminaire, with the lamp indicated, must be as follows:

Cutoff Type

Lamp ANSI Code No.	Lamp Wattage	Maximum Brightness foot-lamberts
S55	150	40
S66	200	40
S50	250	50
S67	310	60
S51	400	75

Brightness readings will be taken using a brightness meter with an acceptance angle of 1.5 degrees. When measured on the 90-degree and 270-degree lateral angle line, maximum brightness must not exceed above specified brightness when meter is located at a horizontal distance of 120 feet and a vertical distance of 7.5 feet between luminaire and meter, or at an angle of 3 degrees 35 minutes from the horizontal to the line between luminaire and meter. Measurements must be made from 90-degree line and 270-degree line, and averaged. Lamp used for each test must operate at wattage necessary to produce the following light output:

Light Output

Lamp Wattage	Lumens
150	16,000
200	22,000
250	27,000
310	37,000
400	50,000

86-6.01A High Pressure Sodium Lamp Ballasts

Each ballast must:

1. Operate the lamp for its rated characteristics and wattage
2. Continuously operate at ambient air temperatures from -20 °C to 25 °C without reduction in ballast life
3. Operate for at least 180 cycles of 12 hours on and 12 hours off, with the lamp circuit in an open or short-circuited condition and without measurable reduction in operating requirements
4. Have a design life of not less than 60,000 hours
5. Provide proper starting and operating waveforms, voltage, and current
6. Provide reliable lamp starting and operation at ambient temperature down to -20 °C for the rated life of lamp

Ballast must be tested as specified in ANSI C82.6-1980, "Methods of Measurement of High-Intensity-Discharge Lamp Ballasts."

Starting aids for ballast of a given lamp wattage must be interchangeable between ballasts of same wattage and manufacturer, without adjustment.

Each integral ballast must consist of separate components that can be easily replaced. An encapsulated starting aid will be counted as a single component. Each component must include screw terminals, NEMA tab connectors, or a single multi-circuit connector. Conductors and terminals must be identified.

Mount heat-generating component so as to use the portion of the luminaire it is mounted to as a heat sink. Place capacitor a maximum practicable distance from heat-generating components or thermally shield to limit the case temperature to 75 °C.

Transformer and inductor must be resin-impregnated for protection against moisture. Capacitors, except those in starting aids, must be metal cased and hermetically sealed.

The Department will test high-pressure sodium lamp ballast. High-pressure sodium lamp ballast must have a characteristic curve that will intersect both of the lamp-voltage limit lines between the wattage limit lines and remain between the wattage limit lines throughout the full range of lamp voltage. This requirement must be met at the rated input voltage of the ballast and at the lowest and highest rated input voltage of the ballast.

Throughout the lifetime of the lamp, ballast curve must fall within the specified limits of the lamp voltage and wattage.

Ballast for luminaires must be located in the luminaire housing.

86-6.01A(1) Regulator Type Ballasts

Regulator type ballast must comply with the following:

1. For nominal input voltage and lamp voltage, ballast design center must not vary more than 7.5 percent from rated lamp wattage.
2. Ballast must be designed for a capacitance variance of ±6 percent that will not cause more than ±8 percent variation in lamp wattage regulation during rated lamp life.
3. Lamp current crest factor must not exceed 1.8 for input voltage variation of ±10 percent at any lamp voltage during lamp life.

Regulator-type ballast must be one of the following:

Regulator-Type Ballast

Ballast Type	Power Factor	Lamp Regulation
Lag-type[a]	Not less than 90 percent throughout the life of lamp when ballast is operated at nominal line voltage with a nominally-rated reference lamp	Lamp wattage regulation spread does not vary by more than 18 percent for ±10 percent input voltage variation from nominal through life
Lead-type[b]	Not less than 90 percent throughout the life of lamp when ballast is operated at nominal line voltage with a nominally-rated reference lamp	Lamp wattage regulation spread does not vary by more than 30 percent for ±10 percent input voltage variation from nominal through life

[a]Primary and secondary windings must be electrically isolated
[b]Constant wattage autoregulator (CWA)

86-6.01A(2) Nonregulator Type Ballasts

Each nonregulator type ballast must comply with the following:

1. For nominal input voltage and lamp voltage, ballast design center must not vary more than 7.5 percent from rated lamp wattage.
2. Lamp current crest factor must not exceed 1.8 for input voltage variation of ±5 percent at any lamp voltage during lamp life.

Nonregulator-Type Ballast

Ballast Type	Power Factor	Lamp Regulation
Autotransformer or High-Reactance	Not less than 90 percent throughout the life of lamp when ballast is operated at nominal line voltage with a nominally-rated reference lamp	Lamp wattage regulation spread does not vary by more than 25 percent for ±5 percent input voltage variation from nominal through life

86-6.01B High Pressure Sodium Lamps

High pressure sodium lamps must comply with ANSI C 78.42, "High Pressure Sodium Lamps," when tested as specified in ANSI C 78.389, "American National Standard for Electric Lamps - High Intensity Discharge-Methods of Measuring Characteristics." High pressure sodium lamps must have a minimum average rated life of 24,000 hours.

86-6.02 LOW PRESSURE SODIUM LUMINAIRES

Each low pressure sodium luminaire must be completely assembled with a lamp and ballast, and must:

1. Be the enclosed type, either semi-cutoff or cutoff type.
2. Include housing, reflector, refractor or lens, lamp socket, integral ballast, removable ballast tray, lamp support, terminal strip, capacitor, and slip fitter. Reflector may be an integral part of the housing.

Luminaire housing must be minimum 1/16-inch thick, corrosion resistant die cast aluminum sheet and plate with concealed continuous welds, or minimum nominal wall thickness of 3/32-thick acrylonitrile-butadiene-styrene sheet material, on a cast aluminum frame that provides mounting for all electrical components and slip fitter. Housing must be divided into optical and power compartments that are individually accessible for service and maintenance. Position and clamp luminaire to pipe tenon by tightening mounting bolts.

Painted exterior surface of luminaire must be finished with a fused coating of electrostatically applied polyester powder paint or other ultraviolet inhibiting film. Color must be aluminum gray.

High temperature neoprene, or equal, sealing ring must be installed in pipe tenon opening to prevent entry of water and insects into power and optical compartments.

Access to power unit assembly must be through a weathertight hinged cover, secured with spring type latches or captive screws, to luminaire housing.

Hardware must be stainless steel or cadmium plated. Use machine screws or bolts to secure removable components. Do not use sheet metal screws.

Semi-cutoff luminaires and molded refractor style cutoff luminaires must include a refractor. Other cutoff luminaires must include a flat lens.

Refractor must be 1-piece injection molded polycarbonate of 3/32 inch minimum thickness, or 1-piece injection molded acrylic of 1/8 inch minimum thickness. Flat lens must be 1-piece polycarbonate of 3/32 inch minimum thickness, mounted to metal frame. Refractor assembly and flat lens assembly must be constructed to rigidly maintain its shape, and hinged and secured with spring type latches to luminaire housing. Alternate methods of manufacturing refractor may be approved provided minimum specified thicknesses are maintained.

Lamp socket must be high temperature, flame retardant thermoset material with self-wiping contacts or equivalent. Socket must be rated for 660 W and 1,000 V(ac). Position of socket and support must maintain the lamp in correct relationship with reflector and refractor for designed distribution pattern.

Isofootcandle distribution must be ANSI Type III, short or Type IV, medium distribution, for cutoff or semi-cutoff luminaires.

With a 40-foot mounting height, each type of luminaire must maintain a minimum of 0.2 footcandle at least 60 feet each side, along the longitudinal roadway line below the luminaire, and a minimum of 0.35 footcandle at a transverse roadway distance from luminaire location equal to 1.5 times the luminaire mounting height.

Certified luminaire performance data must be provided. This data must include complete photometric test data in isofootcandle charts at a scale of 1 inch equals 20 feet, for the luminaire and lamp sizes shown on the plans.

Alternate data may be in horizontal footcandle values recorded on a 15' x 15' area extending 90 feet longitudinally each side of the light source, and 15 feet behind and 90 feet in front of the light source, for luminaire and lamp sizes, and mounting height shown on the plans. Horizontal footcandle levels in data submitted must equal or exceed levels specified. Failure to meet referenced values will be justification for rejection of the luminaires.

Photometric testing must be performed and certified by an independent and recognized testing laboratory.

Low pressure sodium lamps must:

1. Be 180 W, single-ended, bayonet base, tubular gas discharge lamp
2. Maintain a minimum of 93 percent of initial lumens during rated life and must comply with the following minimum performance requirements:

Performance Requirements

Lamp Designation	ANSI L74-RF-180
Initial Lumens	33,000 lumens
Rated Ave. Life (@ 10 hrs/Start)	18,000 hours
Operating Position	Horizontal ±20 degrees

3. Reach 80 percent of light output within 10 minutes and must restrike within 1 minute after an outage due to power interruption or voltage drop at the lamp socket
4. Identify the month and year of installation.
5. Have an autotransformer or high-reactance type ballast. The ballast must comply with the following:

    5.1. Lamp current crest factor must not exceed 1.8 at nominal line voltage
    5.2. Ballast loss must not exceed 24 percent for 180 W ballast at nominal line voltage

Autotransformer or High-Reactance Type Ballast

Ballast Type	Power Factor	Lamp Operation
Autotransformer or High-Reactance	Not less than 90 percent when ballast is operated at nominal line voltage with a nominally-rated reference lamp	Lamp wattage regulation spread does not vary by more than ±6 percent for ±10 percent input voltage variation from nominal through life

A multi-circuit connector must be included for quick disconnection of ballast tray.

86-6.03 SOFFIT AND WALL LUMINAIRES

Soffit and wall luminaire must be weatherproof and corrosion resistant.
Each flush-mounted soffit luminaire must consist of:

1. Metal body with two 1-inch minimum conduit hubs and provisions for anchoring into concrete
2. Prismatic refractor made of heat-resistant polycarbonate mounted in a door frame and clearly identified as to street side
3. Specular anodized aluminum reflector
4. Ballast located either within housing or in a ceiling pull box as shown on the plans
5. Lamp socket

The door frame assembly must be hinged, gasketed, and secured to body by at least 3 machine screws.

Each pendant soffit luminaire must be enclosed and gasketed, have an aluminum finish, and include:

1. Reflector with a specular anodized aluminum finish
2. Refractor made of heat-resistant polycarbonate
3. Optical assembly hinged and latched for lamp access and a device to prevent dropping
4. Ballast designed for operation in a raintight enclosure
5. Galvanized metal box with a gasketed cover, 2 captive screws, and 2 chains to prevent dropping and for luminaire mounting

Each wall-mounted luminaire must consist of:

1. Cast metal body
2. Prismatic refractor, made of glass, mounted in a door frame
3. Aluminum reflector with a specular anodized finish
4. Integral ballast
5. Lamp socket
6. Gasket between refractor and body

7. At least two 5/16-inch minimum diameter mounting bolts

Cast-aluminum bodies to be cast into or mounted against concrete must have a thick application of alkali-resistant bituminous paint on all surfaces to be in contact with concrete.

Each soffit luminaire and wall luminaire must include a 70 W high-pressure sodium lamp with a minimum average rated life of 24,000 hours. Each lamp socket must be positioned to locate the light center of the lamp within 1/2 inch of light center location of the luminaire design.

Ballast must comply with Section 86-6.01A, "High Pressure Sodium Lamp Ballasts." Wall luminaire ballast must be located in luminaire housing or, if shown on the plans, in a pull box adjacent to luminaire.

86-6.04 PEDESTRIAN CROSSING FIXTURES

Before starting fixture manufacturing, submit fixture design for approval. If requested, submit 1 complete prototype fixture for approval at least 30 days before manufacturing the fixtures. The prototype fixture will be returned to you, and if permitted, the fixture may be installed in the work.

Lens unit in door section must be formed of 1-1/2-inch methyl methacrylate rod cut and fire-glazed for a clear finish or a cast unit with equivalent tolerances and finish.

Lens must be secured to door section with an extruded lens retainer of 6063-T5 aluminum alloy that fits the lens shape. Lens retainer must fit the full length of lens on both sides. Continuous lens retainer for the full length of 3 lenses is allowed. Z bars of 5052-H32 or 5005-H14 aluminum alloy, 1/16 inch minimum thickness may be substituted for extruded lens retainer.

A captive positive-keyed screw-type latching device requiring a special socket wrench must be installed at upper edge to secure door in the closed position as shown on the plans. Furnish 2 special wrenches to the Engineer.

Each fixture must include a F48T12/CW rapid start fluorescent lamp with recessed, double contact base installed on back side of door directly behind lens.

Each lampholder must be UL listed for outdoor use without an enclosure and with 1,500 mA rapid start fluorescent lamp. Lampholder must be spring-loaded type.

For each lamp, the distance from face of lampholder to the lamp must be designed to provide a compression of at least 0.10-inch on the spring-type lampholder when lamp is in place. Lamp must have positive mechanical and electrical contact when lamp is in place. Socket on spring-type lampholder must have enough travel to allow lamp installation. Spring must not be a part of current-carrying circuit.

Ballast must be high-power-factor type with weatherproof leads for operation of one 48-inch rapid-start lamp. Ballast must be UL listed for outdoor operation on 110 to 125 V(ac) 60 Hz circuit and rated at 1,500 mA.

Conductors from ballast leads to lampholder must be minimum size of No. 16, stranded, and UL-listed copper AWM. Splicing of lampholder conductors to ballast leads must be performed by using mechanically secure connectors.

Conductors in fixture except ballast leads and entrance line conductors, must be UL-listed AWM.

Provide sufficient slack in the conductors to allow the fixture door to fully open.

Circuit conductors entering the fixture must be terminated on molded phenolic barrier-type terminal blocks rated at 15 A and 600 V(ac) and must have integral-type white waterproof-marking strips. Current-carrying parts of terminal blocks must be insulated from fixture with integral plugs or strips to provide protection from line-to-ground flashover voltage. Terminal blocks must be attached to wireway cover in top section. If you use sectionalized terminal

blocks, each section must include an integral barrier on each side and be capable of rigid mounting and alignment.

Exposed surfaces of fixture must be uniform in appearance and free from significant defects, including improper fit, dents, deep scratches and abrasions, burrs, roughness, off-square ends, holes off-center or jagged, and surface irregularities. Screws for attaching components to fixture door, including Z bars, ballasts, and terminal block, must be tapped into door from the inside only. Screwheads, nuts, or other fasteners must not be removable from the outside.

86-6.04A Pedestrian Undercrossing Fixtures

Fixture shell must be cast aluminum alloy, industrial type or Federal Class 18 aluminum of 1/4 inch minimum thickness.

Door must be 1 piece of 6061-T6 aluminum alloy of 1/8 inch minimum thickness.

Continuous piano hinge must be Type 1100 aluminum alloy. The piano hinge must be welded or riveted to door section with 1/8 inch aluminum rivets. Matching holes must be drilled in the hinge and lower edge of fixture. After shell is in place, door assembly must be attached by minimum 3/8-inch No. 8 stainless steel self-tapping screws.

A neoprene gasket must be attached to frame to provide a cushion between the shell and the door.

Chain or other device must be included to prevent the door, when fully opened, from coming in contact with the undercrossing wall.

Fixture must be held in place by three 3/8" x 8" anchor bolts with 2 nuts each.

Fixture surfaces in contact with concrete, and with anchor bolts and nuts must be painted with a thick application of alkali-resistant bituminous paint. Paint must comply with MIL-P-6883.

Circuit conductor entering the fixture must be terminated on 2-position terminal blocks.

Both ends of fixture must have holes for 1-inch conduit. Unused holes must be plugged with pressed metal closures.

86-6.04B Pedestrian Overcrossing Fixtures

Fixture shell must consist of:

1. Top section and a door section of extruded 6063-T5 aluminum alloy, each with a nominal 1/8 inch wall thickness
2. 2 cast-end sections of 319 aluminum alloy
3. Internal wireway cover of 505-H32 aluminum alloy

Top section and door section must be joined together on one side by a continuous hinge formed as part of the 2 extrusions and must overlay to allow locking on the other side. Hinge must be treated with a silicone grease that will prevent the entrance of water by capillary action.

Wireway cover with 3/16 inch hemmed ends up and terminal blocks and circuit conductors must be inserted before welding end sections and must provide clearance at both ends for conductors. Cover must be fastened by at least two 1/4 inch No. 4 self-threading sheet metal screws with binding head and blunt point. You may substitute blind rivets of equivalent strength.

One or more bronze sash chains or other device must be included to prevent door from opening to an extent that will damage the hinge.

Lampholder must include heat-resistant circular cross section neoprene sealing gasket, silver-coated contacts, and waterproofed lead entrance for use with a 1,500 mA rapid start fluorescent lamp.

Ballast must be at most 13-1/4 inches long.

Circuit conductors entering the fixture must be terminated on 3-position terminal blocks.

Electrical system of pedestrian overcrossing must be grounded by a No. 8 copper wire installed in conduit from fixture to fixture, from end fixture to conduit fitting on end post and from conduit fitting on end post to grounding bushing in nearest pull box.

Ground wire must be secured to inside of telescoping sleeve end casting where conductors are carried and to the inside of Type LB conduit fitting on end post by a connecting lug and a No. 8 self-threading pan screw.

Lamp, lampholder, ballast, and fixture wire, must be attached to door section. Terminal blocks must be attached to top section or wireway cover.

Three No. 10, solid copper circuit conductors must be installed between terminal blocks as part of each completed fixture.

Before shipment to job site, fixture must be completely manufactured and assembled in the shop.

86-6.05 INDUCTION SIGN LIGHTING FIXTURES

Each induction sign lighting fixture must include housing with door, reflector, refractor or lens, lamp, power coupler, high frequency generator, socket assembly, fuse block, and fuses.

Each induction sign lighting fixture must:

1. Be designed for mounting near the bottom of sign panel on an overhead sign structure.
2. Be an enclosed design and be raintight and corrosion resistant.
3. Have a minimum average rating of 60,000 hours.
4. Be for a wattage of 87 W, 120/240 V(ac).
5. Have a power factor greater than 90 percent and total harmonic distortion less than 10 percent.
6. Be UL approved for wet locations and be FCC Class A-listed.
7. Not exceed 44 pounds in weight.
8. Include the manufacturer's brand name, trademark, model number, serial number, and date of manufacture on packaged assembly. Same information must be permanently marked on the outside and inside of housing.
9. Comply with minimum horizontal footcandle requirement shown on the plans.
10. Be a maximum height of 12 inches above the top of the mounting rails.

If fixture is located so that the light center of the lamp is 55 inches in front of, 1 foot below, and centered on a 10-foot high by 20-foot wide sign panel, the ratio of maximum to minimum illuminance level on the panel must not exceed 12 to 1 in 95 percent of the points measured. Illuminance gradient must not exceed 2 to 1 and is defined as the ratio of minimum illuminance on a 1-foot square of panel to that on an adjacent 1-foot square of panel.

Each fixture must have a mounting assembly that will allow fixture to be mounted on continuous slot channels. Mounting assembly must be either cast aluminum, hot-dip galvanized steel plate, or steel plate that has been galvanized and finished with a polymeric coating system or same finish that is used for housing.

Housing must have a door designed to hold a refractor or lens, and to open without the use of special tools. Housing and door must be manufactured of sheet or cast aluminum, and have a powder coat or polyester paint finish of a gray color resembling unfinished manufacturing. Sheet aluminum must comply with ASTM B 209 or B 209M for 5052-H32 aluminum sheet. External bolts, screws, hinges, hinge pins, and door closure devices must be corrosion resistant.

Housing must include weep holes.

Door must be hinged to housing on side of fixture away from the sign panel and include 2 captive latch bolts or other latching device. Door must be designed to lock in the open position, 50 degrees minimum from the plane of the door opening, with an 85-mph 3-second-wind-gust load striking the door from either side.

Door and housing must be gasketed to be raintight and dusttight. Thickness of gasket must be 1/4 inch, minimum.

Fixture height must be less than 12 inches above the top of mounting rails.

Reflector must be 1 piece, made from specularly finished aluminum protected with an electrochemically applied anodized finish or a chemically applied silicate film, and designed so deposited water due to condensation will drain away. Reflector must be secured to housing with a minimum of 2 screws and removable without removing any fixture parts. Do not attach reflectors to outside of housing.

Refractor or lens must have a smooth exterior and must be manufactured from the material as follows:

Refractor and Lens Material Requirements

Component	Manufactured From
Flat lens	Heat-resistant glass
Convex lens	Heat resistant, high-impact resistant tempered glass
Refractor	Borosilicate heat resistant glass

Refractor and convex lens must be designed or shielded so no fixture luminance is visible if fixture is approached directly from the rear and viewing level is the bottom of the fixture. If a shield is used, it must be an integral part of the door casting.

Each fixture must include an 85 W induction lamp with an interior wall that is fluorescent phosphor-coated. Light output must be at least 70 percent at 60,000 hours. Lamp must have a minimum color-rendering index of 80, be rated at a color temperature of 4,000K and be removable without the use of tools.

Lamp socket must be a porcelain enclosed mogul type with a shell that contains integral lamp grips to assure electrical contact under normal vibration conditions. Center contact must be spring-loaded. Shell and center contact must be nickel-plated brass. Socket must be rated for 1,500 W and 600 V(ac).

Power coupler must include a construction base with antenna, heat sink, and electrical connection cable, and be designed so it can be removed with common hand tools.

High frequency generator must:

1. Start and operate lamps at an ambient temperature of -25 °C or greater for the rated life of the lamp
2. Operate continuously at ambient air temperatures from -25 °C to 25 °C without reduction in generator life
3. Have a design life of at least 100,000 hours at 55 °C
4. Have an output frequency of 2.65 MHz ± 10 percent
5. Have radio frequency interference that complies with FCC Title 47, Part 18, regulations regarding harmful interference
6. Be replaceable with common hand tools
7. Mounted so the fixture can be used as a heat sink

Conductor terminal must be identified by the component terminal the conductor connects to.

Submit a copy of the high frequency generator test methods and results from the manufacturer with each lot of fixtures.

Each fixture must include a barrier-type fuse block for terminating field connections. Fuse block must:

1. Be secured to housing and be accessible without removal of any fixture parts
2. Be mounted to leave a minimum of 1/2 inch air space from sidewalls of housing
3. Be designed for easy removal of fuses with a fuse puller, be rated at 600 V(ac), and have box terminals.

Fuses must be 13/32-inch diameter, 1-1/2 inch long ferrule type and UL or NRTL listed. For 120 V(ac) input fixture, only the ungrounded conductor must be fused and there must be a solid link between the neutral and the high frequency generator.

If shown on the plans, include a wire guard to prevent damage to the refractor or lens. Guard must be constructed of 1/4-inch minimum diameter galvanized steel wire, and either hot-dip galvanized or electroplated-zinc coated as specified in ASTM B 633, Service Condition SC4 with a clear chromate dip treatment. Guard elements must be spaced to prevent rocks larger than 1-1/2-inch diameter from passing through.

86-6.06 SIGN LIGHTING FIXTURES FOR FLASHING BEACON

Sign lighting fixture must:

1. Be UL or NRTL listed for outdoor installation
2. Include a hood with side outlet tapped for conduit, a symmetrical 10-inch steel reflector with a white porcelain-enamel finish, and a medium base socket
3. Be rated at 150 W minimum

86-6.07 INTERNALLY ILLUMINATED STREET NAME SIGNS

Sign fixture must be:

1. Designed and constructed to prevent deformation or failure when subjected to an 85 mph 3-second-wind-gust load as specified in AASHTO publication, "Standard Specifications for Structural Supports of Highway Signs, Luminaires and Traffic Signals," and its interim revisions
2. Manufactured from all new material and all ferrous parts must be galvanized or cadmium-plated
3. Type A or B signs

Top and bottom must be formed or extruded aluminum and must be attached to formed or cast aluminum end fittings. Housing must be designed for continuous sealing between top and bottom assemblies, and end fittings, and be constructed to resist torsional twist and warp. Opening or removing 1 panel must allow access to the interior of the sign for lamp, ballast, and fuse replacement.

Photoelectric unit sockets are not allowed.

For Type A sign, both sides must be hinged at the top to allow installation or removal of sign panel, and to allow access to interior of sign.

For Type B sign, sign panel must be slide-mounted into housing.

Reflectors may be used to obtain required sign brightness. Reflectors must be formed aluminum with acrylic baked white enamel surface having a minimum reflectance of 0.85.

Sign panel must be slide-mounted or rigid-mounted in a frame, with white legend, symbols, arrows, and border on each face. Background must be green.

Sign panels surface must be evenly illuminated. Average of brightness readings for letters must be 150 foot-lamberts, minimum. Light transmission factor of sign panel must provide a letter to background brightness ratio between 10 to 1 and 20 to 1. Background luminance must not vary by more than 40 percent from the average background brightness reading. Luminance of letters, symbols, and arrows must not vary by more than 20 percent from their average brightness readings.

Sign panels must be translucent, high impact, resistant plastic panels of one of the following:

1. Glass fiber reinforced acrylated resin
2. Polycarbonate resin
3. Cellulose acetate butyrate plastic

Paint on the outside of plastic must be protected by a plastic film that seals the front surface of panel and filters out ultraviolet radiation. Paint must be acrylic plastic type.

Surface must be free of blemishes in the plastic or coating that may impair the serviceability or detract from the general appearance and color matching of sign.

White or green color must not fade or darken when sign is exposed to an accelerated test of ultraviolet light equivalent to 2 years of outdoor exposure. Green color of sign, when not illuminated, must match Color No. 14109 of Federal Standard 595B.

Sign panel must not crack or shatter when a 1-inch diameter, steel ball with a weight of 2.4 ounces is dropped from a height of 8.5 feet above the sign panel to any point of sign panel. For this test, sign panel must be lying in a horizontal position and supported within its frame.

For Type A sign, gasket must be installed between sign panel frame and fixture housing to prevent water entry between frame and fixture housing. Gasket must be uniform and even-textured, and be the closed-cell, sponge-neoprene type, designed for use at temperatures between -20 °C and +74 °C.

Gasket must be neatly applied to thoroughly degreased, clean surface with a suitable heat-resistant adhesive that will not allow the gasket to slip at temperatures between -20 °C and +74 °C.

Ballast must be high power factor type and capable of starting the lamp at -20 °C and above.

Ballast for Type A sign must be rated at 200 mA. Ballasts for Type B sign must be rated at 430 mA. Ballast must be UL or NRTL listed for operation on 110 to 125 V(ac), 60 Hz circuits, and comply with ANSI C 82.1 and ANSI C 82.2.

Lampholder must be UL or NRTL listed for outdoor use and of the spring-loaded type. Lampholder must have silver-coated contacts and waterproofed entrance leads for use with a rapid-start fluorescent lamp. Removal of lamp from socket must de-energize the primary of ballast. Each lampholder must include heat-resistant, circular cross section, partially-recessed neoprene ring to seal against lamp ends and protect electrical contacts from moisture, dirt or other injurious elements.

Distance between face of lampholders must be designed to provide compression of at least 0.10 inch on the spring-type lampholder when lamp is in place. Lamp must have positive mechanical and electrical contact when lamp is in place. Socket on spring-type lampholder must have sufficient travel to allow lamp installation. Spring must not be a part of current carrying circuit. Lampholder must match lamp requirements and must not increase cathode filament circuit resistance by more than 0.10 Ω.

Lamp must comply with ANSI C 78.

Wiring connections in fixture must be terminated on molded, phenolic, barrier-type, terminal blocks rated at 15 A, 1,000 V(ac), and must have integral-type white waterproof-marking strips. Current carrying parts of terminal blocks must be insulated from fixture with integral plugs or strips to provide protection from line-to-ground flashover voltage. If you choose to use sectionalized terminal blocks, each section must include an integral barrier on each side and be capable of rigid mounting and alignment. Terminal screws must be No. 10, minimum.

Fuses must be Type 3AG, miniature, slow-blowing type with appropriate current and voltage ratings.

Fuseholder must be a panel-mounting type with threaded or bayonet-type knob that grips the fuse tightly for extraction. Use a separate fuse for each ballast.

Screened weep holes must be constructed at strategic locations in members subject to moisture collection.

Fasteners, screws, and hardware must be passive stainless steel, Type 302 or 304, or aluminum Type 6060-T6.

Top of fixture housing must have 2 free-swinging mounting brackets. Each bracket must be adjustable vertically for leveling the sign to either a straight or curved mast arm. Bracket assembly must allow fixture to swing perpendicular to the sign panel.

Hinge pins for the free-swinging brackets must have a minimum diameter of 1/4 inch.

Message, as shown on the plans, must be displayed on both sign panels.

If not shown on the plans, the message and the size of symbols or arrows will be given by the Engineer at your request. Letters must be 8-inch upper case and 6-inch lower case, Series E.

Fixture conductors must be UL- or NRTL-listed AWM stranded copper wire with 28 mils, minimum, thermoplastic insulation, rated at 1,000 V(ac) and rated for use at 90 °C. Conductors must be No. 16 minimum and must match color coding of ballast leads.

Conductors within the fixture must be secured with easily removable spring cross straps, not clamped, in the chassis or fixture. Straps must be installed 12 inches apart or less.

Stranded copper conductors connected to screw-type terminals must terminate in approved crimp-type ring connectors.

Splices are not allowed within fixture.

Submit shop drawings showing the message for each sign, including size of letters, symbols or arrows, as shown on the plans. If requested, you must supply, without cost to the State, sufficient samples of materials to be used in the manufacturing of the sign or a complete sign assembly, to allow adequate testing and evaluation of compliance to specified requirements.

86-6.08 PHOTOELECTRIC CONTROLS

Photoelectric controls must be capable of directly switching multiple lighting systems.

86-6.08A Types

Photoelectric control type must comply with the following:

Photoelectric Control Types

Type I	Includes a remote photoelectric unit and a test switch housed in an enclosure.
Type II	Includes a remote photoelectric unit, a separate contactor located in a service equipment enclosure, and a test switch located in service equipment enclosure.
Type III	Includes a remote photoelectric unit, a separate contactor, and a test switch housed in an enclosure.
Type IV	Includes a photoelectric unit that plugs into an EEI-NEMA twist-lock receptacle integral with the luminaire.
Type V	Includes a photoelectric unit, contactor, and test switch located in service equipment enclosure.

A switch to allow manual operation of lighting circuit must be included for each Type I, Type II, Type III, and Type V photoelectric control. Switches must be single-hole mounting toggle type, single-pole, single-throw, rated at 12 A with a voltage rating that matches the circuit. Switches must have an indicating nameplate reading "Auto-Test" and be connected in parallel with the load contacts of the photoelectric unit. Test switches must not have an "OFF" position.

Photoelectric unit for Types I, II, and III photoelectric controls, must be pole-top mounted.

86-6.08B Equipment Details

86-6.08B(1) Photoelectric Unit

Photoelectric unit must:

1. Have an output in response to changing light levels. Response level must remain stable throughout life of control unit.
2. Have a "turn-on" between 1 and 5 footcandles, and a "turn-off" between 1.5 and 5 times "turn-on." 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.
3. Have a EEI-NEMA type receptacle. Mounting brackets must be used where pole-top mounting is not possible. Photoelectric controls must be installed at locations show on the plans and oriented.
4. Be screened to prevent artificial light from causing cycling.
5. Have a supply voltage rating of 60 Hz, 105-130 V(ac), 210-240 V(ac), or 105-240 V(ac), as specified.
6. Have a load rating of 800 W minimum, incandescent, high intensity discharge, or fluorescent.
7. Operate at a temperature range of -20 °C to 55 °C.
8. Have a power consumption less than 10 W.
9. Be housed in a weatherproof enclosure.
10. Have a base with a 3-prong, EEI-NEMA standard, twist-lock plug mounting.
11. Have a "fail-on" feature.

Unit components must not require periodic replacement.

Photoelectric controls, except Type IV and Type V, must include a 4-inch minimum inside diameter, pole-top mounting adaptor containing a terminal block, and cable supports or clamps to support pole wires.

For switching 480 V(ac), 60 Hz circuits, a 100 VA, minimum, 480/120 V(ac) transformer must be installed in the contactor enclosure to allow 120 V(ac) for the photoelectric control unit. If more than 1 photoelectric unit is to be installed at a location, a single transformer with a volt-ampere rating capable of handling the total controlled load, may be used.

86-6.08B(2) Contactor

Contactor must:

1. Have contacts rated to switch the specified lighting load
2. Be normally open
3. Be the mechanical armature type with contacts of fine silver, silver alloy, or superior alternative material

86-6.08B(3) Enclosure

Enclosure for Type I and Type III photoelectric controls must be NEMA 3R. Enclosure must be supplied with a factory-applied rust-resistant prime coat and finish coat. Two applications of paint to match the color of the standard must be applied as specified in Section 86-2.16, "Painting." Enclosure may be hot-dip galvanized instead of painting. A minimum of 2-1/2 inches must be provided between contactor terminals and end of enclosure for wiring connections. Enclosure must be mounted on the same standard as the photoelectric unit at a height of about 6 feet above finished grade.

86-6.08B(4) Terminal Blocks

Terminal blocks must be rated at 25 A, 600 V(ac), molded from phenolic or nylon material, and of the barrier type with plated-brass screw terminals and integral-type marking strips.

86-6.09 TRANSFORMERS

Multiple-to-multiple transformers must be single-phase dry type designed for operation on a 60 Hz supply.

86-6.09A Electrical Requirements

Transformers must have a decal showing a connection diagram. Diagram must show either color-coding or wire-tagging with primary (H1, H2) or secondary (X1, X2) markers, and the primary and secondary voltage and volt-ampere rating. Transformers must comply with the following:

Transformer Electrical Requirements

Transformer Characteristic	Multiple-to-Multiple Unit
Rating	120/480 V(ac), 240/480 V(ac), or 480/120 V(ac)
Efficiency	Exceed 95 percent
Secondary Voltage Regulation and Tolerance	±3 percent from half load to full load

Secondary 480 V(ac) windings must be center-tapped.

86-6.09B Physical Requirements

External leads for multiple-to-multiple secondary connections must be Type USE, No. 10, rated 600 V(ac).

Transformer leads must extend a minimum of 12 inches from the case.

Transformer insulation must be NEMA 185 C or better.

Multiple-to-multiple transformers must withstand the application of 2,200 V(ac) from core to coils and from coil to coil for a 1-minute period.

The above tests must be made immediately after operation of transformer at full load for 24 hours.

Non-submersible transformers must include metal half-shell coil protection, have moisture resistant synthetic varnish impregnated windings, and be suitable for outdoor operation in a raintight enclosure.

Each transformer to be installed in a pull box must be the submersible type and include a handle and a hanger.

86-6.09C Submersible Type Transformers

Submersible type transformers must be securely encased in a rugged corrosion resistant, watertight case and must withstand a 5-day test submerged in 2 feet of salt water, 2 percent salt by weight, with 12-hour on and off periods. The operating periods must be at full load.

Leads of submersible transformers must be brought out through one or more sealed hubs and secured to withstand a 100 pound static pull without loosening or leaking.

86-6.10 (BLANK)

86-6.11 FALSEWORK LIGHTING

86-6.11A General

Falsework lighting must include lighting to illuminate the pavement, portals, and pedestrian walkways at or under openings in the falsework required for traffic.

Lighting for pedestrian walkway illumination must be installed at all pedestrian openings through or under falsework.

Before starting falsework opening construction, you must submit a plan of proposed lighting installations for review and obtain approval. Approval will be made as specified in Section 5-1.02, "Plans and Working Drawings."

You must design falsework lighting so that required maintenance can be performed with a minimum of inconvenience to public traffic. Closing of traffic lanes for routine maintenance will not be permitted on roadways with posted speed limits greater than 25 mph.

Pavement under falsework with portals less than 150 feet apart and falsework portals must be illuminated only during the hours of darkness as defined in Division 1, Section 280, of the California Vehicle Code. Photoelectric switches must be used to control falsework lighting systems. Pavement under falsework with portals 150 feet or more apart and all pedestrian openings through falsework must be illuminated 24 hours per day.

Lighting fixtures must be aimed to avoid glare to oncoming motorists.

Type NMC cable with No. 12 minimum conductors, with ground wire, must be used. Fasten cable to supporting structure at sufficient intervals to adequately support cable and within 12 inches from every box or fitting. Conductors within 8 feet of ground must be enclosed in a 1/2 inch or larger metal conduit.

Each illumination system must be on a minimum of 1 separate branch circuit at each bridge location. Each branch circuit must be fused, not to exceed 20 A.

For falsework lighting, you must arrange with the serving utility to complete service connections. You must pay for energy, line extension, service, and service hookup costs.

At completion of project or when ordered by the Engineer, falsework lighting equipment will become your property and you must remove it from the job site.

You may propose a lighting plan that fulfills light intensity requirements to the systems specified herein. You must supply sufficient data to allow evaluation of alternative methods.

86-6.11B Pavement Illumination

Illumination of pavement at vehicular openings through falsework must comply with the following:

1. Fixture must include R/FL commercial type floodlamp holder with protective covers.
2. Fixture must be fully adjustable with brackets and locking screws, and allow mounting directly to a standard metal junction box.
3. Lamp must be medium-base 120 V(ac), 120 W, minimum, PAR-38 quartz-halogen floodlamp.
4. A continuous row of fixture types required must be installed at locations and spacing specified. Fixtures must be installed beneath falsework structure, with the end fixtures not further than 10 feet inside portal faces. Fixtures must be installed and energized immediately after the members supporting them have been erected.
5. Fixtures along the sides of the opening must be placed not more than 4 feet behind or 2 feet in front of the roadway face of the temporary railing. Mounting heights of fixtures must be between 12 and 16 feet above the roadway surface and must present an unobstructed light pattern on the pavement.

86-6.11C Portal Illumination

Illumination of falsework portals must comply with the following:

1. On each side of each entrance portal, plywood sheet clearance guides, 4 feet wide by 8 feet high, must be fastened vertically, facing traffic, with the bottom of the panel 3 feet to 4 feet above the roadway. The center of the panel must be located approximately 3 feet horizontally behind the roadway face of the railing. Panels must be freshly painted for each installation with not less than 2 applications of flat white paint. Paint testing will not be required.
2. If ordered by the Engineer, in order to improve the general appearance of the painted surfaces, you must repaint designated areas and that painting will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."
3. Falsework portals must be illuminated on the side facing traffic with 150 W, minimum, PAR reflector floodlamps mounted on the structure directly over each vertical support adjacent to the traveled way, as needed to uniformly illuminate the exterior falsework beam, the clearance guides, and the overhead clearance sign. Each lamp must be supported approximately 16 feet above the pavement and approximately 6 feet in front of the portal face.
4. Portal lighting and clearance guides must be installed on the day that vertical members are erected.

86-6.11D Pedestrian Walkway Illumination

Illumination of pedestrian openings through or under falsework must comply with the following:

1. Fixtures must be flush-mounted in the overhead protection shield and equipped with a damage-resistant clear polycarbonate diffuser lens. Lamps must be standard incandescent 100 W, 120 V(ac).
2. Fixtures must be centered over the passageway at intervals of not more than 15 feet with the end fixtures not more than 7 feet inside the end of the pedestrian openings.

3. Pedestrian passageway light systems must be installed immediately after the overhead protection shield is erected.

86-7 REMOVING, REINSTALLING OR SALVAGING ELECTRICAL EQUIPMENT

86-7.01 REMOVING ELECTRICAL EQUIPMENT

Existing electrical equipment, pull boxes, and conduits, to be removed and not reused or salvaged, become your property and you must dispose of it under Section 7-1.13, "Disposal of Materials Outside the Highway Right of Way." Unused underground conduit may be abandoned in place after all conductors have been removed, except that conduit terminations from conduit to be abandoned must be removed from pull boxes to remain.

Exercise care in salvaging equipment so that it will not be damaged or destroyed. Mast arms must be removed from standards. Luminaires, signal heads, and signal mounting assemblies must be removed from standards and mast arms.

Holes resulting from removing pull boxes must be filled with material equivalent to the surrounding material.

86-7.02 REINSTALLING REMOVED ELECTRICAL EQUIPMENT

If removed electrical equipment is to be reinstalled, you must supply all necessary materials and equipment, including signal mounting assemblies, anchor bolts, nuts, washers, and concrete as required to complete the new installation.

Luminaires to be reinstalled must be cleaned and relamped.

Existing materials required to be reused and found to be unsatisfactory by the Engineer must be replaced with new material and the replacement cost will be paid for as extra work as specified in Section 4-1.03D, "Extra Work."

86-8 PAYMENT

86-8.01 PAYMENT

The contract lump sum price or prices paid for signal, ramp metering, flashing beacon, lighting, sign illumination, traffic monitoring station, highway advisory radio systems, closed circuit television systems, or combinations thereof; for modifying or removing those systems; for temporary systems; or the lump sum or unit prices paid for various units of those systems; or the lump sum or per foot price paid for conduit of the various sizes, types, and installation methods listed in the Engineer's Estimate include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in furnishing and installing, modifying, or removing the systems, combinations or units thereof, including any necessary pull boxes (except if the type required is shown as a separate contract item); excavation and backfill; concrete foundations (except if shown as a separate contract item); pedestrian barricades; furnishing and installing illuminated street name signs; installing sign panels on pedestrian barricades, on flashing beacon standards, and on traffic signal mast arms; restoring sidewalk, pavement and appurtenances damaged or destroyed during construction; salvaging existing materials; and making all required tests, as shown on the plans, as specified in these specifications and the special provisions, and as directed by the Engineer.

If poles for electrical systems are manufactured from a source located more than 300 air-line miles from Sacramento and Los Angeles, the Department will deduct $5,000 for inspection costs for each inspection site. If poles for electrical systems are manufactured from a source located more than 3,000 air-line miles from Sacramento and Los Angeles, the Department will deduct $8,000 for inspection costs for each inspection site.

Full compensation for all additional materials and labor, not shown on the plans or specified, that are necessary to complete the installation of the various systems, is included in the prices paid for the systems, or units thereof, except as provided in Section 86-1.06, "Maintaining Existing and Temporary Electrical Systems," and no additional compensation will be allowed therefor.

If shown as a contract item, the contract price paid per foot for cast-in-drilled-hole concrete pile (signal foundation) includes full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing reinforced concrete pile foundations of the size shown on the Engineer's Estimate, including drilling holes, disposing of the material resulting from drilling holes, furnishing and placing anchor bolt assemblies and reinforcing steel, complete in place, as shown on the plans, and as specified in these specifications and the special provisions, and as directed by the Engineer.

If shown as a contract item, non-reinforced PCC foundations will be measured and paid for by the cubic yard for foundation concrete in the same manner as specified for minor concrete (minor structure) in Section 51, "Concrete Structures."

If shown as a separate contract item by the lump sum or per foot, interconnection conduit and cable includes all interconnection conductors, and conduit and pull boxes containing interconnection cable and no other conductors. The quantity of interconnection conduit and cable to be paid for by the foot is the length of that conduit. Compensation for conduit containing interconnection cable and other conductors is included in the contract price paid for the item requiring the other conductors.

Full compensation for furnishing, installing, maintaining, and removing falsework lighting equipment is included in the contract prices paid for the items of work involved in the structure that requires the falsework lighting and no additional compensation will be allowed therefor.

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SECTION 88 ENGINEERING FABRICS
(Issued 01-20-12)

Replace Section 88 with:

SECTION 88 GEOSYNTHETICS

88-1.01 GENERAL

88-1.01A Summary

Section 88 includes specifications for geosynthetics. Geosynthetics are used for:

1. Filtration
2. Drainage
3. Reinforcement
4. Water pollution control
5. Channel and shore protection
6. Pavement interlayer
7. Separation and stabilization

88-1.01B Submittals

Submit:

1. Certificate of Compliance under Section 6-1.07, "Certificates of Compliance"
2. Samples representing each lot
3. Minimum average roll values (MARV)

Label submittals with the manufacturer's name and product information.

88-1.01C Quality Control and Assurance

Treat geosynthetics to resist degradation from exposure to sunlight. Using covers, protect geosynthetics from moisture, sunlight, and shipping and storage damage.

88-1.02 FILTRATION

88-1.02A Filter Fabric

Geosynthetics used for filter fabric must be permeable and nonwoven. Filter fabric must consist of 1 of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Filter fabric must comply with:

Filter Fabric

Property	ASTM	Specification		
		Class A	Class B	Class C
Grab breaking load, 1-inch grip, lb minimum in each direction	D 4632	157		
Apparent elongation, percent minimum in each direction	D 4632	50		
Puncture strength, lb minimum	D 6241	600		
Ultraviolet resistance, percent minimum retained grab breaking load, 500 hr	D 4355	70		
Permittivity, sec^{-1} minimum	D 4491	0.5	0.2	0.1
Apparent opening size, average roll value, U.S. Standard sieve size maximum	D 4751	40	60	70

88-1.03 DRAINAGE

88-1.03A Geocomposite Wall Drain

Geocomposite wall drain must consist of a polymeric core with filter fabric integrally bonded to 1 or both sides of the core creating a stable drainage void.

Filter fabric must comply with Section 88-1.02, "Filtration."

Geocomposite wall drain must comply with:

Geocomposite Wall Drain

Property	ASTM	Specification
Thickness with fabric, inches maximum	--	2
Transmissivity, gradient = 1.0, normal stress = 5,000 psf, gal/min/ft	D 4716	4

88-1.04 REINFORCEMENT

88-1.04A Geotechnical Subsurface Reinforcement

General

Geosynthetic used for geotechnical subsurface reinforcement must be either of the following:

1. Geotextile
2. Geogrid

Geotextile permittivity must be at least 0.05 sec^{-1} determined under ASTM D 4491.

Geogrid must have a regular and defined open area. The open area must be from 50 to 90 percent of the total grid area.

Long Term Design Strength

Long Term Design Strength (LTDS) of geosynthetic reinforcement is the ultimate tensile strength in the primary strength direction divided by reduction factors. Calculate the LTDS from the guidelines in Geosynthetic Research Institute (GRI) Standard Practice GG4a, GRI GG4b, or GRI GT7.

The product of the appropriate reduction factors must be at least 1.30. Determine the reduction factor for creep using a 75-year design life for permanent applications and a 5-year design life for temporary applications. Determine the installation damage reduction factor based on the characteristics of the backfill materials used.

If test data is not available, use default values of reduction factors in the GRI Standard Practice to calculate LTDS.

Submit the LTDS and its supporting calculations at least 15 days before placing geosynthetic reinforcement. Do not install before the Engineer's approval. The LTDS must be signed by an engineer who is registered as a civil engineer in the State.

88-1.05 WATER POLLUTION CONTROL

Geosynthetics used for water pollution control must comply with:

Water Pollution Control Geosynthetics

Property	ASTM	Application						
		Silt Fence		Sediment Filter Bag		Gravel-Filled Bags	Temporary Cover	
		Woven	Non-woven	Woven	Non-woven		Woven	Non-woven
Grab breaking load, 1-inch grip, lb minimum in each direction	D 4632	120	120	200	250	205	200	200
Apparent elongation, percent minimum, in each direction	D 4632	15	50	10	50	--	15	50
Water flow rate, gallons per minute/square foot minimum and maximum average roll value	D 4491	10 - 100	100 - 150	100 - 200	75 - 200	80 - 150	4 - 10	80 - 120
Permittivity, sec^{-1} minimum	D 4491	0.05	1.1	1.0	1.0	0.2	0.05	1.0
Apparent opening size, inches maximum average roll value	D 4751	0.023	0.012	0.023	0.012	0.016	0.023	0.012
Ultraviolet resistance, percent minimum retained grab breaking load, 500 hr.	D 4355	70	70	70	70	70	70	70

88-1.06 CHANNEL AND SHORE PROTECTION

88-1.06A Rock Slope Protection

Rock slope protection (RSP) fabric must be a permeable, nonwoven, needle-punched geotextile. RSP fabric consists of 1 of the following:

1. Polyester
2. Polypropylene
3. Combined polyester and polypropylene

Polymers must be either virgin compounds or clean reworked material. Do not subject virgin compounds to use or processing other than required for initial manufacture. Clean reworked material must be previously processed material from the processor's own production that has been reground, pelletized, or solvated. RSP fabric must not consist of more than 20 percent by weight of clean reworked material. Do not use recycled materials from either post-consumer or post-industrial sources.

Class 8 or Class 10 RSP fabric must comply with:

Rock Slope Protection Fabric

Property	ASTM	Specification	
		Class 8	Class 10
Weight, oz/yd^2 minimum	D 5261	7.5	9.5
Grab breaking load, lb 1-inch grip, min. in each direction	D 4632	200	250
Apparent elongation, percent min., in each direction	D 4632	50	50
Permittivity, sec^{-1}, minimum	D 4491	1.0	0.70
Apparent opening size, U.S. Standard sieve size minimum and maximum	D 4751	70 - 100	70 - 100
Ultraviolet resistance, percent minimum retained grab breaking load, 500 hr.	D4355	70	70

88-1.07 PAVEMENT INTERLAYER

88-1.07A Paving Fabric

Geosynthetics used for paving fabric must be nonwoven. Paving fabric must comply with:

Geosynthetic Paving Fabric

Property	ASTM	Specification
Mass per unit area, oz/yd^2 minimum	D 5261	4.1
Grab breaking load, lb 1-inch grip, minimum, in each direction	D 4632	100
Apparent elongation, percent minimum in each direction	D 4632	50
Hydraulic bursting strength, psi minimum	D 3786	200
Melting point, °F minimum	D 276	325
Asphalt retention, gal/yd^2 minimum	D 6140	0.2

88-1.07B Paving Mat

Geosynthetics used for paving mat must be a nonwoven fiberglass and polyester hybrid material. Paving mat must comply with:

Geosynthetic Paving Mat

Property	ASTM	Specification
Breaking force, lb/2 inches minimum	D 5035	45
Ultimate elongation, percent maximum	D 5035	5
Mass per unit area, oz/ sq yd minimum	D 5261	3.7
Melting point, °F minimum	D 276	400
Asphalt retention, gal/yd^2 minimum	D 6140	0.10

88-1.07C Paving Grid

Geosynthetics used for paving grid must be a geopolymer material formed into a grid of integrally connected elements with openings. Paving grid must comply with:

Geosynthetic Paving Grid

Property	Test	Specification		
		Class I	Class II	Class III
Tensile strength at ultimate, lb/in [a] minimum	ASTM D 6637	560 x 1,120	560	280
Aperture size, inch minimum	Calipered	0.5	0.5	0.5
Elongation, % maximum	ASTM D 6637	12	12	12
Mass per area, oz / sqyd minimum	ASTM D 5261	16	10	5.5
Melting point, °F minimum	ASTM D 276	325	325	325

Note:
[a] For Class I, machine direction x cross direction. For Class II and Class III, both directions.

88-1.07D Paving Geocomposite Grid

Paving geocomposite grid consists of paving grid specified under Section 88-1.07C, "Paving Grid," bonded or integrated with paving fabric specified under Section 88-1.07A, "Paving Fabric."

Paving geocomposite grid must have a peel strength of at least 10 pounds per foot determined under ASTM D 413.

88-1.07E Geocomposite Strip Membrane

Geocomposite strip membrane must consist of various widths of strips manufactured from of asphaltic rubber and geosynthetics. Geocomposite strip membrane must comply with:

Geocomposite Strip Membrane

Property	ASTM	Specification
Strip tensile strength, lbs/inch minimum	D 882	50
Elongation at break, % minimum	D 882	50
Resistance to puncture, lbs. minimum	E 154	200
Permeance, perms maximum	E 96/E 96M	0.10
Pliability, 1/4 inch mandrel with sample conditioned at 25 °F	D 146	No cracks in fabric or bitumen
Melting point, °F	D 276	325

88-1.08 SEPARATION AND STABILIZATION

88-1.08A Subgrade Enhancement Geotextile

Subgrade enhancement geotextile must consist of either of the following:

1. Polyester
2. Polypropylene

Subgrade enhancement geotextile must comply with:

Subgrade Enhancement Geotextile

Property	ASTM	Specification [a]				
		Class A1	Class A2	Class B1	Class B2	Class B3
Elongation at break, %	D 4632	<50	≥50	<50	<50	≥50
Grab tensile strength, lb minimum	D4632	250	160	--	320	200
Wide width tensile strength at 5% strain, lb/ft minimum	D 4595	--	--	2,000	--	--
Wide width tensile strength at ultimate strength, lb/ft minimum	D 4595	--	--	4,800	--	--
Tear strength, lb minimum	D 4533	90	60	--	120	80
Puncture strength, lb minimum	D 6241	500	310	620	620	430
Permittivity, sec^{-1} minimum	D 4491	0.05	0.05	0.20	0.20	0.20
Apparent opening size, inches maximum	D 4751	0.012	0.012	0.024	0.012	0.012
Ultraviolet stability (retained strength after 500 hrs exposure), % minimum	D 4355	70	70	70	70	70

Notes:
[a] Specifications are based on minimum average roll value in the weaker principle direction except apparent opening size is based on maximum average roll value.

88-1.09 PAYMENT

The Department measures and pays for geosynthetics under the specifications requiring their use.

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SECTION 90 PORTLAND CEMENT CONCRETE
(Issued 08-05-11)

Replace Section 90 with:

SECTION 90 PORTLAND CEMENT CONCRETE

90-1 GENERAL

90-1.01 DESCRIPTION

Portland cement concrete shall be composed of cementitious material, fine aggregate, coarse aggregate, admixtures if used, and water, proportioned and mixed as specified in these specifications.

The Contractor shall determine the mix proportions for concrete in conformance with these specifications.

Minor concrete shall contain not less than 505 pounds of cementitious material per cubic yard unless otherwise specified in these specifications or the special provisions.

Unless otherwise designated on the plans or specified in these specifications or the special provisions, the amount of cementitious material used per cubic yard of concrete in structures or portions of structures shall conform to the following:

Use	Cementitious Material Content (Pounds/CY)
Concrete designated by compressive strength:	
Deck slabs and slab spans of bridges	675 min., 800 max.
Roof sections of exposed top box culverts	675 min., 800 max.
Other portions of structures	590 min., 800 max.
Concrete not designated by compressive strength:	
Deck slabs and slab spans of bridges	675 min.
Roof sections of exposed top box culverts	675 min.
Prestressed members	675 min.
Seal courses	675 min.
Other portions of structures	590 min.
Concrete for precast members	590 min., 925 max.

Except for minor structures, the minimum required compressive strength for concrete in structures or portions of structures shall be the strength specified, or 3600 pounds per square inch at 28 days, whichever is greater.

Except for when a modulus of rupture is specified, the minimum required compressive strength for concrete shall be the strength specified, or 2,500 pounds per square inch, whichever is greater. Concrete shall be proportioned such that the concrete will attain the minimum required compressive strength.

If the specified 28-day compressive strength is 3,600 pounds per square inch or greater, the concrete is designated by compressive strength. For concrete with a 28-day compressive strength greater than 3,600 pounds per square inch, 42 days will be allowed to obtain the specified strength.

For concrete not designated by compressive strength, the Engineer may test the concrete for compressive strength. The concrete will be accepted if the compressive strength at 28 days attains 85 percent or more of the minimum required compressive strength.

Concrete shall be proportioned to conform to the following shrinkage limitations when tested in conformance with the requirements of AASHTO Designation: T 160, modified as follows:

Condition	Maximum Shrinkage of Laboratory Cast Specimens at 28 days Drying (average of 3, %)
Paving and approach slab concrete	0.050
Bridge deck concrete	0.045

Note: Shrinkage requirement is waived for concrete that is used for precast elements.

Shrinkage tests shall be either:

A. Performed by a laboratory accredited to perform AASHTO Designation: T 160, or
B. Performed by a laboratory that maintains a current rating of 3 or better for the Cement and Concrete Reference Laboratory (CCRL) concrete proficiency sample program.

Laboratory cast specimens shall have a 4" x 4" cross section. Specimens shall be removed from the molds 23 ± 1 hours after mixing the concrete and placed in lime water at 73 ± 3 °F to 7 days age. A comparator reading shall be taken at 7 days age and recorded as the initial reading. Specimens then shall be stored in a humidity controlled room maintained at 73 ± 3 °F and 50 ± 4 percent relative humidity for the remainder of the test. Subsequent readings shall be taken at 7, 14, 21, and 28 days drying.

Test data verifying conformance to the shrinkage limitations shall be submitted with the mix design. Shrinkage testing data accepted by the Engineer no more than 3 years prior to the first working day of this contract will be acceptable for this entire contract, provided the data was for concrete with similar proportions and the same materials and material sources to be used on this contract. Concrete shall be considered to have similar proportions if, when compared to concrete to be used on this project, no more than 2 mix design elements are varied. Varied mix design elements shall fall within the tolerances in the following table:

Mix Design Element	Tolerance (±)
Water to cementitious material ratio	0.03
Total water content	5 %
Coarse aggregate (weight per cubic yard)	10 %
Fine aggregate (weight per cubic yard)	10 %
Supplementary cementitious material content	5 %
Admixture (as originally dosed)	25 %

Note: Admixtures must be of the same brand.

Before using concrete or in advance of revising the mix proportions, the Contractor shall submit in writing to the Engineer a copy of the mix design.

Compliance with cementitious material content requirements will be verified in conformance with procedures described in California Test 518 for cement content. For testing purposes, supplementary cementitious material (SCM) shall be considered to be cement. Batch proportions shall be adjusted as necessary to produce concrete having the specified cementitious material content.

If any concrete has a cementitious material, portland cement, or SCM content that is less than the minimum required, the concrete shall be removed. However, if the Engineer determines that the concrete is structurally adequate, the concrete may remain in place and the Contractor shall pay to the State $0.25 for each pound of cementitious material, portland cement, or SCM that is less than the minimum required. The Department may deduct the amount from any moneys due, or that may become due, the Contractor under the contract. The deductions will not be made unless the difference between the contents required and those actually provided exceeds the batching tolerances permitted by Section 90-5, "Proportioning." No deductions will be made based on the results of California Test 518.

The requirements of the preceding paragraph shall not apply to minor concrete.

90-2 MATERIALS

90-2.01 CEMENTITIOUS MATERIALS

Unless otherwise specified, cementitious material shall be either a combination of Type II or Type V portland cement and SCM, or a blended cement. No cementitious material shall be used in the work unless it is on the Department's Pre-Qualified Products List at the time of mix design submittal. Information regarding cementitious material qualification and placement on the Department's approved list can be obtained at the Transportation Laboratory.

Cementitious materials used in cast-in-place concrete for exposed surfaces of like elements of a structure shall be from the same sources and of the same proportions.

Cementitious materials shall be protected from moisture until used. Sacked cementitious materials shall be piled to permit access for tallying, inspecting, and identifying each shipment.

Facilities shall be provided to ensure that the various cementitious materials meeting this Section 90-2.01 are kept separate from each other and from other cementitious materials. A storage silo containing a cementitous material shall be emptied before using that silo for a different cementitious material. Blended cements with a percentage of SCM differing by more than 2 percentage points are considered different cementitious materials. Sampling cementitious materials shall be in conformance with California Test 125.

The Contractor shall furnish a Certificate of Compliance for cementitious materials in conformance with the provisions in Section 6-1.07, "Certificates of Compliance." The Certificate of Compliance shall indicate the source by name and location (including country, state, and city). If cementitious material is delivered directly to the job site, the Certificate of Compliance shall be signed by the cementitious material supplier. If the cementitious material is used in ready-mixed concrete or in precast concrete products purchased as such by the Contractor, the Certificate of Compliance shall be signed by the manufacturer of the concrete or product. If blended cement is used, the Certificate of Compliance shall include a statement signed by the blended cement supplier that indicates the actual percentage, by weight, of SCM in the blend. Weight of SCM shall be by weighing device conforming to Section 9-1.01, "Measurement of Quantities," or as determined by chemical analysis.

90-2.01A Cement

Portland cement shall conform to the requirements in ASTM Designation: C 150 except the C_3S content of Type II cement shall not exceed 65 percent.

Blended cement shall conform to the requirements for Portland Blast-Furnace Slag Cement, Type IS (MS) or Portland-Pozzolan Cement, Type IP (MS) in AASHTO Designation: M 240, except that the maximum limits on the pozzolan content shall not apply. Blended cement shall be comprised of Type II or Type V cement and SCM produced by intergrinding portland cement clinker and granulated blast furnace slag, ground granulated blast furnace slag (GGBFS), or pozzolan; by blending portland cement and either GGBFS or finely divided pozzolan; or by a combination of intergrinding and blending.

In addition, Type II portland cement and Type V portland cement shall conform to the following requirements:

A. The cement shall not contain more than 0.60-percent by mass of alkalies, calculated as the percentage of Na_2O plus 0.658 times the percentage of K_2O, when determined by methods as required in AASHTO Designation: T 105; and
B. The autoclave expansion shall not exceed 0.50-percent

Type III portland cement shall be used only as specified or with the approval of the Engineer. Type III portland cement shall conform to the additional requirements listed above for Type II portland cement. The Contractor may use Type III portland cement in the manufacturing of precast concrete.

90-2.01B Supplementary Cementitious Materials

Each supplementary cementitious material shall conform to one of the following:

A. Fly ash conforming to the requirements in AASHTO Designation: M 295, Class F, and these specifications. The available alkali, as sodium oxide equivalent, shall not exceed 1.5 percent when determined in conformance with the requirements in ASTM

Designation: C 311 or the total alkali, as sodium oxide equivalent, shall not exceed 5.0 percent when determined in conformance with the requirements in AASHTO Designation: T 105.

B. Ultra fine fly ash (UFFA) conforming to the requirements in AASHTO Designation: M 295, Class F, and the following chemical and physical requirements:

Chemical Requirements	Percent
Sulfur Trioxide (SO_3)	1.5 max.
Loss on ignition	1.2 max.
Available Alkalies (as Na_2O) equivalent	1.5 max.

Physical Requirements	Percent
Particle size distribution	
Less than 3.5 microns	50
Less than 9.0 microns	90
Strength Activity Index with portland cement	
7 days	95 (minimum % of control)
28 days	110 (minimum % of control)
Expansion at 16 days when testing job materials in conformance with ASTM C 1567*	0.10 max.

* In the test mix, Type II or Type V portland cement shall be replaced with at least 12% UFFA by weight.

C. Raw or calcined natural pozzolans conforming to the requirements in AASHTO Designation: M 295, Class N. and the following requirements and these specifications. The available alkali, as sodium oxide equivalent, shall not exceed 1.5 percent when determined in conformance with the requirements in ASTM Designation: C 311 or the total alkali, as sodium oxide equivalent, shall not exceed 5.0 percent when determined in conformance with the requirements in AASHTO Designation: T 105.

D. Metakaolin conforming to the requirements in AASHTO Designation: M 295, Class N, and the following chemical and physical requirements:

Chemical Requirements	Percent
Silicon Dioxide (SiO_2) + Aluminum Oxide (Al_2O_3)	92.0 min.
Calcium Oxide (CaO)	1.0 max
Sulfur Trioxide (SO_3)	1.0 max.
Loss on ignition	1.2 max.
Available Alkalies (as Na_2O) equivalent	1.0 max.

Physical Requirements	Percent
Particle size distribution Less than 45 microns	95
Strength Activity Index with portland cement	
7 days	100 (minimum % of control)
28 days	100 (minimum % of control)

E. Ground Granulated Blast Furnace Slag (GGBFS) conforming to the requirements in AASHTO Designation: M 302, Grade 100 or Grade 120.

F. Silica Fume conforming to the requirements of AASHTO Designation: M 307, with reduction in mortar expansion of 80 percent, minimum, using the cement from the proposed mix design.

Commingling of fly ash from different sources at uncontrolled ratios is permissible only if the following criteria are satisfied:

A. Sources of fly ash to be commingled shall each produce fly ash that conforms to the requirements in AASHTO Designation: M 295, Class F.
B. Testing of the commingled product is the responsibility of the fly ash supplier.
C. Each fly ash's running average of relative density shall not differ from any other by more than 0.25 at the time of commingling.
D. Each fly ash's running average of loss on ignition shall not differ from any other by more than one percent at the time of commingling.
E. The final product of commingled fly ash shall conform to the requirements in AASHTO Designation: M 295, Class F.

90-2.01C Required Use Of Supplementary Cementitious Materials

General

The amount of portland cement and SCM used in portland cement concrete shall conform to the minimum cementitious material content provisions in Section 90-1.01, "Description," or Section 90-4.05, "Optional Use of Chemical Admixtures," and these specifications.

The SCM content in portland cement concrete shall conform to one of the following:

A. Any combination of portland cement and at least one SCM, satisfying Equations (1) and (2):

Equation (1)

$$\frac{(25 \times UF) + (12 \times FA) + (10 \times FB) + (6 \times SL)}{MC} \geq X$$

Where:

UF = Silica fume, metakaolin, or UFFA, including the amount in blended cement, pounds per cubic yard.
FA = Fly ash or natural pozzolan conforming to the requirements in AASHTO Designation: M 295, Class F or N with a CaO content up to 10 percent, including the amount in blended cement, pounds per cubic yard.
FB = Fly ash or natural pozzolan conforming to the requirements in AASHTO Designation: M 295, Class F or N with a CaO content greater than 10 percent and up to 15 percent, including the amount in blended cement, pounds per cubic yard.
SL = GGBFS, including the amount in blended cement, pounds per cubic yard.
MC = Minimum amount of cementitious material specified, pounds per cubic yard.
X = 1.8 for innocuous aggregate, 3.0 for all other aggregate.

Equation (2)

$$MC - MSCM - PC \geq 0$$

Where:

MC = Minimum amount of cementitious material specified, pounds per cubic yard.
MSCM = The minimum sum of SCMs that satisfies Equation (1) above, pounds per cubic yard.
PC = The amount of portland cement, including the amount in blended cement, pounds per cubic yard.

B. 15 percent of Class F fly ash with at least 48 ounces of $LiNO_3$ solution added per 100 pounds of portland cement. CaO content of the fly ash shall not exceed 15 percent.

Precast Concrete

The SCM content in precast portland cement concrete shall conform to one of the following:

A. Any combination of portland cement and SCM, satisfying the following equation:

Equation (3)

$$\frac{(25 \times UF) + (12 \times FA) + (10 \times FB) + (6 \times SL)}{TC} \geq X$$

Where:

UF = Silica fume, metakaolin, or UFFA, including the amount in blended cement, pounds per cubic yard.
FA = Fly ash or natural pozzolan conforming to the requirements in AASHTO Designation: M 295, Class F or N with a CaO content up to 10 percent, including the amount in blended cement, pounds per cubic yard.
FB = Fly ash or natural pozzolan conforming to the requirements in AASHTO Designation: M 295, Class F or N with a CaO content greater than 10 percent and up to 15 percent, including the amount in blended cement, pounds per cubic yard.
SL = GGBFS, including the amount in blended cement, pounds per cubic yard.
TC = Total amount of cementitious material used in the mix, pounds per cubic yard.
X = 0.0 if precast members are constructed with portland cement concrete using aggregate that is "innocuous" in conformance with the provisions in Section 90-2.02, "Aggregates."
X = 3.0 for all other aggregate.

B. 15 percent of Class F fly ash with at least 48 ounces of $LiNO_3$ solution added per 100 pounds of portland cement. CaO content of the fly ash shall not exceed 15 percent.
C. Any combination of supplementary cementitious material and portland cement may be used if the expansion of cementitious material and aggregate does not exceed 0.10 percent when tested in conformance with the requirements in ASTM C 1567. Test data shall be submitted with each mix design. Test data accepted by the Engineer no more than 3 years prior to the first working day of this contract will be acceptable for this entire contract, provided the data was for the same concrete mix and the same materials and material sources to be used on this contract.

90-2.02 AGGREGATES

To be considered innocuous, aggregate must be on the Department's approved list, "Innocuous Aggregates for use in Concrete." Information regarding aggregate qualification and placement on the Department's approved list can be obtained at the Transportation Laboratory.

Both coarse and fine aggregate must be on the approved list for the aggregate used in concrete to be considered innocuous.

Aggregates shall be free from deleterious coatings, clay balls, roots, bark, sticks, rags, and other extraneous material.

The Contractor shall provide safe and suitable facilities, including necessary splitting devices for obtaining samples of aggregates, in conformance with California Test 125.

Aggregates shall be of such character that it will be possible to produce workable concrete within the limits of water content provided in Section 90-6.06, "Amount of Water and Penetration."

Aggregates shall have not more than 10 percent loss when tested for soundness in conformance with the requirements in California Test 214. The soundness requirement for fine aggregate will be waived, provided that the durability index, D_f, of the fine aggregate is 60 or greater when tested for durability in conformance with California Test 229.

If the results of any one or more of the Cleanness Value, Sand Equivalent, or aggregate grading tests do not meet the requirements specified for "Operating Range" but all meet the "Contract Compliance" requirements, the placement of concrete shall be suspended at the completion of the current pour until tests or other information indicate that the next material to be used in the work will comply with the requirements specified for "Operating Range."

If the results of either or both the Cleanness Value and coarse aggregate grading tests do not meet the requirements specified for "Contract Compliance," the concrete that is represented by the tests shall be removed. However, if the Engineer determines that the concrete is structurally adequate, the concrete may remain in place, and the Contractor shall pay to the State $3.50 per cubic yard for paving concrete and $5.50 per cubic yard for all other concrete for the concrete represented by these tests and left in place. The Department may deduct the amount from any moneys due, or that may become due, the Contractor under the contract.

If the results of either or both the Sand Equivalent and fine aggregate grading tests do not meet the requirements specified for "Contract Compliance," the concrete which is represented by the tests shall be removed. However, if the Engineer determines that the concrete is structurally adequate, the concrete may remain in place, and the Contractor shall pay to the State $3.50 per cubic yard for paving concrete and $5.50 per cubic yard for all other concrete for the concrete represented by these tests and left in place. The Department may deduct the amount from any moneys due, or that may become due, the Contractor under the contract.

The 2 preceding paragraphs apply individually to the "Contract Compliance" requirements for coarse aggregate and fine aggregate. When both coarse aggregate and fine aggregate do not conform to the "Contract Compliance" requirements, both paragraphs shall apply. The payments specified in those paragraphs are in addition to any payments made in conformance with the provisions in Section 90-1.01, "Description."

No single Cleanness Value, Sand Equivalent, or aggregate grading test shall represent more than 300 cubic yards of concrete or one day's pour, whichever is smaller.

When the source of an aggregate is changed, the Contractor shall adjust the mix proportions and submit in writing to the Engineer a copy of the mix design before using the aggregates.

90-2.02A Coarse Aggregate

Coarse aggregate shall consist of gravel, crushed gravel, crushed rock, reclaimed aggregate, crushed air-cooled iron blast furnace slag or combinations thereof. Crushed air-cooled blast furnace slag shall not be used in reinforced or prestressed concrete.

Reclaimed aggregate is aggregate that has been recovered from plastic concrete by washing away the cementitious material. Reclaimed aggregate shall conform to all aggregate requirements.

Coarse aggregate shall conform to the following quality requirements:

Tests	California Test	Requirements
Loss in Los Angeles Rattler (after 500 revolutions)	211	45% max.
Cleanness Value		
Operating Range	227	75 min.
Contract Compliance	227	71 min.

In lieu of the above Cleanness Value requirements, a Cleanness Value "Operating Range" limit of 71, minimum, and a Cleanness Value "Contract Compliance" limit of 68, minimum, will be used to determine the acceptability of the coarse aggregate if the Contractor furnishes a Certificate of Compliance, as provided in Section 6-1.07, "Certificates of Compliance," certifying that:

A. Coarse aggregate sampled at the completion of processing at the aggregate production plant had a Cleanness Value of not less than 82 when tested in conformance with the requirements in California Test 227; and
B. Prequalification tests performed in conformance with the requirements in California Test 549 indicated that the aggregate would develop a relative strength of not less than 95 percent and would have a relative shrinkage not greater than 105 percent, based on concrete.

90-2.02B Fine Aggregate

Fine aggregate shall consist of natural sand, manufactured sand produced from larger aggregate or a combination thereof. Manufactured sand shall be well graded.

Fine aggregate shall conform to the following quality requirements:

Test	California Test	Requirements
Organic Impurities	213	Satisfactory[a]
Sand Equivalent:		
Operating Range	217	75, min.
Contract Compliance	217	71, min.

[a] Fine aggregate developing a color darker than the reference standard color may be accepted if 95% relative mortar strength is achieved when tested in conformance with ASTM C87.

In lieu of the above Sand Equivalent requirements, a Sand Equivalent "Operating Range" limit of 71, minimum, and a Sand Equivalent "Contract Compliance" limit of 68, minimum, will be used to determine the acceptability of the fine aggregate if the Contractor furnishes a Certificate of Compliance, as provided in Section 6-1.07, "Certificates of Compliance," certifying that:

A. Fine aggregate sampled at the completion of processing at the aggregate production plant had a Sand Equivalent value of not less than 82 when tested by California Test 217; and
B. Prequalification tests performed in conformance with California Test 549 indicated that the aggregate would develop a relative strength of not less than 95 percent and would have a relative shrinkage not greater than 105 percent, based on concrete.

90-2.03 WATER

In conventionally reinforced concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 1,000 parts per million of chlorides as Cl, when tested in conformance with California Test 422, nor more than 1,300 parts per million of sulfates as SO_4, when tested in conformance with California Test 417. In prestressed concrete work, the water for curing, for washing aggregates, and for mixing shall be free from oil and shall not contain more than 650 parts per million of chlorides as Cl, when tested in conformance with California Test 422, nor more than 1,300 parts per million of sulfates as SO_4, when tested in conformance with California Test 417. In no case shall the water contain an amount of impurities that will cause either of the following results when compared to the same test using distilled or deionized water: 1) a change in the setting time of cement of more than 25 percent when tested in conformance with the requirements in ASTM Designation: C 191 or ASTM Designation: C 266 or 2) a reduction in the compressive strength of mortar at 14 days of more than 5 percent, when tested in conformance with the requirements in ASTM Designation: C 109.

In nonreinforced concrete work, the water for curing, for washing aggregates and for mixing shall be free from oil and shall not contain more than 2,000 parts per million of chlorides as Cl, when tested in conformance with California Test 422, or more than 1,500 parts per million of sulfates as SO_4, when tested in conformance with California Test 417.

In addition to the above provisions, water for curing concrete shall not contain impurities in a sufficient amount to cause discoloration of the concrete or produce etching of the surface.

Water reclaimed from mixer wash-out operations may be used in mixing concrete. The water shall not contain coloring agents or more than 300 parts per million of alkalis (Na_2O + 0.658 K_2O) as determined on the filtrate. The specific gravity of the water shall not exceed 1.03 and shall not vary more than ±0.010 during a day's operations.

90-2.04 Admixture Materials

Admixture materials shall be stored and dispensed in liquid form and conform to the following requirements:

A. Chemical Admixtures—ASTM Designation: C 494.
B. Air-entraining Admixtures—ASTM Designation: C 260.
C. Lithium Nitrate shall be in an aqueous solution conforming to the following:

1. Lithium Nitrate ($LiNO_3$) must be 30 percent +/- 0.5 percent by weight
2. Sulfate (SO_4) must be less than 1000 ppm
3. Chloride (Cl) must be less than 1000 ppm
4. Alkalis (Na_2O + 0.658 K_2O) must be less than 1000 ppm

90-3 AGGREGATE GRADINGS

90-3.01 GENERAL

Before beginning concrete work, the Contractor shall submit in writing to the Engineer the gradation of the primary aggregate nominal sizes that the Contractor proposes to furnish. If a primary coarse aggregate or the fine aggregate is separated into 2 or more sizes, the proposed gradation shall consist of the gradation for each individual size, and the proposed proportions of each individual size, combined mathematically to indicate one proposed gradation. The proposed gradation shall meet the grading requirements shown in the table in this section, and shall show the percentage passing each of the sieve sizes used in determining the end result.

The Engineer may waive, in writing, the gradation requirements in this Section 90-3.01 and in Sections 90-3.02, "Coarse Aggregate Grading," 90-3.03, "Fine Aggregate Grading," and 90-3.04, "Combined Aggregate Gradings," if, in the Engineer's opinion, furnishing the gradation is not necessary for the type or amount of concrete work to be constructed.

Gradations proposed by the Contractor shall be within the following percentage passing limits:

Primary Aggregate Nominal Size	Sieve Size	Limits of Proposed Gradation
1-1/2" x 3/4"	1"	19 - 41
1" x No. 4	3/4"	52 - 85
1" x No. 4	3/8"	15 - 38
1/2" x No. 4	3/8"	40 - 78
3/8" x No. 8	3/8"	50 - 85
Fine Aggregate	No. 16	55 - 75
Fine Aggregate	No. 30	34 - 46
Fine Aggregate	No. 50	16 - 29

Should the Contractor change the source of supply, the Contractor shall submit in writing to the Engineer the new gradations before their intended use.

90-3.02 COARSE AGGREGATE GRADING

The grading requirements for coarse aggregates are shown in the following table for each size of coarse aggregate:

	Percentage Passing Primary Aggregate Nominal Sizes							
	1-1/2" x 3/4"		1" x No. 4		1/2" x No. 4		3/8" x No. 8	
Sieve Sizes	Operating Range	Contract Compliance	Operating Range	Contract Compliance	Operating Range	Contract Compliance	Operating Range	Contract Compliance
2"	100	100	—	—	—	—	—	—
1-1/2"	88 - 100	85 - 100	100	100	—	—	—	—
1"	X ±18	X ±25	88 - 100	86 - 100	—	—	—	—
3/4"	0 - 17	0 - 20	X ±15	X ±22	100	100	—	—
1/2"	—	—	—	—	82 - 100	80 - 100	100	100
3/8"	0 - 7	0 - 9	X ±15	X ±22	X ±15	X ±22	X ±15	X ±20
No. 4	—	—	0 - 16	0 - 18	0 - 15	0 - 18	0 - 25	0 - 28
No. 8	—	—	0 - 6	0 - 7	0 - 6	0 - 7	0 - 6	0 - 7

In the above table, the symbol X is the gradation that the Contractor proposes to furnish for the specific sieve size as provided in Section 90-3.01, "General."

Coarse aggregate for the 1-1/2 inch, maximum, combined aggregate grading as provided in Section 90-3.04, "Combined Aggregate Gradings," shall be furnished in 2 or more primary aggregate nominal sizes. Each primary aggregate nominal size may be separated into 2 sizes and

stored separately, provided that the combined material conforms to the grading requirements for that particular primary aggregate nominal size.

When the one inch, maximum, combined aggregate grading as provided in Section 90-3.04, "Combined Aggregate Gradings," is to be used, the coarse aggregate may be separated into 2 sizes and stored separately, provided that the combined material shall conform to the grading requirements for the 1" x No. 4 primary aggregate nominal size.

90-3.03 FINE AGGREGATE GRADING

Fine aggregate shall be graded within the following limits:

Sieve Sizes	Percentage Passing	
	Operating Range	Contract Compliance
3/8"	100	100
No. 4	95 - 100	93 - 100
No. 8	65 - 95	61 - 99
No. 16	X ±10	X ±13
No. 30	X ±9	X ±12
No. 50	X ±6	X ±9
No. 100	2 - 12	1 - 15
No. 200	0 - 8	0 - 10

In the above table, the symbol X is the gradation that the Contractor proposes to furnish for the specific sieve size as provided in Section 90-3.01, "General."

In addition to the above required grading analysis, the distribution of the fine aggregate sizes shall be such that the difference between the total percentage passing the No. 16 sieve and the total percentage passing the No. 30 sieve shall be between 10 and 40, and the difference between the percentage passing the No. 30 and No. 50 sieves shall be between 10 and 40.

Fine aggregate may be separated into 2 or more sizes and stored separately, provided that the combined material conforms to the grading requirements specified in this Section 90-3.03.

90-3.04 COMBINED AGGREGATE GRADINGS

Combined aggregate grading limits shall be used only for the design of concrete mixes. Concrete mixes shall be designed so that aggregates are combined in proportions that shall produce a mixture within the grading limits for combined aggregates as specified herein.

The combined aggregate grading, except when otherwise specified in these specifications or the special provisions, shall be either the 1-1/2 inch, maximum grading, or the 1 inch, maximum grading, at the option of the Contractor.

Grading Limits of Combined Aggregates

Sieve Sizes	Percentage Passing			
	1-1/2" Max.	1" Max.	1/2" Max.	3/8" Max.
2"	100	—	—	—
1-1/2"	90 - 100	100	—	—
1"	50 - 86	90 - 100	—	—
3/4"	45 - 75	55 - 100	100	—
1/2"	—	—	90 - 100	100
3/8"	38 - 55	45 - 75	55 - 86	50 - 100
No. 4	30 - 45	35 - 60	45 - 63	45 - 63
No. 8	23 - 38	27 - 45	35 - 49	35 - 49
No. 16	17 - 33	20 - 35	25 - 37	25 - 37
No. 30	10 - 22	12 - 25	15 - 25	15 - 25
No. 50	4 - 10	5 - 15	5 - 15	5 - 15
No. 100	1 - 6	1 - 8	1 - 8	1 - 8
No. 200	0 - 3	0 - 4	0 - 4	0 - 4

Changes from one grading to another shall not be made during the progress of the work unless permitted by the Engineer.

90-4 ADMIXTURES

90-4.01 GENERAL

Admixtures used in portland cement concrete shall conform to and be used in conformance with the provisions in this Section 90-4 and the special provisions. Admixtures shall be used when specified or ordered by the Engineer and may be used at the Contractor's option as provided herein.

Chemical admixtures and air-entraining admixtures containing chlorides as Cl in excess of one percent by weight of admixture, as determined by California Test 415, shall not be used.

Admixtures shall be uniform in properties throughout their use in the work. Should it be found that an admixture as furnished is not uniform in properties, its use shall be discontinued.

If more than one admixture is used, the admixtures shall be compatible with each other so that the desirable effects of all admixtures used will be realized.

Chemical admixtures shall be used in conformance with the manufacturer's written recommendations. The manufacturer's written recommendations shall include a statement that the admixtures are compatible with the types and amounts of SCMs used.

90-4.02 MATERIALS

Admixture materials shall conform to the provisions in Section 90-2.04, "Admixture Materials."

90-4.03 ADMIXTURE APPROVAL

No admixture brand shall be used in the work unless it is on the Department's current list of approved brands for the type of admixture involved. Information regarding admixture qualification and placement on the Department's list can be obtained at the Transportation Laboratory.

If the Contractor proposes to use an admixture of a brand and type on the current list of approved admixture brands, the Contractor shall furnish a Certificate of Compliance from the manufacturer, as provided in Section 6-1.07, "Certificates of Compliance," certifying that the admixture furnished is the same as that previously approved. If a previously approved admixture is not accompanied by a Certificate of Compliance, the admixture shall not be used in the work

until the Engineer has had sufficient time to make the appropriate tests and has approved the admixture for use. The Engineer may take samples for testing at any time, whether or not the admixture has been accompanied by a Certificate of Compliance.

90-4.04 REQUIRED USE OF CHEMICAL ADMIXTURES

If the use of a chemical admixture is specified, the admixture shall be used at the dosage specified, except that if no dosage is specified, the admixture shall be used at the dosage normally recommended by the manufacturer of the admixture.

90-4.05 OPTIONAL USE OF CHEMICAL ADMIXTURES

The Contractor may use Type A or F, water-reducing; Type B, retarding; or Type D or G, water-reducing and retarding admixtures as described in ASTM Designation: C 494 to conserve cementitious material or to facilitate any concrete construction application subject to the following conditions:

A. If a water-reducing admixture or a water-reducing and retarding admixture is used, the cementitious material content specified or ordered may be reduced by a maximum of 5 percent by weight, except that the resultant cementitious material content shall be not less than 505 pounds per cubic yard; and
B. When a reduction in cementitious material content is made, the dosage of admixture used shall be no less than the dosage used in determining approval of the admixture.

The Contractor may use Type S admixtures conforming to the requirements in ASTM Designation: C 494.

Unless otherwise specified, a Type C accelerating chemical admixture conforming to the requirements in ASTM Designation: C 494, may be used in portland cement concrete. Inclusion in the mix design submitted for approval will not be required provided that the admixture is added to counteract changing conditions that contribute to delayed setting of the portland cement concrete, and the use or change in dosage of the admixture is approved in writing by the Engineer.

90-4.06 REQUIRED USE OF AIR-ENTRAINING ADMIXTURES

When air-entrainment is specified or ordered by the Engineer, the air-entraining admixture shall be used in amounts to produce a concrete having the specified air content as determined by California Test 504.

90-4.07 OPTIONAL USE OF AIR-ENTRAINING ADMIXTURES

When air-entrainment has not been specified or ordered by the Engineer, the Contractor will be permitted to use an air-entraining admixture to facilitate the use of any construction procedure or equipment provided that the average air content, as determined by California Test 504, of 3 successive tests does not exceed 4 percent, and no single test value exceeds 5.5 percent. If the Contractor elects to use an air-entraining admixture in concrete for pavement, the Contractor shall so indicate at the time the Contractor designates the source of aggregate.

90-4.08 BLANK

90-4.09 BLANK

90-4.10 PROPORTIONING AND DISPENSING LIQUID ADMIXTURES

Chemical admixtures and air-entraining admixtures shall be dispensed in liquid form. Dispensers for liquid admixtures shall have sufficient capacity to measure at one time the prescribed quantity required for each batch of concrete. Each dispenser shall include a graduated measuring unit into which liquid admixtures are measured to within ±5 percent of the prescribed quantity for each batch. Dispensers shall be located and maintained so that the graduations can be accurately read from the point at which proportioning operations are controlled to permit a visual check of batching accuracy prior to discharge. Each measuring unit shall be clearly marked for the type and quantity of admixture.

Each liquid admixture dispensing system shall be equipped with a sampling device consisting of a valve located in a safe and readily accessible position such that a sample of the admixture may be withdrawn slowly by the Engineer.

If more than one liquid admixture is used in the concrete mix, each liquid admixture shall have a separate measuring unit and shall be dispensed by injecting equipment located in such a manner that the admixtures are not mixed at high concentrations and do not interfere with the effectiveness of each other. When air-entraining admixtures are used in conjunction with other liquid admixtures, the air-entraining admixture shall be the first to be incorporated into the mix, unless it is demonstrated that a different sequence improves performance.

When automatic proportioning devices are used, dispensers for liquid admixtures shall operate automatically with the batching control equipment. The dispensers shall be equipped with an automatic warning system in good operating condition that will provide a visible or audible signal at the point at which proportioning operations are controlled when the quantity of admixture measured for each batch of concrete varies from the preselected dosage by more than 5 percent, or when the entire contents of the measuring unit are not emptied from the dispenser into each batch of concrete.

Unless liquid admixtures are added to premeasured water for the batch, their discharge into the batch shall be arranged to flow into the stream of water so that the admixtures are well dispersed throughout the batch, except that air-entraining admixtures may be dispensed directly into moist sand in the batching bins provided that adequate control of the air content of the concrete can be maintained.

Liquid admixtures requiring dosages greater than one-half gallon per cubic yard shall be considered to be water when determining the total amount of free water as specified in Section 90-6.06, "Amount of Water and Penetration."

90-4.11 BLANK

90-5 PROPORTIONING

90-5.01 STORAGE OF AGGREGATES

Aggregates shall be stored or stockpiled in such a manner that separation of coarse and fine particles of each size shall be avoided and the various sizes shall not become intermixed before proportioning.

Aggregates shall be stored or stockpiled and handled in a manner that prevent contamination by foreign materials. In addition, storage of aggregates at batching or mixing facilities that are erected subsequent to the award of the contract and that furnish concrete to the project shall conform to the following:

A. Intermingling of the different sizes of aggregates shall be positively prevented. The Contractor shall take the necessary measures to prevent intermingling. The preventive

measures may include, but are not necessarily limited to, physical separation of stockpiles or construction of bulkheads of adequate length and height; and

B. Contamination of aggregates by contact with the ground shall be positively prevented. The Contractor shall take the necessary measures to prevent contamination. The preventive measures shall include, but are not necessarily limited to, placing aggregates on wooden platforms or on hardened surfaces consisting of portland cement concrete, asphalt concrete, or cement treated material.

In placing aggregates in storage or in moving the aggregates from storage to the weigh hopper of the batching plant, any method that may cause segregation, degradation, or the combining of materials of different gradings that will result in any size of aggregate at the weigh hopper failing to meet the grading requirements, shall be discontinued. Any method of handling aggregates that results in excessive breakage of particles shall be discontinued. The use of suitable devices to reduce impact of falling aggregates may be required by the Engineer.

90-5.02 PROPORTIONING DEVICES

Weighing, measuring, or metering devices used for proportioning materials shall conform to the requirements in Section 9-1.01, "Measurement of Quantities," and this Section 90-5.02. In addition, automatic weighing systems shall comply with the requirements for automatic proportioning devices in Section 90-5.03A, "Automatic Proportioning." Automatic devices shall be automatic to the extent that the only manual operation required for proportioning the aggregates, cement, and SCM for one batch of concrete is a single operation of a switch or starter.

For concrete pavement, aggregate and bulk cementitious material must be proportioned by weight by means of automatic proportioning devices.

Proportioning devices shall be tested as frequently as the Engineer may deem necessary to ensure their accuracy.

Weighing equipment shall be insulated against vibration or movement of other operating equipment in the plant. When the plant is in operation, the weight of each batch of material shall not vary from the weight designated by the Engineer by more than the tolerances specified herein.

Equipment for cumulative weighing of aggregate shall have a zero tolerance of ±0.5 percent of the designated total batch weight of the aggregate. For systems with individual weigh hoppers for the various sizes of aggregate, the zero tolerance shall be ±0.5 percent of the individual batch weight designated for each size of aggregate. Equipment for cumulative weighing of cement and SCM shall have a zero tolerance of ±0.5 percent of the designated total batch weight of the cement and SCM. Equipment for weighing cement or SCM separately shall have a zero tolerance of ±0.5 percent of their designated individual batch weights. Equipment for measuring water shall have a zero tolerance of ±0.5 percent of its designated weight or volume.

The weight indicated for any batch of material shall not vary from the preselected scale setting by more than the following:

A. Aggregate weighed cumulatively shall be within 1.0 percent of the designated total batch weight of the aggregate. Aggregates weighed individually shall be within 1.5 percent of their respective designated batch weights; and

B. Cement shall be 99 to 102 percent of its designated batch weight. When weighed individually, SCM shall be 99 to 102 percent of its designated batch weight. When SCM and cement are permitted to be weighed cumulatively, cement shall be weighed first to 99 to 102 percent of its designated batch weight, and the total for cement and SCM shall be

99 to 102 percent of the sum of their designated batch weights When a blended cement is used, the percentages of cement and SCM used for calculating batch weights shall be based on the percentage of SCM indicated in the Certificate of Compliance from the blended cement supplier; and

C. Water shall be within 1.5 percent of its designated weight or volume.

Each scale graduation shall be approximately 0.001 of the total capacity of the scale. The capacity of scales for weighing cement, SCM, or cement plus SCM and aggregates shall not exceed that of commercially available scales having single graduations indicating a weight not exceeding the maximum permissible weight variation above, except that no scale shall be required having a capacity of less than 1,000 pounds, with one pound graduations.

90-5.03 PROPORTIONING

Proportioning shall consist of dividing the aggregates into the specified sizes, each stored in a separate bin, and combining them with cementitious material and water as provided in these specifications. Aggregates shall be proportioned by weight.

At the time of batching, aggregates shall have been dried or drained sufficiently to result in a stable moisture content such that no visible separation of water from aggregate will take place during transportation from the proportioning plant to the point of mixing. In no event shall the free moisture content of the fine aggregate at the time of batching exceed 8 percent of its saturated, surface-dry weight.

Should separate supplies of aggregate material of the same size group, but of different moisture content or specific gravity or surface characteristics affecting workability, be available at the proportioning plant, withdrawals shall be made from one supply exclusively and the materials therein completely exhausted before starting upon another.

Bulk Type IP (MS) or Type IS (MS) cement shall be weighed in an individual hopper and shall be kept separate from the aggregates until the ingredients are released for discharge into the mixer.

Bulk cement and SCM may be weighed in separate, individual weigh hoppers or may be weighed in the same weigh hopper and shall be kept separate from the aggregates until the ingredients are released for discharge into the mixer. If the cement and SCM are weighed cumulatively, the cement shall be weighed first.

If cement and SCM are weighed in separate weigh hoppers, the weigh systems for the proportioning of the aggregate, the cement, and the SCM shall be individual and distinct from all other weigh systems. Each weigh system shall be equipped with a hopper, a lever system, and an indicator to constitute an individual and independent material-weighing device. The cement and the SCM shall be discharged into the mixer simultaneously with the aggregate.

The scales and weigh hoppers for bulk weighing cement, SCM, or cement plus SCM shall be separate and distinct from the aggregate weighing equipment.

For batches of one cubic yard or more, the batching equipment shall conform to one of the following combinations:

A. Separate boxes and separate scale and indicator for weighing each size of aggregate.
B. Single box and scale indicator for all aggregates.
C. Single box or separate boxes and automatic weighing mechanism for all aggregates.

In order to check the accuracy of batch weights, the gross weight and tare weight of batch trucks, truck mixers, truck agitators, and non-agitating hauling equipment shall be determined

when ordered by the Engineer. The equipment shall be weighed on scales designated by the Engineer.

90-5.03A Automatic Proportioning

Automatic proportioning devices shall be authorized by the Department.

For concrete pavement, the Contractor shall install and maintain in operating condition an electronically actuated moisture meter that will indicate, on a readily visible scale, changes in the moisture content of the fine aggregate as it is batched within a sensitivity of 0.5 percent by weight of the fine aggregate.

The batching of cement, SCM, or cement plus SCM and aggregate shall be interlocked so that a new batch cannot be started until all weigh hoppers are empty, the proportioning devices are within zero tolerance, and the discharge gates are closed. The interlock shall permit no part of the batch to be discharged until all aggregate hoppers and the cement and SCM hoppers or the cement plus SCM hopper are charged with weights that are within the tolerances specified in Section 90-5.02, "Proportioning Devices."

If interlocks are required for cement and SCM charging mechanisms and cement and SCM are weighed cumulatively, their charging mechanisms shall be interlocked to prevent the introduction of SCM until the weight of cement in the cement weigh hopper is within the tolerances specified in Section 90-5.02, "Proportioning Devices."

If concrete is completely mixed in stationary mixers, the SCMs shall be weighed in a separate weigh hopper and the SCM and cement shall be introduced simultaneously into the mixer proportionately with the aggregate. If the Contractor provides certification that the stationary mixer is capable of mixing the cement, SCM, aggregates, and water uniformly before discharge, weighing the SCM cumulatively with the cement is permitted. Certification shall contain the following:

A. Test results for 2 compressive strength test cylinders of concrete taken within the first one-third and 2 compressive strength test cylinders of concrete taken within the last one-third of the concrete discharged from a single batch from the stationary mixer. Strength tests and cylinder preparation will be in conformance with the provisions of Section 90-9, "Compressive Strength";
B. Calculations demonstrating that the difference in the averages of 2 compressive strengths taken in the first one-third is no greater than 7.5 percent different than the averages of 2 compressive strengths taken in the last one-third of the concrete discharged from a single batch from the stationary mixer. Strength tests and cylinder preparation will be in conformance with the provisions of Section 90-9, "Compressive Strength;" and
C. The mixer rotation speed and time of mixing before discharge that are required to produce a mix that meets the requirements above.

The discharge gate on the cement and SCM hoppers or the cement plus SCM hopper shall be designed to permit regulating the flow of cement, SCM, or cement plus SCM into the aggregate as directed by the Engineer.

If separate weigh boxes are used for each size of aggregate, the discharge gates shall permit regulating the flow of each size of aggregate as directed by the Engineer.

Material discharged from the several bins shall be controlled by gates or by mechanical conveyors. The means of withdrawal from the several bins, and of discharge from the weigh box, shall be interlocked so that not more than one bin can discharge at a time, and so that the weigh box cannot be tripped until the required quantity from each of the several bins has been

deposited therein. Should a separate weigh box be used for each size of aggregate, all may be operated and discharged simultaneously.

If the discharge from the several bins is controlled by gates, each gate shall be actuated automatically so that the required weight is discharged into the weigh box, after which the gate shall automatically close and lock.

The automatic weighing system shall be designed so that all proportions required may be set on the weighing controller at the same time.

90-6 MIXING AND TRANSPORTING

90-6.01 GENERAL

Concrete shall be mixed in mechanically operated mixers, except that when permitted by the Engineer, batches not exceeding 1/3 cubic yard may be mixed by hand methods in conformance with the provisions in Section 90-6.05, "Hand-Mixing."

Equipment having components made of aluminum or magnesium alloys that would have contact with plastic concrete during mixing, transporting, or pumping of portland cement concrete shall not be used.

Concrete shall be homogeneous and thoroughly mixed, and there shall be no lumps or evidence of undispersed cementitious material.

Uniformity of concrete mixtures will be determined by differences in penetration as determined by California Test 533, or slump as determined by ASTM Designation: C 143, and by variations in the proportion of coarse aggregate as determined by California Test 529.

When the mix design specifies a penetration value, the difference in penetration, determined by comparing penetration tests on 2 samples of mixed concrete from the same batch or truck mixer load, shall not exceed 1/2 inch. When the mix design specifies a slump value, the difference in slump, determined by comparing slump tests on 2 samples of mixed concrete from the same batch or truck mixer load, shall not exceed the values given in the table below. Variation in the proportion of coarse aggregate will be determined by comparing the results of tests of 2 samples of mixed concrete from the same batch or truck mixer load and the difference between the 2 results shall not exceed 170 pounds per cubic yard of concrete.

Average Slump	Maximum Permissible Difference
Less than 4"	1"
4" to 6"	1-1/2"
Greater than 6" to 9"	2"

The Contractor shall furnish samples of the freshly mixed concrete and provide satisfactory facilities for obtaining the samples.

90-6.02 MACHINE MIXING

Concrete mixers may be of the revolving drum or the revolving blade type, and the mixing drum or blades shall be operated uniformly at the mixing speed recommended by the manufacturer. Mixers and agitators that have an accumulation of hard concrete or mortar shall not be used.

The temperature of mixed concrete, immediately before placing, shall be not less than 50 °F or more than 90 °F. Aggregates and water shall be heated or cooled as necessary to produce concrete within these temperature limits. Neither aggregates nor mixing water shall be heated to exceed 150 °F. If ice is used to cool the concrete, discharge of the mixer will not be permitted until all ice is melted.

The batch shall be so charged into the mixer that some water will enter in advance of cementitious materials and aggregates. All water shall be in the drum by the end of the first one-fourth of the specified mixing time. When concrete is delivered in a truck mixer, a portion of the mixing water may be withheld and, if allowed by the Engineer, may be added at the point of delivery as specified under Section 90-6.03, "Transporting Mixed Concrete."

Cementitious materials shall be batched and charged into the mixer by means that will not result either in loss of cementitious materials due to the effect of wind, in accumulation of cementitious materials on surfaces of conveyors or hoppers, or in other conditions that reduce or vary the required quantity of cementitious material in the concrete mixture.

Stationary mixers shall be operated with an automatic timing device. The timing device and discharge mechanism shall be interlocked so that during normal operation no part of the batch will be discharged until the specified mixing time has elapsed.

The total elapsed time between the intermingling of damp aggregates and all cementitious materials and the start of mixing shall not exceed 30 minutes.

The size of batch shall not exceed the manufacturer's guaranteed capacity.

When producing concrete for pavement or base, suitable batch counters shall be installed and maintained in good operating condition at job site batching plants and stationary mixers. The batch counters shall indicate the exact number of batches proportioned and mixed.

Concrete shall be mixed and delivered to the job site by means of one of the following combinations of operations:

A. Mixed completely in a stationary mixer and the mixed concrete transported to the point of delivery in truck agitators or in nonagitating hauling equipment (central-mixed concrete).
B. Mixed partially in a stationary mixer, and the mixing completed in a truck mixer (shrink-mixed concrete).
C. Mixed completely in a truck mixer (transit-mixed concrete).

Agitators may be truck mixers operating at agitating speed or truck agitators. Each mixer and agitator shall have attached thereto in a prominent place a metal plate or plates on which is plainly marked the various uses for which the equipment is designed, the manufacturer's guaranteed capacity of the drum or container in terms of the volume of mixed concrete and the speed of rotation of the mixing drum or blades.

Truck mixers shall be equipped with electrically or mechanically actuated revolution counters by which the number of revolutions of the drum or blades may readily be verified.

When shrink-mixed concrete is furnished, concrete that has been partially mixed at a central plant shall be transferred to a truck mixer and all requirements for transit-mixed concrete shall apply. No credit in the number of revolutions at mixing speed will be allowed for partial mixing in a central plant.

90-6.03 TRANSPORTING MIXED CONCRETE

Mixed concrete may be transported to the delivery point in truck agitators or truck mixers operating at the speed designated by the manufacturer of the equipment as agitating speed, or in non-agitating hauling equipment, provided the consistency and workability of the mixed concrete upon discharge at the delivery point is suitable for adequate placement and consolidation in place, and provided the mixed concrete after hauling to the delivery point conforms to the provisions in Section 90-6.01, "General."

Truck agitators shall be loaded not to exceed the manufacturer's guaranteed capacity and shall maintain the mixed concrete in a thoroughly mixed and uniform mass during hauling.

Bodies of nonagitating hauling equipment shall be constructed so that leakage of the concrete mix, or any part thereof, will not occur at any time.

Concrete hauled in open-top vehicles shall be protected during hauling against rain or against exposure to the sun for more than 20 minutes when the ambient temperature exceeds 75 °F.

No water in excess of that in the approved mix design shall be incorporated into the concrete. If approved by the Engineer, water withheld during batching may be added to the concrete at the delivery point in one operation before the discharge of more than 1/4 cubic yard. Equipment for supplying the water shall conform to Section 90-6.06, "Amount of Water and Penetration." When water is added at the point of delivery, the drum shall be revolved not less than 30 revolutions at mixing speed after the water is added and before discharged is commenced.

The rate of discharge of mixed concrete from a truck mixer or agitator shall be controlled by the speed of rotation of the drum in the discharge direction with the discharge gate fully open.

If a truck mixer or agitator is used for transporting concrete to the delivery point, discharge shall be completed within 1.5 hours or before 250 revolutions of the drum or blades, whichever occurs first, after the introduction of the cementitious materials to the aggregates. Under conditions contributing to quick stiffening of the concrete, or if the temperature of the concrete is 85 °F or above, the time allowed may be less than 1.5 hours. If an admixture is used to retard the set time, the temperature of the concrete shall not exceed 85 °F, the time limit shall be 2 hours, and the revolution limitation shall be 300.

If nonagitating hauling equipment is used for transporting concrete to the delivery point, discharge shall be completed within one hour after the addition of the cementitious materials to the aggregates. Under conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 85 °F or above, the time between the introduction of cementitious materials to the aggregates and discharge shall not exceed 45 minutes.

Each load of concrete delivered at the job site shall be accompanied by a weighmaster certificate showing the mix identification number, nonrepeating load number, date and time at which the materials were batched, the total amount of water added to the load, and for transit-mixed concrete, the reading of the revolution counter at the time the truck mixer is charged with cement. This weighmaster certificate shall also show the actual scale weights (pounds) for the ingredients batched. Theoretical or target batch weights shall not be used as a substitute for actual scale weights.

Weighmaster certificates shall be provided in printed form, or if approved by the Engineer, the data may be submitted in electronic media. Electronic media shall be presented in a tab-delimited format on a CD or DVD. Captured data, for the ingredients represented by each batch shall be "line feed, carriage return" (LFCR) and "one line, separate record" with allowances for sufficient fields to satisfy the amount of data required by these specifications.

The Contractor may furnish a weighmaster certificate accompanied by a separate certificate that lists the actual batch weights or measurements for a load of concrete provided that both certificates are imprinted with the same nonrepeating load number that is unique to the contract and delivered to the jobsite with the load.

Weighmaster certificates furnished by the Contractor shall conform to the provisions in Section 9-1.01, "Measurement of Quantities."

90-6.04 TIME OR AMOUNT OF MIXING

Mixing of concrete in stationary mixers shall continue for the required mixing time after all ingredients, except water and admixture, if added with the water, are in the mixing compartment of the mixer before any part of the batch is released. Transfer time in multiple drum mixers shall not be counted as part of the required mixing time.

The required mixing time, in stationary mixers, of concrete used for concrete structures, except minor structures, shall be not less than 90 seconds or more than 5 minutes, except that when directed by the Engineer in writing, the requirements of the following paragraph shall apply.

The required mixing time in stationary mixers, except as provided in the preceding paragraph, shall be not less than 50 seconds or more than 5 minutes.

The minimum required revolutions at the mixing speed for transit-mixed concrete shall not be less than that recommended by the mixer manufacturer, but in no case shall the number of revolutions be less than that required to consistently produce concrete conforming to the provisions for uniformity in Section 90-6.01, "General."

When a high range water-reducing admixture is added to the concrete at the job site, the total number of revolutions shall not exceed 300.

90-6.05 HAND-MIXING

Hand-mixed concrete shall be made in batches of not more than 1/3 cubic yard and shall be mixed on a watertight, level platform. The proper amount of coarse aggregate shall be measured in measuring boxes and spread on the platform and the fine aggregate shall be spread on this layer, the 2 layers being not more than one foot in total depth. On this mixture shall be spread the dry cementitious materials and the whole mass turned no fewer than 2 times dry; then sufficient clean water shall be added, evenly distributed, and the whole mass again turned no fewer than 3 times, not including placing in the carriers or forms.

90-6.06 AMOUNT OF WATER AND PENETRATION

The amount of water used in concrete mixes shall be regulated so that the penetration of the concrete as determined by California Test 533 or the slump of the concrete as determined by ASTM Designation: C 143 is within the nominal values shown in the following table. When the penetration or slump of the concrete is found to exceed the nominal values listed, the mixture of subsequent batches shall be adjusted to reduce the penetration or slump to a value within the nominal range shown. Batches of concrete with a penetration or slump exceeding the maximum values listed shall not be used in the work. If Type F or Type G chemical admixtures are added to the mix, the penetration requirements shall not apply and the slump shall not exceed 9 inches after the chemical admixtures are added.

Type of Work	Nominal		Maximum	
	Penetration (inches)	Slump (inches)	Penetration (inches)	Slump (inches)
Concrete Pavement	0 - 1	—	1-1/2	—
Non-reinforced concrete facilities	0 – 1-1/2	—	2	—
Reinforced concrete structures				
Sections over 12 inches thick	0 – 1-1/2	—	2-1/2	—
Sections 12 inches thick or less	0 - 2	—	3	—
Concrete placed under water	—	6 - 8	—	9
Cast-in-place concrete piles	2-1/2 – 3-1/2	5 - 7	4	8

The amount of free water used in concrete shall not exceed 310 pounds per cubic yard, plus 20 pounds for each required 100 pounds of cementitious material in excess of 550 pounds per cubic yard.

The term free water is defined as the total water in the mixture minus the water absorbed by the aggregates in reaching a saturated surface-dry condition.

If there are adverse or difficult conditions that affect the placing of concrete, the above specified penetration and free water content limitations may be exceeded providing the Contractor is granted permission by the Engineer in writing to increase the cementitious material content per cubic yard of concrete. The increase in water and cementitious material shall be at a ratio not to exceed 30 pounds of water per added 100 pounds of cementitious material per cubic yard. Full compensation for additional cementitious material and water added under these conditions shall be considered as included in the contract price paid for the concrete work involved and no additional compensation will be allowed therefor.

The equipment for supplying water to the mixer shall be constructed and arranged so that the amount of water added can be measured accurately. Any method of discharging water into the mixer for a batch shall be accurate within 1.5 percent of the quantity of water required to be added to the mix for any position of the mixer. Tanks used to measure water shall be designed so that water cannot enter while water is being discharged into the mixer and discharge into the mixer shall be made rapidly in one operation without dribbling. All equipment shall be arranged so as to permit checking the amount of water delivered by discharging into measured containers.

90-7 CURING CONCRETE

90-7.01 METHODS OF CURING

Newly placed concrete shall be cured by the methods specified in this Section 90-7.01 and the special provisions.

90-7.01A Water Method

The concrete shall be kept continuously wet by the application of water for a minimum curing period of 7 days after the concrete has been placed.

Cotton mats, rugs, carpets, or earth or sand blankets may be used as a curing medium to retain the moisture during the curing period.

If a curing medium consisting of cotton mats, rugs, carpets, polyethylene sheeting, polyethylene sheeting on burlap, or earth or sand blankets is to be used to retain the moisture, the entire surface of the concrete shall be kept damp by applying water with a nozzle that so atomizes the flow that a mist and not a spray is formed, until the surface of the concrete is covered with the curing medium. The moisture from the nozzle shall not be applied under pressure directly upon the concrete and shall not be allowed to accumulate on the concrete in a quantity sufficient to cause a flow or wash the surface. At the expiration of the curing period, the concrete surfaces shall be cleared of all curing media.

At the option of the Contractor, a curing medium consisting of white opaque polyethylene sheeting extruded onto burlap may be used to cure concrete structures. The polyethylene sheeting shall have a minimum thickness of 4-mil, and shall be extruded onto 10-ounce burlap.

At the option of the Contractor, a curing medium consisting of polyethylene sheeting may be used to cure concrete columns. The polyethylene sheeting shall have a minimum thickness of 10-mil achieved in a single layer of material.

If the Contractor chooses to use polyethylene sheeting or polyethylene sheeting on burlap as a curing medium, these media and any joints therein shall be secured as necessary to provide moisture retention and shall be within 3 inches of the concrete at all points along the surface being cured. When these media are used, the temperature of the concrete shall be monitored during curing. If the temperature of the concrete cannot be maintained below 140° F, use of these curing media shall be disallowed.

When concrete bridge decks and flat slabs are to be cured without the use of a curing medium, the entire surface of the bridge deck or slab shall be kept damp by the application of

water with an atomizing nozzle as specified above, until the concrete has set, after which the entire surface of the concrete shall be sprinkled continuously with water for a period of not less than 7 days.

90-7.01B Curing Compound Method

Surfaces of the concrete that are exposed to the air shall be sprayed uniformly with a curing compound.

Curing compounds to be used shall be as follows:

1. Pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 2, Class B, except the resin type shall be poly-alpha-methylstyrene.
2. Pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 2, Class B.
3. Pigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 2, Class A.
4. Nonpigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 1, Class B.
5. Nonpigmented curing compound conforming to the requirements in ASTM Designation: C 309, Type 1, Class A.
6. Nonpigmented curing compound with fugitive dye conforming to the requirements in ASTM Designation: C 309, Type 1-D, Class A.

The infrared scan for the dried vehicle from curing compound (1) shall match the infrared scan on file at the Transportation Laboratory.

The loss of water for each type of curing compound, when tested in conformance with the requirements in California Test 534, shall not be more than 0.28 pounds per square yard in 24 hours.

The curing compound to be used will be specified elsewhere in these specifications or in the special provisions.

If the use of curing compound is required or permitted elsewhere in these specifications or in the special provisions and no specific kind is specified, any of the curing compounds listed above may be used.

Curing compound shall be applied at a nominal rate of one gallon per 150 square feet, unless otherwise specified.

At any point, the application rate shall be within ±50 square feet per gallon of the nominal rate specified, and the average application rate shall be within ±25 square feet per gallon of the nominal rate specified when tested in conformance with the requirements in California Test 535. Runs, sags, thin areas, skips, or holidays in the applied curing compound shall be evidence that the application is not satisfactory.

Curing compounds shall be applied using power operated spray equipment. The power operated spraying equipment shall be equipped with an operational pressure gage and a means of controlling the pressure. Hand spraying of small and irregular areas that are not reasonably accessible to mechanical spraying equipment, in the opinion of the Engineer, may be permitted.

The curing compound shall be applied to the concrete following the surface finishing operation, immediately before the moisture sheen disappears from the surface, but before any drying shrinkage or craze cracks begin to appear. In the event of any drying or cracking of the surface, application of water with an atomizing nozzle as specified in Section 90-7.01A, "Water Method," shall be started immediately and shall be continued until application of the compound

is resumed or started; however, the compound shall not be applied over any resulting freestanding water. Should the film of compound be damaged from any cause before the expiration of 7 days after the concrete is placed in the case of structures and 72 hours in the case of pavement, the damaged portion shall be repaired immediately with additional compound.

At the time of use, compounds containing pigments shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. A paddle shall be used to loosen all settled pigment from the bottom of the container, and a power driven agitator shall be used to disperse the pigment uniformly throughout the vehicle.

Agitation shall not introduce air or other foreign substance into the curing compound.

The manufacturer shall include in the curing compound the necessary additives for control of sagging, pigment settling, leveling, de-emulsification, or other requisite qualities of a satisfactory working material. Pigmented curing compounds shall be manufactured so that the pigment does not settle badly, does not cake or thicken in the container, and does not become granular or curdled. Settlement of pigment shall be a thoroughly wetted, soft, mushy mass permitting the complete and easy vertical penetration of a paddle. Settled pigment shall be easily redispersed, with minimum resistance to the sideways manual motion of the paddle across the bottom of the container, to form a smooth uniform product of the proper consistency.

Curing compounds shall remain sprayable at temperatures above 40 °F and shall not be diluted or altered after manufacture.

The curing compound shall be packaged in clean 274-gallon totes, 55-gallon barrels or 5-gallon pails shall be supplied from a suitable storage tank located at the jobsite. The containers shall comply with "Title 49, Code of Federal Regulations, Hazardous Materials Regulations." The 274-gallon totes and the 55-gallon barrels shall have removable lids and airtight fasteners. The 5-gallon pails shall be round and have standard full open head and bail. Lids with bungholes will not be permitted. Settling or separation of solids in containers, except tanks, must be completely redispersed with low speed mixing prior to use, in conformance with these specifications and the manufacturer's recommendations. Mixing shall be accomplished either manually by use of a paddle or by use of a mixing blade driven by a drill motor, at low speed. Mixing blades shall be the type used for mixing paint. On-site storage tanks shall be kept clean and free of contaminants. Each tank shall have a permanent system designed to completely redisperse settled material without introducing air or other foreign substances.

Steel containers and lids shall be lined with a coating that will prevent destructive action by the compound or chemical agents in the air space above the compound. The coating shall not come off the container or lid as skins. Containers shall be filled in a manner that will prevent skinning. Plastic containers shall not react with the compound.

Each container shall be labeled with the manufacturer's name, kind of curing compound, batch number, volume, date of manufacture, and volatile organic compound (VOC) content. The label shall also warn that the curing compound containing pigment shall be well stirred before use. Precautions concerning the handling and the application of curing compound shall be shown on the label of the curing compound containers in conformance with the Construction Safety Orders and General Industry Safety Orders of the State.

Containers of curing compound shall be labeled to indicate that the contents fully comply with the rules and regulations concerning air pollution control in the State.

When the curing compound is shipped in tanks or tank trucks, a shipping invoice shall accompany each load. The invoice shall contain the same information as that required herein for container labels.

Curing compound will be sampled by the Engineer at the source of supply, at the job site, or at both locations.

Curing compound shall be formulated so as to maintain the specified properties for a minimum of one year. The Engineer may require additional testing before use to determine compliance with these specifications if the compound has not been used within one year or whenever the Engineer has reason to believe the compound is no longer satisfactory.

Tests will be conducted in conformance with the latest ASTM test methods and methods in use by the Transportation Laboratory.

90-7.01C Waterproof Membrane Method

The exposed finished surfaces of concrete shall be sprayed with water, using a nozzle that so atomizes the flow that a mist and not a spray is formed, until the concrete has set, after which the curing membrane, shall be placed. The curing membrane shall remain in place for a period of not less than 72 hours.

Sheeting material for curing concrete shall conform to the requirements in AASHTO Designation: M 171 for white reflective materials.

The sheeting material shall be fabricated into sheets of such width as to provide a complete cover for the entire concrete surface. Joints in the sheets shall be securely cemented together in such a manner as to provide a waterproof joint. The joint seams shall have a minimum lap of 0.33 foot.

The sheets shall be securely weighted down by placing a bank of earth on the edges of the sheets or by other means satisfactory to the Engineer.

Should any portion of the sheets be broken or damaged before the expiration of 72 hours after being placed, the broken or damaged portions shall be immediately repaired with new sheets properly cemented into place.

Sections of membrane that have lost their waterproof qualities or have been damaged to such an extent as to render them unfit for curing the concrete shall not be used.

90-7.01D Forms-In-Place Method

Formed surfaces of concrete may be cured by retaining the forms in place. The forms shall remain in place for a minimum period of 7 days after the concrete has been placed, except that for members over 20 inches in least dimension the forms shall remain in place for a minimum period of 5 days.

Joints in the forms and the joints between the end of forms and concrete shall be kept moisture tight during the curing period. Cracks in the forms and cracks between the forms and the concrete shall be resealed by methods subject to the approval of the Engineer.

90-7.02 BLANK

90-7.03 CURING STRUCTURES

Newly placed concrete for cast-in-place structures, other than highway bridge decks, shall be cured by the water method, the forms-in-place method, or, as permitted herein, by the curing compound method, in conformance with the provisions in Section 90-7.01, "Methods of Curing."

The curing compound method using a pigmented curing compound may be used on concrete surfaces of construction joints, surfaces that are to be buried underground, and surfaces where only ordinary surface finish is to be applied and on which a uniform color is not required and that will not be visible from a public traveled way. If the Contractor elects to use the curing compound method on the bottom slab of box girder spans, the curing compound shall be curing compound (1).

The top surface of highway bridge decks shall be cured by both the curing compound method and the water method. The curing compound shall be curing compound (1).

Concrete surfaces of minor structures, as defined in Section 51-1.02, "Minor Structures," shall be cured by the water method, the forms-in-place method or the curing compound method.

When deemed necessary by the Engineer during periods of hot weather, water shall be applied to concrete surfaces being cured by the curing compound method or by the forms-in-place method, until the Engineer determines that a cooling effect is no longer required. Application of water for this purpose will be paid for as extra work as provided in Section 4-1.03D, "Extra Work."

90-7.04 CURING PRECAST CONCRETE MEMBERS

Precast concrete members shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing." Curing shall be provided for the minimum time specified for each method or until the concrete reaches its design strength, whichever is less. Steam curing may also be used for precast members and shall conform to the following provisions:

A. After placement of the concrete, members shall be held for a minimum 4-hour presteaming period. If the ambient air temperature is below 50 °F, steam shall be applied during the presteaming period to hold the air surrounding the member at a temperature between 50 °F and 90 °F.
B. To prevent moisture loss on exposed surfaces during the presteaming period, members shall be covered as soon as possible after casting or the exposed surfaces shall be kept wet by fog spray or wet blankets.
C. Enclosures for steam curing shall allow free circulation of steam about the member and shall be constructed to contain the live steam with a minimum moisture loss. The use of tarpaulins or similar flexible covers will be permitted, provided they are kept in good repair and secured in such a manner as to prevent the loss of steam and moisture.
D. Steam at the jets shall be at low pressure and in a saturated condition. Steam jets shall not impinge directly on the concrete, test cylinders, or forms. During application of the steam, the temperature rise within the enclosure shall not exceed 40 °F per hour. The curing temperature throughout the enclosure shall not exceed 150 °F and shall be maintained at a constant level for a sufficient time necessary to develop the required transfer strength. Control cylinders shall be covered to prevent moisture loss and shall be placed in a location where temperature is representative of the average temperature of the enclosure.
E. Temperature recording devices that will provide an accurate, continuous, permanent record of the curing temperature shall be provided. A minimum of one temperature recording device per 200 feet of continuous bed length will be required for checking temperature.
F. Members in pretension beds shall be detensioned immediately after the termination of steam curing while the concrete and forms are still warm, or the temperature under the enclosure shall be maintained above 60 °F until the stress is transferred to the concrete.
G. Curing of precast concrete will be considered completed after termination of the steam curing cycle.

90-7.05 CURING PRECAST PRESTRESSED CONCRETE PILES

Newly placed concrete for precast prestressed concrete piles shall be cured in conformance with the provisions in Section 90-7.04, "Curing Precast Concrete Members," except that piles in a corrosive environment shall be cured as follows:

A. Piles shall be either steam cured or water cured. If water curing is used, the piles shall be kept continuously wet by the application of water in conformance with the provisions in Section 90-7.01A, "Water Method."
B. If steam curing is used, the steam curing provisions in Section 90-7.04, "Curing Precast Concrete Members," shall apply except that the piles shall be kept continuously wet for their entire length for a period of not less than 3 days, including the holding and steam curing periods.

90-7.06 CURING SLOPE PROTECTION

Concrete slope protection shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing."

Concreted-rock slope protection shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing," with a blanket of earth kept wet for 72 hours, or by sprinkling with a fine spray of water every 2 hours during the daytime for a period of 3 days.

90-7.07 CURING MISCELLANEOUS CONCRETE WORK

Exposed surfaces of curbs shall be cured by pigmented curing compounds as specified in Section 90-7.01B, "Curing Compound Method."

Concrete sidewalks, gutter depressions, island paving, curb ramps, driveways, and other miscellaneous concrete areas shall be cured in conformance with any of the methods specified in Section 90-7.01, "Methods of Curing."

Shotcrete shall be cured for at least 72 hours by spraying with water, by a moist earth blanket, or by any of the methods provided in Section 90-7.01, "Methods of Curing."

Mortar and grout shall be cured by keeping the surface damp for 3 days.

After placing, the exposed surfaces of sign structure foundations, including pedestal portions, if constructed, shall be cured for at least 72 hours by spraying with water, by a moist earth blanket, or by any of the methods provided in Section 90-7.01, "Methods of Curing."

90-8 PROTECTING CONCRETE

90-8.01 GENERAL

In addition to the provisions in Section 7-1.16, "Contractor's Responsibility for the Work and Materials," the Contractor shall protect concrete as provided in this Section 90-8. If required by the Engineer, the Contractor shall submit a written outline of the proposed methods for protecting the concrete.

The Contractor shall protect concrete from damage from any cause, which shall include, but not be limited to: rain, heat, cold, wind, Contractor's actions, and actions of others.

Concrete shall not be placed on frozen or ice-coated ground or subgrade nor on ice-coated forms, reinforcing steel, structural steel, conduits, precast members, or construction joints.

Under rainy conditions, placing of concrete shall be stopped before the quantity of surface water is sufficient to damage surface mortar or cause a flow or wash of the concrete surface, unless the Contractor provides adequate protection against damage.

Concrete that has been frozen or damaged by other causes, as determined by the Engineer, shall be removed and replaced by the Contractor at the Contractor's expense.

90-8.02 PROTECTING CONCRETE STRUCTURES

Structure concrete and shotcrete used as structure concrete shall be maintained at a temperature of not less than 45 °F for 72 hours after placing and at not less than 40 °F for an additional 4 days.

90-9 COMPRESSIVE STRENGTH

90-9.01 GENERAL

Concrete compressive strength requirements consist of a minimum strength that shall be attained before various loads or stresses are applied to the concrete and, for concrete designated by compressive strength, a minimum strength at the age of 28 days or at the age otherwise allowed in Section 90-1.01, "Description." The various strengths required are specified in these specifications or the special provisions or are shown on the plans.

The compressive strength of concrete will be determined from test cylinders that have been fabricated from concrete sampled in conformance with the requirements of California Test 539. Test cylinders will be molded and initially field cured in conformance with California Test 540. Test cylinders will be cured and tested after receipt at the testing laboratory in conformance with the requirements of California Test 521. A strength test shall consist of the average strength of 2 cylinders fabricated from material taken from a single load of concrete, except that, if any cylinder should show evidence of improper sampling, molding, or testing, that cylinder shall be discarded and the strength test shall consist of the strength of the remaining cylinder.

When concrete compressive strength is specified as a prerequisite to applying loads or stresses to a concrete structure or member, test cylinders for other than steam cured concrete will be cured in conformance with Method 1 of California Test 540. The compressive strength of concrete determined for these purposes will be evaluated on the basis of individual tests.

When concrete is designated by compressive strength rather than by cementitious material content, the concrete strength to be used as a basis for acceptance of other than steam cured concrete will be determined from cylinders cured in conformance with Method 1 of California Test 540. If the result of a single compressive strength test at the maximum age specified or allowed is below the specified strength but is 95 percent or more of the specified strength, the Contractor shall make corrective changes, subject to approval of the Engineer, in the mix proportions or in the concrete fabrication procedures, before placing additional concrete, and shall pay to the State $10 for each in-place cubic yard of concrete represented by the deficient test. If the result of a single compressive strength test at the maximum age specified or allowed is below 95 percent of the specified strength, but is 85 percent or more of the specified strength, the Contractor shall make the corrective changes specified above, and shall pay to the State $15 for each in-place cubic yard of concrete represented by the deficient test. In addition, such corrective changes shall be made when the compressive strength of concrete tested at 7 days indicates, in the judgment of the Engineer, that the concrete will not attain the required compressive strength at the maximum age specified or allowed. Concrete represented by a single test that indicates a compressive strength of less than 85 percent of the specified 28-day compressive strength will be rejected in conformance with the provisions in Section 6-1.04, "Defective Materials."

If the test result indicates that the compressive strength at the maximum age specified or allowed is below the specified strength, but is 85 percent or more of the specified strength, payments to the State as required above shall be made, unless the Contractor, at the Contractor's

expense, obtains and submits evidence acceptable to the Engineer that the strength of the concrete placed in the work meets or exceeds the specified 28-day compressive strength. If the test result indicates a compressive strength at the maximum age specified or allowed below 85 percent, the concrete represented by that test will be rejected, unless the Contractor, at the Contractor's expense, obtains and submits evidence acceptable to the Engineer that the strength of the concrete placed in the work is at least 85 percent of the specified strength. If the evidence consists of tests made on cores taken from the work, the cores shall be obtained and tested in conformance with the requirements in ASTM Designation: C 42.

No single compressive strength test shall represent more than 320 cubic yards.

If a precast concrete member is steam cured, the compressive strength of the concrete will be determined from test cylinders that have been handled and stored in conformance with Method 3 of California Test 540. The compressive strength of steam cured concrete will be evaluated on the basis of individual tests representing specific portions of production. If the concrete is designated by 28-day compressive strength rather than by cementitious material content, the concrete shall be considered to be acceptable whenever its compressive strength reaches the specified 28-day compressive strength provided that strength is reached in not more than the maximum number of days specified or allowed after the member is cast.

When concrete has a specified 28-day compressive strength greater than 3,600 pounds per square inch or when prequalification is specified, prequalification of materials, mix proportions, mixing equipment, and procedures proposed for use will be required prior to placement of the concrete. Prequalification shall be accomplished by the submission of acceptable certified test data or trial batch reports by the Contractor. Prequalification data shall be based on the use of materials, mix proportions, mixing equipment, procedures, and size of batch proposed for use in the work.

Certified test data, in order to be acceptable, shall indicate that not less than 90 percent of at least 20 consecutive tests exceed the specified strength at the maximum number of days specified or allowed, and none of those tests are less than 95 percent of specified strength. Strength tests included in the data shall be the most recent tests made on concrete of the proposed mix design and all shall have been made within one year of the proposed use of the concrete.

Trial batch test reports, in order to be acceptable, shall indicate that the average compressive strength of 5 consecutive concrete cylinders, taken from a single batch, at not more than 28 days (or the maximum age allowed) after molding shall be at least 600 pounds per square inch greater than the specified 28-day compressive strength, and no individual cylinder shall have a strength less than the specified strength at the maximum age specified or allowed. Data contained in the report shall be from trial batches that were produced within one year of the proposed use of specified strength concrete in the project. Whenever air-entrainment is required, the air content of trial batches shall be equal to or greater than the air content specified for the concrete without reduction due to tolerances.

Tests shall be performed in conformance with either the appropriate California Test methods or the comparable ASTM test methods. Equipment employed in testing shall be in good condition and shall be properly calibrated. If the tests are performed during the life of the contract, the Engineer shall be notified sufficiently in advance of performing the tests in order to witness the test procedures.

The certified test data and trial batch test reports shall include the following information:

A. Date of mixing.
B. Mixing equipment and procedures used.
C. The size of batch in cubic yards and the weight, type, and source of all ingredients used.

D. Penetration or slump (if the concrete will be placed under water or placed in cast-in-place concrete piles) of the concrete.
E. The air content of the concrete if an air-entraining admixture is used.
F. The age at time of testing and strength of all concrete cylinders tested.

Certified test data and trial batch test reports shall be signed by an official of the firm that performed the tests.

When approved by the Engineer, concrete from trial batches may be used in the work at locations where concrete of a lower quality is required and the concrete will be paid for as the type of concrete required at that location.

After materials, mix proportions, mixing equipment, and procedures for concrete have been prequalified for use, additional prequalification by testing of trial batches will be required prior to making changes that, in the judgment of the Engineer, could result in a strength of concrete below that specified.

The Contractor's attention is directed to the time required to test trial batches and the Contractor shall be responsible for production of trial batches at a sufficiently early date so that the progress of the work is not delayed.

When precast concrete members are manufactured at the plant of an established manufacturer of precast concrete members, the mix proportions of the concrete shall be determined by the Contractor, and a trial batch and prequalification of the materials, mix proportions, mixing equipment, and procedures will not be required.

90-10 MINOR CONCRETE

90-10.01 GENERAL

Concrete for minor structures, slope paving, curbs, sidewalks and other concrete work, when designated as minor concrete on the plans, in the specifications, or in the contract item, shall conform to the provisions specified herein.

The Engineer, at the Engineer's discretion, will inspect and test the facilities, materials and methods for producing the concrete to ensure that minor concrete of the quality suitable for use in the work is obtained.

Before using minor concrete or in advance of revising the mix proportions, the Contractor shall submit in writing to the Engineer a copy of the mix design. When required by the following table, the Contractor shall include compressive strength test results verifying the minimum specified compressive strength:

SCM	Test Submittal Required
Fly Ash used alone	When portland cement content<350 lbs/cy
GGBFS used alone	When portland cement content <250 lbs/cy
Natural Pozzolan used alone	When portland cement content <350 lbs/cy
More than 1 SCM	Always

Tests shall be performed by an ACI certified technician.

90-10.02 MATERIALS

Minor concrete shall conform to the following requirements:

90-10.02A Cementitious Material

Cementitious material shall conform to the provisions in Section 90-1.01, "Description," and 90-2, "Materials."

90-10.02B Aggregate

Aggregate shall be clean and free from deleterious coatings, clay balls, roots, and other extraneous materials.

Use of crushed concrete or reclaimed aggregate is acceptable only if the aggregate satisfies all aggregate requirements.

The Contractor shall submit to the Engineer for approval, a grading of the combined aggregate proposed for use in the minor concrete. After acceptance of the grading, aggregate furnished for minor concrete shall conform to that grading, unless a change is authorized in writing by the Engineer.

The Engineer may require the Contractor to furnish periodic test reports of the aggregate grading furnished. The maximum size of aggregate used shall be at the option of the Contractor, but in no case shall the maximum size be larger than 1-1/2-inch or smaller than 3/4 inch.

The Engineer may waive, in writing, the gradation requirements in this Section 90-10.02B, if, in the Engineer's opinion, the furnishing of the gradation is not necessary for the type or amount of concrete work to be constructed.

90-10.02C Water

Water used for washing, mixing, and curing shall be free from oil, salts, and other impurities that would discolor or etch the surface or have an adverse affect on the quality of the concrete.

90-10.02D Admixtures

The use of admixtures shall conform to the provisions in Section 90-4, "Admixtures."

90-10.03 PRODUCTION

Cementitious material, water, aggregate, and admixtures shall be stored, proportioned, mixed, transported, and discharged in conformance with recognized standards of good practice that will result in concrete that is thoroughly and uniformly mixed, that is suitable for the use intended, and that conforms to requirements specified herein. Recognized standards of good practice are outlined in various industry publications such as are issued by American Concrete Institute, AASHTO, or the Department.

The cementitious material content of minor concrete shall conform to the provisions in Section 90-1.01, "Description."

The amount of water used shall result in a consistency of concrete conforming to the provisions in Section 90-6.06, "Amount of Water and Penetration." Additional mixing water shall not be incorporated into the concrete during hauling or after arrival at the delivery point, unless allowed by the Engineer.

Discharge of ready-mixed concrete from the transporting vehicle shall be made while the concrete is still plastic and before stiffening occurs. An elapsed time of 1.5 hours (one hour in non-agitating hauling equipment), or more than 250 revolutions of the drum or blades, after the introduction of the cementitious material to the aggregates, or a temperature of concrete of more than 90 °F will be considered conditions contributing to the quick stiffening of concrete. The Contractor shall take whatever action is necessary to eliminate quick stiffening, except that the addition of water will not be permitted.

The required mixing time in stationary mixers shall be not less than 50 seconds or more than 5 minutes.

The minimum required revolutions at mixing speed for transit-mixed concrete shall be not less than that recommended by the mixer manufacturer, and shall be increased, if necessary, to produce thoroughly and uniformly mixed concrete.

When a high range water-reducing admixture is added to the concrete at the job site, the total number of revolutions shall not exceed 300.

Each load of ready-mixed concrete shall be accompanied by a weighmaster certificate that shall be delivered to the Engineer at the discharge location of the concrete, unless otherwise directed by the Engineer. The weighmaster certificate shall be clearly marked with the date and time of day when the load left the batching plant and, if hauled in truck mixers or agitators, the time the mixing cycle started.

A Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," shall be furnished to the Engineer, prior to placing minor concrete from a source not previously used on the contract, stating that minor concrete to be furnished meets contract requirements, including minimum cementitious material content specified.

90-10.04 CURING MINOR CONCRETE

Curing minor concrete shall conform to the provisions in Section 90-7, "Curing Concrete."

90-10.05 PROTECTING MINOR CONCRETE

Protecting minor concrete shall conform to the provisions in Section 90-8, "Protecting Concrete," except the concrete shall be maintained at a temperature of not less than 40 °F for 72 hours after placing.

90-10.06 MEASUREMENT AND PAYMENT

Minor concrete will be measured and paid for in conformance with the provisions specified in the various sections of these specifications covering concrete construction when minor concrete is specified in the specifications, shown on the plans, or indicated by contract item in the Engineer's Estimate.

90-11 MEASUREMENT AND PAYMENT

90-11.01 MEASUREMENT

Portland cement concrete will be measured in conformance with the provisions specified in the various sections of these specifications covering construction requiring concrete.

For concrete measured at the mixer, the volume in cubic feet shall be computed as the total weight of the batch in pounds divided by the density of the concrete in pounds per cubic foot. The total weight of the batch shall be calculated as the sum of all materials, including water, entering the batch. The density of the concrete will be determined in conformance with the requirements in California Test 518.

90-11.02 PAYMENT

Portland cement concrete will be paid for in conformance with the provisions specified in the various sections of these specifications covering construction requiring concrete.

Full compensation for furnishing and incorporating admixtures required by these specifications or the special provisions will be considered as included in the contract prices paid for the concrete involved and no additional compensation will be allowed therefor.

Should the Engineer order the Contractor to incorporate any admixtures in the concrete when their use is not required by these specifications or the special provisions, furnishing the

admixtures and adding them to the concrete will be paid for as extra work as provided in Section 4-1.03D, "Extra Work."

Should the Contractor use admixtures in conformance with the provisions in Section 90-4.05, "Optional Use of Chemical Admixtures," or Section 90-4.07, "Optional Use of Air-entraining Admixtures," or should the Contractor request and obtain permission to use other admixtures for the Contractor's benefit, the Contractor shall furnish those admixtures and incorporate them into the concrete at the Contractor's expense and no additional compensation will be allowed therefor.

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SECTION 91 PAINT
(Issued 05-1-06)

Replace Section 91-3 with:

91-3 PAINTS FOR TIMBER

91-3.01 WOOD PRIMER, LATEX-BASE

Classification:

This specification covers a ready-mixed priming paint for use on unpainted wood or exterior woodwork. It shall conform with the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI) for exterior wood primers, and be listed on the Exterior Latex Wood Primer MPI List Number 6.

91-3.02 PAINT; LATEX-BASE FOR EXTERIOR WOOD, WHITE AND TINTS

Classification:

This specification covers a ready-mixed paint for use on wood surfaces subject to outside exposures. This paint shall conform to the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI) for Paint, Latex, Exterior, and shall be listed on the following MPI Approved Products List:

A. Exterior Latex, Flat MPI Gloss Level 1, MPI List Number 10.
B. Exterior Latex, Semi-Gloss, MPI Gloss Level 5, MPI List Number 11.
C. Exterior Latex, Gloss, MPI Gloss Level 6, MPI List Number 119.

Unpainted wood shall first be primed with wood primer conforming to the provisions in Section 91-3.01, "Wood Primer, Latex-Base."

Replace Section 91-4 with:

91-4 MISCELLANEOUS PAINTS

91-4.01 THROUGH 91-4.04 (BLANK)

91-4.05 PAINT; ACRYLIC EMULSION, EXTERIOR WHITE AND LIGHT AND MEDIUM TINTS

Classification:

This specification covers an acrylic emulsion paint designed for use on exterior masonry. This paint shall conform to the requirements in the Detailed Performance Standards of the Master Painters Institute (MPI) for Paint, Latex, Exterior, and shall be listed on the following MPI Approved Products Lists:

A. Exterior Latex, Flat MPI Gloss Level 1, MPI List Number 10.
B. Exterior Latex, Semi-Gloss, MPI Gloss Level 5, MPI List Number 11.
C. Exterior Latex, Gloss, MPI Gloss Level 6, MPI List Number 119.

This paint may be tinted by using "universal" or "all purpose" concentrates.

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SECTION 92 ASPHALTS
(Issued 01-20-12)

Replace Section 92 with:

SECTION 92 ASPHALTS

92-1.01 DESCRIPTION

Asphalt is refined petroleum or a mixture of refined liquid asphalt and refined solid asphalt that are prepared from crude petroleum. Asphalt is:

1. Free from residues caused by the artificial distillation of coal, coal tar, or paraffin
2. Free from water
3. Homogeneous

92-1.02 MATERIALS

GENERAL

Furnish asphalt under the Department's "Certification Program for Suppliers of Asphalt." The Department maintains the program requirements, procedures, and a list of approved suppliers at:

http://www.dot.ca.gov/hq/esc/Translab/fpm/fpmcoc.htm

Transport, store, use, and dispose of asphalt safely.

Prevent the formation of carbonized particles caused by overheating asphalt during manufacturing or construction.

GRADES

Performance graded (PG) asphalt binder is:

Performance Graded Asphalt Binder

Property	AASHTO Test Method	Specification Grade PG 58-22 [a]	PG 64-10	PG 64-16	PG 64-28	PG 70-10
Original Binder						
Flash Point, Minimum °C	T 48	230	230	230	230	230
Solubility, Minimum % [b]	T 44	99	99	99	99	99
Viscosity at 135°C, [c] Maximum, Pa·s	T 316	3.0	3.0	3.0	3.0	3.0
Dynamic Shear,	T 315					
Test Temp. at 10 rad/s, °C		58	64	64	64	70
Minimum G*/sin(delta), kPa		1.00	1.00	1.00	1.00	1.00
Maximum G*/sin(delta), kPa		2.00	2.00	2.00	2.00	2.00
RTFO Test, [e]	T 240					
Mass Loss, Maximum, %		1.00	1.00	1.00	1.00	1.00
RTFO Test Aged Binder						
Dynamic Shear,	T 315					
Test Temp. at 10 rad/s, °C		58	64	64	64	70
Minimum G*/sin(delta), kPa		2.20	2.20	2.20	2.20	2.20
Ductility at 25°C	T 51					
Minimum, cm		75	75	75	75	75
PAV [f] Aging,	R 28					
Temperature, °C		100	100	100	100	110
RTFO Test and PAV Aged Binder						
Dynamic Shear,	T 315					
Test Temp. at 10 rad/s, °C		22 [d]	31 [d]	28 [d]	22 [d]	34 [d]
Maximum G*sin(delta), kPa		5000	5000	5000	5000	5000
Creep Stiffness,	T 313					
Test Temperature, °C		-12	0	-6	-18	0
Maximum S-value, Mpa		300	300	300	300	300
Minimum M-value		0.300	0.300	0.300	0.300	0.300

Notes:

a. Use as asphalt rubber base stock for high mountain and high desert area.

b. The Engineer waives this specification if the supplier is a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt."

c. The Engineer waives this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.

d. Test the sample at 3°C higher if it fails at the specified test temperature. G*sin(delta) remains 5000 kPa maximum.

e. "RTFO Test" means the asphaltic residue obtained using the Rolling Thin Film Oven Test, AASHTO Test Method T 240 or ASTM Designation: D 2872. The residue from mass change determination may be used for other tests.

f. "PAV" means Pressurized Aging Vessel.

Performance graded polymer modified asphalt binder (PG Polymer Modified) is:

Performance Graded Polymer Modified Asphalt Binder [a]

Property	AASHTO Test Method	Specification Grade		
		PG 58-34 PM	PG 64-28 PM	PG 76-22 PM
Original Binder				
Flash Point, Minimum °C	T 48	230	230	230
Solubility, Minimum % [b]	T 44[c]	98.5	98.5	98.5
Viscosity at 135°C, [d] Maximum, Pa·s	T 316	3.0	3.0	3.0
Dynamic Shear, Test Temp. at 10 rad/s, °C	T 315	58	64	76
Minimum G*/sin(delta), kPa		1.00	1.00	1.00
RTFO Test , Mass Loss, Maximum, %	T 240	1.00	1.00	1.00
RTFO Test Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C	T 315	58	64	76
Minimum G*/sin(delta), kPa		2.20	2.20	2.20
Dynamic Shear, Test Temp. at 10 rad/s, °C	T 315	Note e	Note e	Note e
Maximum (delta), %		80	80	80
Elastic Recovery[f], Test Temp., °C	T 301	25	25	25
Minimum recovery, %		75	75	65
PAV[g] Aging, Temperature, °C	R 28	100	100	110
RTFO Test and PAV Aged Binder				
Dynamic Shear, Test Temp. at 10 rad/s, °C	T 315	16	22	31
Maximum G*sin(delta), kPa		5000	5000	5000
Creep Stiffness, Test Temperature, °C	T 313	-24	-18	-12
Maximum S-value, MPa		300	300	300
Minimum M-value		0.300	0.300	0.300

Notes:

a. Do not modify PG Polymer Modified using acid modification.

b. The Engineer waives this specification if the supplier is a Quality Supplier as defined by the Department's "Certification Program for Suppliers of Asphalt."

c. The Department allows ASTM D 5546 instead of AASHTO T 44

d. The Engineer waives this specification if the supplier certifies the asphalt binder can be adequately pumped and mixed at temperatures meeting applicable safety standards.

e. Test temperature is the temperature at which G*/sin(delta) is 2.2 kPa. A graph of log G*/sin(delta) plotted against temperature may be used to determine the test temperature when G*/sin(delta) is 2.2 kPa. A graph of (delta) versus temperature may be used to determine delta at the temperature when G*/sin(delta) is 2.2 kPa. The Engineer also accepts direct measurement of (delta) at the temperature when G*/sin(delta) is 2.2 kPa.

f. Tests without a force ductility clamp may be performed.

g. "PAV" means Pressurized Aging Vessel.

SAMPLING

Provide a sampling device in the asphalt feed line connecting the plant storage tanks to the asphalt weighing system or spray bar. Make the sampling device accessible between 24 and 30 inches above the platform. Provide a receptacle for flushing the sampling device.

Include with the sampling device a valve:

1. Between 1/2 and 3/4 inch in diameter
2. Manufactured in a manner that a one-quart sample may be taken slowly at any time during plant operations
3. Maintained in good condition

Replace failed valves.

In the Engineer's presence, take 2 one-quart samples per operating day. Provide round, friction top, one-quart containers for storing samples.

92-1.03 EXECUTION

If asphalt is applied, you must comply with the heating and application specifications for liquid asphalt in Section 93, "Liquid Asphalts."

92-1.04 MEASUREMENT

If the contract work item for asphalt is paid by weight, the Department measures asphalt tons by complying with the specifications for weight determination of liquid asphalt in Section 93, "Liquid Asphalts."

The Engineer determines the asphalt weight from volumetric measurements if you:

1. Use a partial asphalt load
2. Use asphalt at a location other than a mixing plant and no scales within 20 miles are available and suitable
3. Deliver asphalt in either of the following:

    3.1. A calibrated truck with each tank accompanied by its measuring stick and calibration card

    3.2. A truck equipped with a calibrated thermometer that determines the asphalt temperature at the delivery time and with a vehicle tank meter complying with the specifications for weighing, measuring, and metering devices in Section 9-1.01, "Measurement of Quantities"

If you furnish hot mix asphalt from a mixing plant producing material for only one project, the Engineer determines the asphalt quantity by measuring the volume in the tank at the project's start and end provided the tank is calibrated and equipped with its measuring stick and calibration card.

The Engineer determines pay quantities from volumetric measurements as follows:

1. Before converting the volume to weight, the Engineer reduces the measured volume to that which the asphalt would occupy at 60 °F.
2. The Engineer uses 235 gallons per ton and 8.51 pounds per gallon for the average weight and volume for PG and PG Polymer Modified asphalt grades at 60 °F.
3. The Engineer uses the Conversion Table in Section 93, "Liquid Asphalts."

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SECTION 93 LIQUID ASPHALTS
(Issued 11-03-06)

In Section 93-1.04 replace the 9th paragraph with:

The following Legend and Conversion Table is to be used for converting volumes of liquid asphalt products, Grades 70 to 3000, inclusive, and paving asphalt Grades PG 58-22, PG 64-10, PG 64-16, PG 64-28, and PG 70-10, and Grades PG 58-34 PM, PG 64-28 PM, and PG 76-22 PM.

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SECTION 95 EPOXY
(Issued 06-05-09)

Replace the table in Section 95-2.11 with:

Characteristics of Adhesive:

Test[a]	California Test	Requirement
Brookfield Viscosity, No. 3 Spindle at 20 rpm, Poise at 77°F	434, Part 4	0.9 max.
Gel time, minutes	434, Part 1	2 to 15
Slant Shear Strength on Dry Concrete, psi, after 4 days of cure in air at 77° F ±2° F	434, Part 5[b]	3,000 min.
Slant Shear Strength on Wet Concrete, psi, after 4 days of cure in air at 77° F ±2° F	434, Part 5[b]	1,700 min.
Tensile Strength, psi	434, Part 7, except test after 4 days of cure at 77° F ±2° F	4,500 min.
Elongation, %	434, Part 7, except test after 4 days of cure at 77° F ±2° F	10 max.

[a] The mixing ratio used will be that recommended by the manufacturer.

[b] For slant shear strength on concrete, delete Sections B-1 and B-5 of California Test 434, Part 5. For dry concrete, use Step "2" below only. For wet concrete, use both Steps "1" & "2":

1. Soak blocks in water for 24 hours at 77° F ±2° F. Remove and wipe off excess water.
2. Mix epoxy as described in California Test 434, Part 1, and apply a coat approximately 0.010-inch thick to each diagonal surface. Place four 0.125-inch square pieces of shim stock 0.012-inch thick on one block to control final film thickness. Before pressing the coated surfaces together, leave the blocks so that the coated surfaces are horizontal until the epoxy reacts slightly to prevent excessive flow.

APPENDIX C – TECHNICAL INFORMATION

Item 1 – Guy West Bridge Design Criteria For Construction Loading
Item 2 – Table 1 – Containment Criteria for Removal of Paint Coating Lead And Other Toxic Metals
Item 3 – Guy West Bridge – Repainting Recommendation Report
Item 4 – Guy West Conduit Support Calculations
Item 5 – Guy West Bridge – As-Builts

Guy West Bridge

DESIGN CRITERIA

February 24, 2014

QUINCY ENGINEERING

GENERAL PROVISIONS

Project Description

The Guy West Bridge, built in 1966 is a 600 foot span suspension bridge providing pedestrian access across the American River between the California State University Sacramento Campus and the "Campus Commons" development. The bridge consists of two steel frame towers approximately 100 foot in height, a pair of main cables each consisting of four 2-1/16 inch diameter galvanized steel bridge strands and a stiffening truss/walkway system susspended by ¾ inch diameter galvanized steel bridge rope suspenders.

The bridge is owned and maintained by the City of Sacramento Department of Public Works.

Scope

The purpose of the *Guy West Bridge Design Criteria (Criteria)* is to provide technical information, background, and guidelines, for the analysis of the bridge for construction loads required for the painting of the bridge.

As-Built Documents

Plan sheets B1 to B23 dated October 1965, titled Campus Common Assessment District, Pedestrian Bridge, City of Sacramento.

Codes

Except for those provisions specified explicitly in the *Criteria*, the analysis and design shall conform to the following documents:

ASCE/SEI 7-05	*Minimum Design Loads for Buildings and Other Structures*
ANSI/AISC 360-10	*Specification for Structural Steel Buildings*
ACI 318-08	*Building Code Requirements for Structural Concrete*

LOADS AND LOAD COMBINATIONS

Dead Load

The weight of existing members and appurtenances shall be included in the analysis.

Pedestrian Live Load

Live Load = 85 psf — *As-Built Design Criteria and AASHTO Guide Specifications for Design of Pedestrian Bridges August 1997*

Live Load = $w[0.25 + (15/\sqrt{\text{Area}})] \geq 0.50w$ — *for Area > 400 sf per Guide Specification and ASCE 7-05 Eqn 4-1*
Minimum Live Load = 42.5 psf — *ASCE 7-05 Section 4.8.1*

During truss/tower painting operations pedestrians shall be limited to an 8.0 ft lane centered on the bridge deck. During painting of cables and hangers, pedestrians shall not be permitted on the bridge. During erection of temporary structures above the deck, pedestrians shall not be permitted on the bridge.

For 8.0 ft wide pedestrian lane and 72.0 ft end spans:	Area = 576 sf	w_{LL} = 74.4 psf	*ASCE 7-05*
For 8.0 ft wide pedestrian lane and 600 ft main spans:	Area = 4800 sf	w_{LL} = 42.5 psf	*ASCE 7-05*

Except use 85 psf for loaded areas less than 400 sf

For information only
Minimum Live Load = 640 plf/(14-0.25) = 46.5 psf — *As-Built Design Criteria*
Minimum Live Load = 65 psf — *AASHTO Guide Specifications*

Construction Load

The structure shall be evaluated for the proposed construction loads.

Wind Load on Suspension Bridge

The structure will be evaluated for wind loads in accordance with ASCE/SEI 7-05 Chapter 6.

Wind Velocity = 40 mph	*Maximum permissible wind velocity during construction*
Exposure = C	*Section 6.5.6.3*
Occupancy Category = III	*Structures with potential to cause a substantial economic impact in the event of failure*
Importance Factor = 1.15	*Table 6-1*
$K_{ZT} = 1.0$	*Site conditions do not meet the conditions in Section 6.5.7.1*
$K_Z = 1.044$	*Table 6-3 for h=40 ft for deck level loads*
$K_Z = 1.315$	*Table 6-3 for h=120 ft for tower level loads*
$K_D = 0.85$	*Table 6-4*
G = 1.0	*Section 6.5.8.2 Gust Factor Flexible Structures*
Wind Force = $q_Z G C_F A_F$	*Eqn 6-28 Section 6.5.15 Design Wind Loads on Other Structures*
$q_Z = 0.00256 K_Z K_{ZT} K_D V^2 I$	*Eqn 6-15 Section 6.5.10 Velocity Pressure*
$q_Z = 0.00256(1.04)(1.0)(0.85)(40)^2(1.15) = 4.18$ psf	*for deck level areas*
$q_Z = 0.00256(1.31)(1.0)(0.85)(40)^2(1.15) = 5.27$ psf	*for tower level areas*

Wind forces shall be applied in various directions to attain the maximum effect.

Containment permitted on half of bridge at a time

Temperature Loads

The structure will be evaluated for the effects of a uniform temperature change using a coefficient of thermal expansion for steel as 0.0000065 in/in/deg F for steel members.

Minimum Temperature = 18°F

Maximum Temperature = 108°F

The thermal deformation effects shall be determined based upon the upper or lower boundary temperature and the assumed construction temperature of 68°F.

Apply two cases of temperature change of ± 50 °F

Load Combinations

Load Combinations shall be in accordance with ASCE 7-05 Chapter 2 and the following:

D = Dead Load W = Wind Load T = Temperature

PL = Pedestrian Live Load CL = Construction Live Loads

The following ultimate load combinations will be evaluated in accordance with ASCE 7-05 Section 2.3.2 for the purposes of evaluating member and connection forces.

No	Ultimate Load Combination
1	1.4D
2	1.2(D + T) + 1.6PL+ 1.5CL
3	1.2D + 1.6W + PL + CL
4	0.9D + 1.6W

ANALYSIS FOR DEMANDS

Analysis Methods

Static Non-Linear Analysis

Static non-linear analysis shall be used to determine member forces due to dead, live and wind loads. The non-linear component shall include the large displacements of the cable.

Modeling Considerations

Boundary Conditions and Nonlinear Elements

Appropriate boundary conditions shall be included in the model to represent the behavior of the structure supports and interconnection of member elements.

STEEL COMPONENTS

General Design Requirements

The analysis and design of structural steel components shall be in accordance with the applicable provisions of ANSI/AISC 360-10 *Specification for Structural Steel Buildings.*

Material Properties

Existing Material Properties

Components	Specification	Minimum Specified Stress	
		Yield F_y (ksi)	Tensile F_u (ksi)
Structural Steel	ASTM A36	36	58
Weld Electrode Class	F_{EXX}	NA	60
Anchor Bolts	ASTM A36	36	58
HS Bolts	ASTM A325	NA	60
2.0625" dia Main Cable	Ultimate Breaking Strength = 522 kips		
0.75" dia Hanger Cable	Ultimate Breaking Strength = 52 kips		

Steel member and connection capacities shall be based upon the minimum specified stress.

Section properties shall be obtained from the *AISC, Manual of Steel Construction, 6th Edition, 1963*

The existing steel member properties need not be reduced for corrosion as the condition evaluation found limited corrosion on the structural members.

Member Capacities

Member capacities shall be determined in accordance with ANSI/AISC 360-10 *Specification for Structural Steel Buildings*

Existing Cable Properties

Location	Area	Weight	E	Ultimate Breaking Strength
2.0625" diameter Main Cables	2.55 in^2	4.73 plf	24,000 ksi	522 kips
0.75" diameter Hanger Cables	0.268 in^2	8.94 plf	20,000 ksi	52 kips

Properties from ASTM A586 and ASTM A603

Bridge Sockets capacity are assumed to equal the cable capacity

Existing Cable Capacity

The capacity of the cables and the bridge sockets shall be as follows:

Ultimate Strength Cable Capacity = ϕ(Ultimate Breaking Strength)

where $\phi = 0.60$

Compression Capacity

Member buckling lengths shall be measured between member panel points or work points.

For members with bolted or welded end connections at both ends K = 0.85

Metal Roller Bearings

At the service limit state, for cylindrical surfaces, the contact load P_s shall satisfy:

$$P_s \le 8\frac{WD_1}{\left(1-\frac{D_1}{D_2}\right)}\left(\frac{F_y^2}{E_s}\right) \qquad \text{AASHTO LRFD Eqn 14.7.1.4-1}$$

where:

D_1 = the diameter of the roller surface (in)

D_2 = the diameter of the mating surface (in) taken as:

- Positive if the curvature have the same sign, and
- Infinite if the mating surface is flat.

F_y = specified minimum yield strength of the weakest steel a the contact surface (ksi)

E_s = Young's modulus for steel (ksi)

W = width of the bearing (in)

Ultimate limit state: For cylindrical surfaces, the contact load P_U shall be less than $2P_s$

Performance Acceptance Criteria for Members

To achieve the performance objectives the demand to capacity ratios for all components shall be less than 1.0.

CONCRETE COMPONENTS

General Design Requirements

The analysis and design of concrete components shall be in accordance with the applicable provisions of ACI 318-08 *Building Code Requirements for Reinforced Concrete*

Material Properties

Existing Concrete

f'_c = 3000 psi

Unit Weight = 105 pcf

Expected Modulus of Elasticity = $E_{ce} = 33w^{1.5}\sqrt{f'c}$ = 1945 ksi

Expected Shear Modulus = $G_{ce} = \frac{E_{ce}}{2(1+\nu)}$ where Poisson's Ratio ν = 0.20

Existing Reinforcing Steel

F_Y = 40 ksi for ASTM A15

Member Capacities

The concrete member capacities shall be determined in accordance with ACI 318-08

Anchor Bolt Capacity in Concrete

The capacity of anchor bolts in concrete shall be determined in accordance with ACI 318-08 Appendix D

Performance Acceptance Criteria for Concrete Members

To achieve the performance objectives the demand to capacity ratios for all components shall be less than 1.0.

Table 1
Containment Criteria for Removal of Paint Containing Lead and Other Toxic Metals[1]

Containment Removal Method	Containment SSPC Class[2]	Containment Material Flexibility	Containment Material Permeability[3]	Containment Support Structure	Containment Material Joints	Containment Entryway	Exhaust System Required	Negative Pressure Required	Air Filtration Required
Abrasive Blast Cleaning[3]	1A	Rigid or Flexible	Impermeable	Rigid or Flexible	Fully Sealed	Airlock or Resealable	Mechanical	Yes	Yes
Power Tool Cleaning w/ Vacuum[4]	3P	Rigid or Flexible	Impermeable	Minimal	Partially Sealed	Open Seam	Natural	NA	NA

[1]This table provides general design criteria only. It does not guarantee that specific controls over emissions will occur because unique site conditions must be considered in the design. Other combinations of materials may provide controls over emissions equivalent to or greater than those combinations shown above.

[2]The SSPC Classification is based on SSPC Guide 6, "Guide for Containing Debris Generated During Lead Paint Removal Operations."

[3]Permeability addresses both air and water as appropriate. Ground covers should always be impermeable, and of sufficient strength to withstand the impact and weight of the debris and the equipment used for collection and clean up.

[4] Ground covers and/or free hanging tarpaulins may provide suitable controls over emissions without the need to completely enclose the work area.

REPAINTING RECOMMENDATIONS FOR THE GUY WEST PEDESTRIAN BRIDGE SACRAMENTO, CALIFORNIA

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Ray Tombaugh
Senior Consultant

December 19, 2013

RST:MPR:DAO:JLH:kmm
JN330790
Quincy Eng – Guy West Bridge Report

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NOTICE: This report represents the opinion of KTA-TATOR, INC. This report is issued in conformance with generally accepted industry practices. While customary precautions were taken to verify the information gathered and presented is accurate, complete and technically correct, this report is based on the information, data, time, materials, and/or samples afforded. This report should not be reproduced except in full.

INTRODUCTION

On January 17, 2013, Quincy Engineering (Quincy) contracted with KTA-Tator, Inc. (KTA) to develop repainting recommendations for the Guy West Pedestrian Bridge in Sacramento, California, and to identify any challenges associated with the repainting project. A previous assessment of the bridge conducted by Alta Vista Solutions in 2011 recommended removal and replacement of the existing coating.

In addition to the repainting recommendations, Quincy has asked KTA to (1) evaluate the condition of the unpainted galvanized main and suspender cables and to provide recommendations for painting if deemed necessary and (2) review the existing cost estimates for the repainting project and to develop an opinion of probable cost for the main and suspender cable painting. Mr. Ray Tombaugh, KTA Senior Consultant, was selected to perform the investigation and prepare this report. Mr. Dan O' Malley, Manager of the KTA Environmental, Health and Safety Department, was responsible for preparing the Environmental Health and Safety portion of the report, and Mr. Mike Reina, P.E., Project Engineer, was responsible for preparing the opinions of probable painting cost.

SUMMARY

The coating applied to the structural steel on the Guy West Pedestrian Bridge is approaching the end of its service life. Pinpoint rusting and spot rusting is beginning to appear and if left go, could require more extensive repainting operations than currently needed. The bridge is not a candidate for spot repair and overcoating since the existing coating is friable and could not withstand the stresses imparted to it by additional coats of paint. Similarly, spot repair is not an option because the rusting is widespread. Complete removal and replacement is necessary.

Removal and surface preparation operations should be accomplished in accordance with SSPC-SP 10, Near White Blast Cleaning. The properly prepared surfaces should be coated with a three coat organic zinc / epoxy / high performance acrylic system. New steel that is going to be installed on the bridge should be primed with the same organic zinc primer and then finish coated with the remainder of the system once installed.

The galvanized cables are in good condition with only rust staining originating from the joints between the wire strands and at some connection points. The galvanized steel blocks, clamps and sockets have superficial rust on many of the surfaces. Two options are available for remediating these surfaces. The first would be simple spot repair with hand tools and then priming with a surface tolerant epoxy mastic followed by a high performance acrylic finish coat. The second option would be to coat the entire cable and appurtenances. With this option, the surfaces would be thoroughly cleaned to remove dirt, oil and salts. Again, hand tool cleaning would be performed to remove the rust. The prepared surfaces should be overcoated with a three-coat acrylic elastomeric system.

Since the coatings applied to the bridge contain lead, chromium, and cadmium, care will need to be taken to assure that these toxic metals are not introduced to the workers, the public or the environment. The first step in assuring this is the use of an appropriate containment. The second step, which KTA feels is of great importance, is to perform monitoring throughout the surface preparation work to assure that the metals are not being introduced to the environment. The monitoring is highly recommended since (1) the bridge will be in use during the surface preparation and painting work, and (2) the area adjacent to the bridge is densely populated.

KTA estimates that the cost to perform the painting work on the structural members will be $946,900. The cost to perform the cable painting is expected to be $332,800.

BACKGROUND

The Guy West Bridge was constructed in 1966. It is a suspension bridge with an overall length of 744 feet. The bridge crosses the American River between California State University – Sacramento (west side) and University Avenue (east side) where there are offices, apartments and condominiums. There is a county park located on the east side of the bridge (Photo 1).

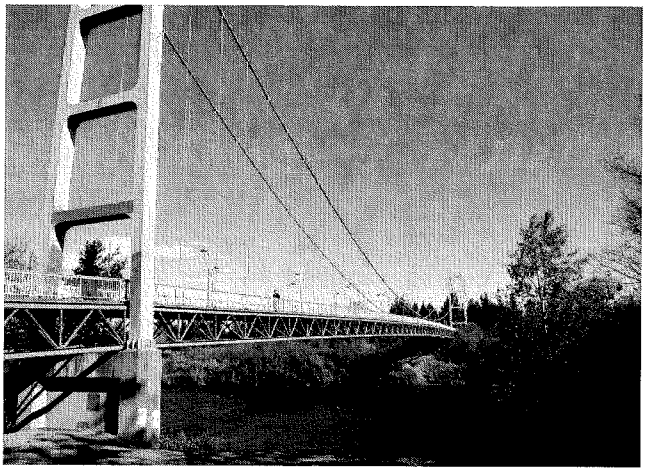


Photo 1 shows a general view of the bridge looking east.

The bridge is constructed of a steel truss that supports a concrete deck walkway. The walkway is supported by 96, ¾″ in diameter, galvanized steel suspender cables which are connected to four 2-1/16″ diameter galvanized steel main cables. The cables are uncoated (i.e. bare galvanized).

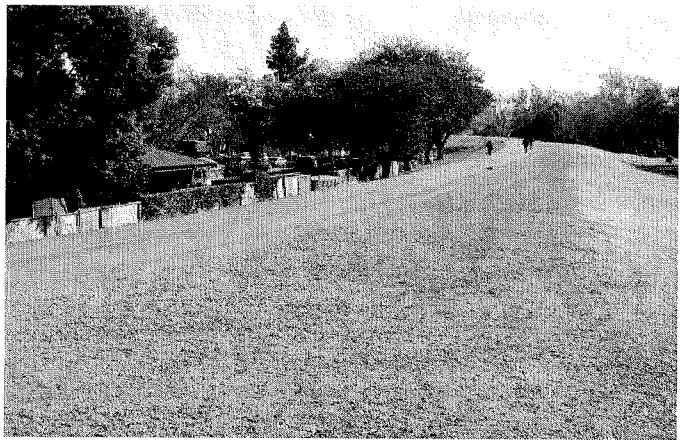


Photo 2 shows the flat area on the east levee where equipment can be placed.

The main cables are anchored into two reinforced concrete deadman anchorages that are located approximately 200-feet beyond the concrete abutments. In addition to the abutments, the bridge is supported by two painted steel towers on concrete piers. The overall tower height is 100-feet.

Mark Reno of Quincy reported that the bridge needs to remain open during the painting operations. In addition, there are two areas to place equipment. The first area, on the east side of the bridge, is located on top of the levee.

The second area, on the west side of the bridge, is located on a flat area next to the river (Photo 3).

Photo 3 shows a flat area on the west side of the bridge that can be used for placement of equipment.

A condition assessment report prepared by BRG Engineering in 2001 provided the following information:

1. Coating adhesion was moderate when evaluated in accordance with ASTM D3359, Method A, Standard Test Methods for Measuring Adhesion by Tape.

2. When probed with a knife, the top layer was found to be brittle while the primer powdered.

3. There was no mention of the presence of rust on the bridge surfaces.

Four samples of the coating were removed for toxic metal (lead, cadmium, chromium) analysis. The following table provides the results of the testing:

Sample Number	Lead (ppm)	Cadmium (ppm)	Chromium (ppm)
1	250,000	Less than Detectable	13,000
2	310,000	5.3	9,500
3	250,000	Less than Detectable	27,000
4	230,000	Less than Detectable	31,000

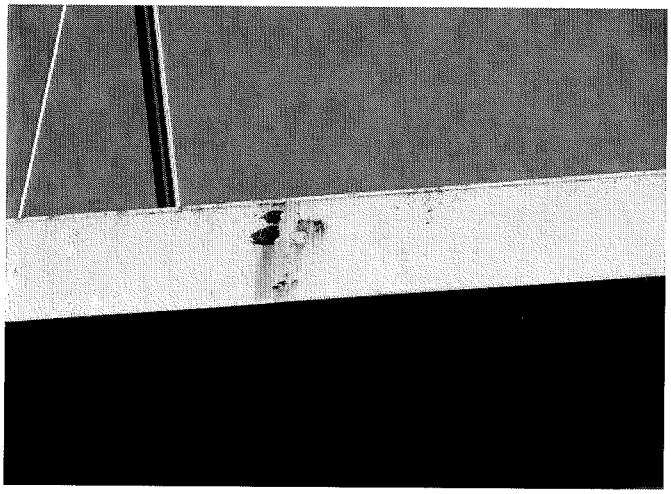
The 2011 Alta Vista Solutions report indicated that 95% of the coating had failed on the top surface of the top chord. Many paint chips were observed underneath the bridge.

RESULTS OF THE FIELD INVESTIGATION

The field investigation was conducted by Mr. Tombaugh on November 21, 2013, and, as requested by Quincy, consisted only of visual inspections. The intent of the inspection was to (1) verify that complete removal and replacement of the existing coating was appropriate, (2) to assess whether coating of the main and suspender cables was required, and (3) to gain the necessary information about the project in order to develop the specification.

The bridge is located in a very busy urban center. On the day of the investigation, many pedestrians were using the bridge. In addition, there was a significant amount of activity at the adjacent office buildings and along the park that runs parallel with the bridge on the east side of the bridge.

The coating on the bridge is severely faded and chalky. There is spot rust on the main tower. Overall, less than 1% of the tower surfaces exhibit spot rusting (Photo 4).



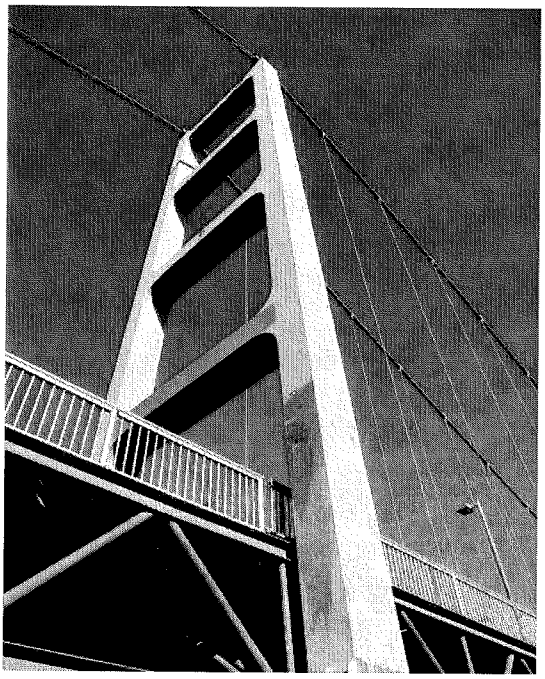


Photo 4 (right) shows the fading that has occurred to the bridge. The left photo shows an example of the few areas of spot rust that are present on the tower.

The area at the base of the tower adjacent to the bridge deck has been repainted numerous times, likely as a result of graffiti (Photo 5). The outside faces of the chords (Photo 6) have small areas of rust, some of which may have been caused by impact damage (stone throwing).

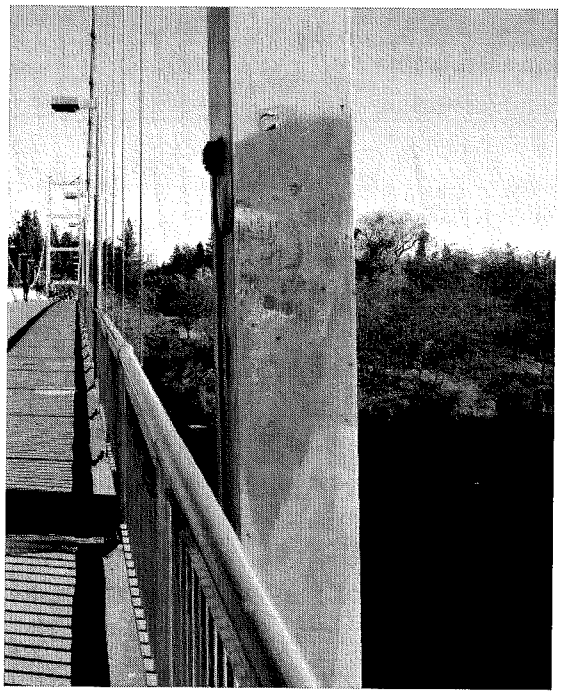


Photo 5 shows an example of the painting that was done to cover the graffiti.

Photo 6 shows the scattered spots of rust on the lower chord.

The horizontal beams and diagonals along the bank have also been repainted many times – likely the result of the need to cover up graffiti (Photo 7).

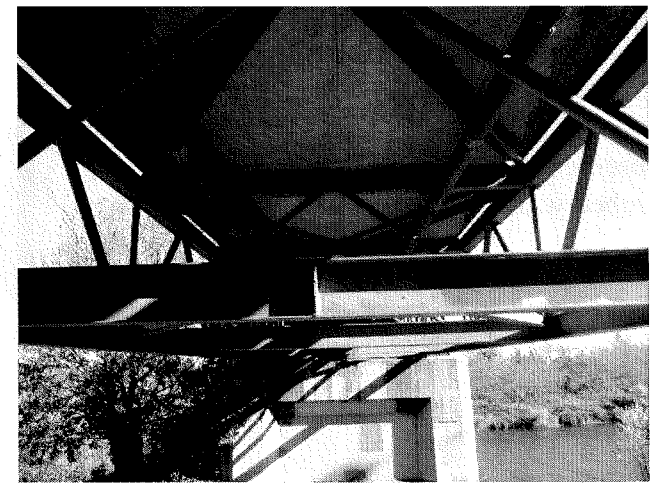


Photo 7 shows a horizontal beam with patches of paint added to cover graffiti.

There is pack rust that originates from joints between steel floor beams and the concrete deck. The other surfaces of the floor beams are generally free of rust (Photo 8).

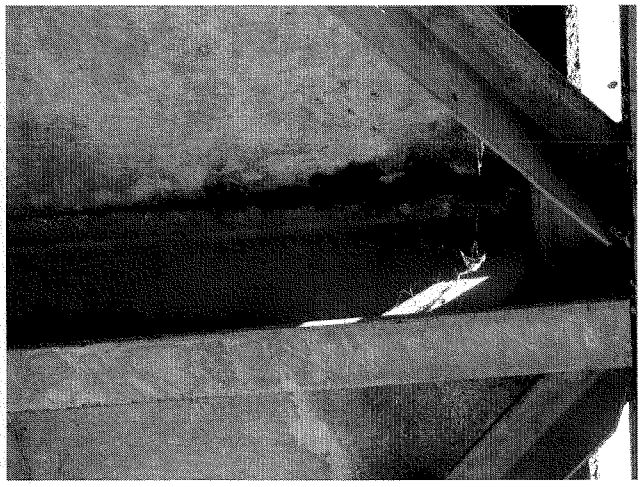


Photo 8 shows the pack rust that is common at the joint between the floor beams and the concrete deck.

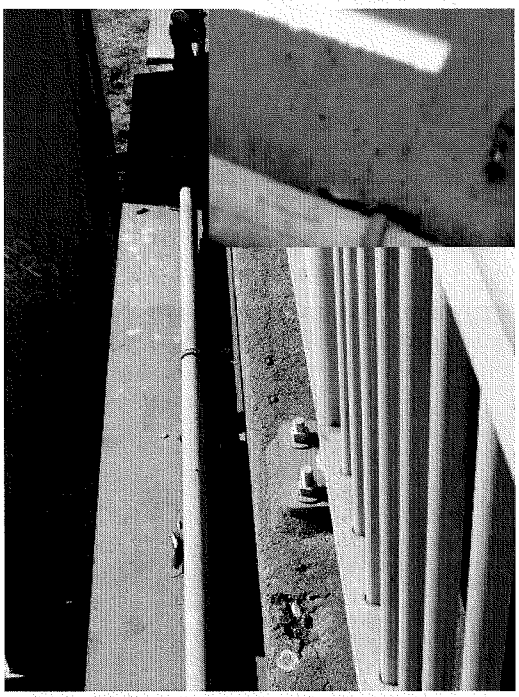


Photo 9 shows the condition of the top surface of the top chord. The inset photo shows the pinpoint rusting that was typically found on the top surface of the top chord.

While the Alta Vista Solutions report indicated that 95% of the coating was gone from the top surface of the top chord, KTA did not observe this condition. Instead, the surface was fully coated with only mild pinpoint rust (Photo 9).

When the coating was removed from the substrate, the underlying surface was covered in rust and mill scale. The coating was easy to remove. An orange primer was observed on the surface of the substrate. When probed with a knife, it powdered (Photo 10).

Photo 10 shows the powdery orange primer and the black mill scale that is present on the surface of the steel.

The pier anchor points at the base of the towers are generally free of rust. Mildew was observed in some areas (Photo 11).

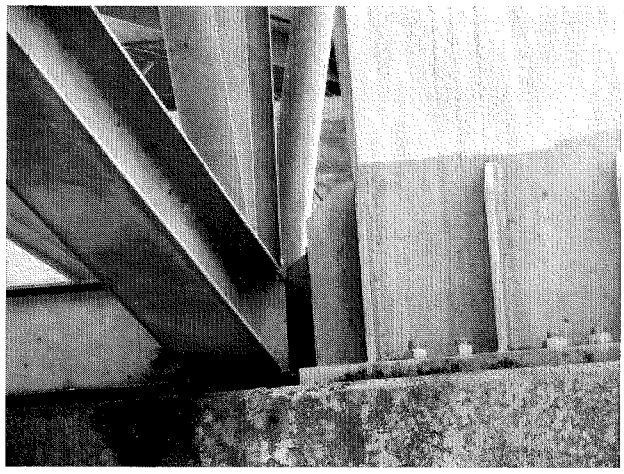


Photo 11 shows the condition of the steel at the tower anchor points on the pier.

The deadmen anchorage points are painted and free of rust. The cable sockets and pins are galvanized steel. There was no evidence of any rust on these surfaces either.

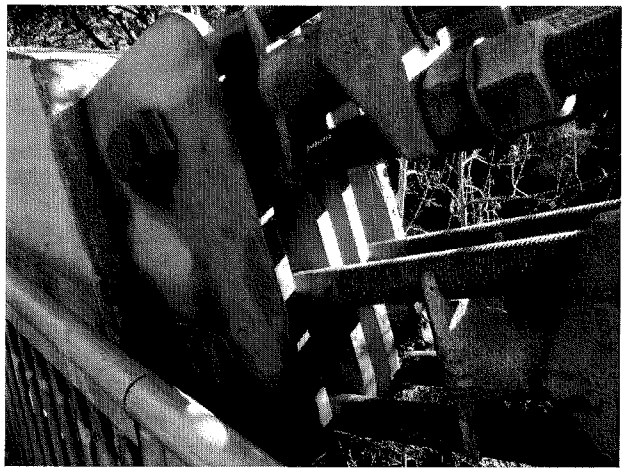


Photo 12 shows the general condition of the deadmen.

The main and suspender cables are uncoated galvanized steel. The surfaces are generally free of rust, however, there is some rust staining that seems to originate between the strands of wire that are wound to construct the cable (Photo 13).

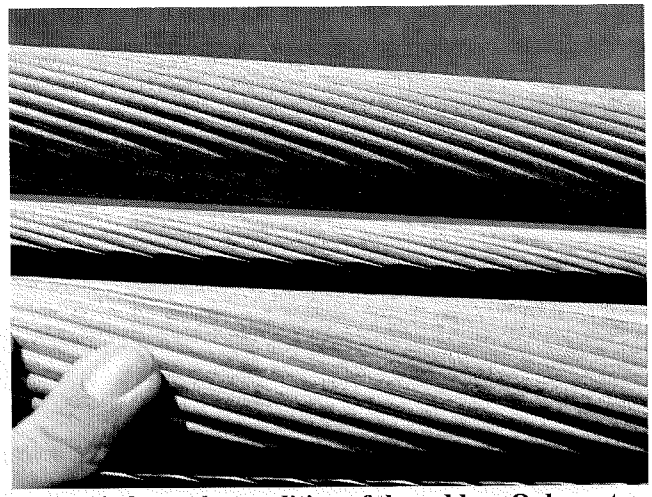


Photo 13 shows the condition of the cables. Only rust staining was observed in most areas.

Rust was more prevalent at the crevices where the wires meet the sockets (Photo 14).

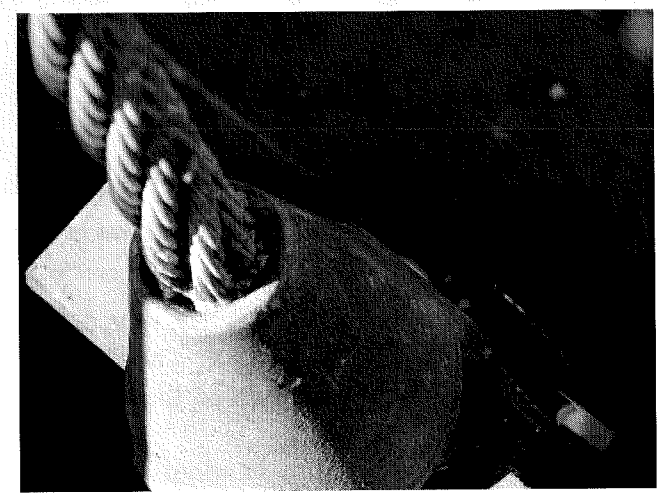


Photo 14 shows an example of the rust at the top socket joint.

The rust was also found at the bottom of the socket (Photo 15). These joints are areas where moisture collects and remains for prolonged periods. The rust is only superficial and there is no evidence of significant corrosion.

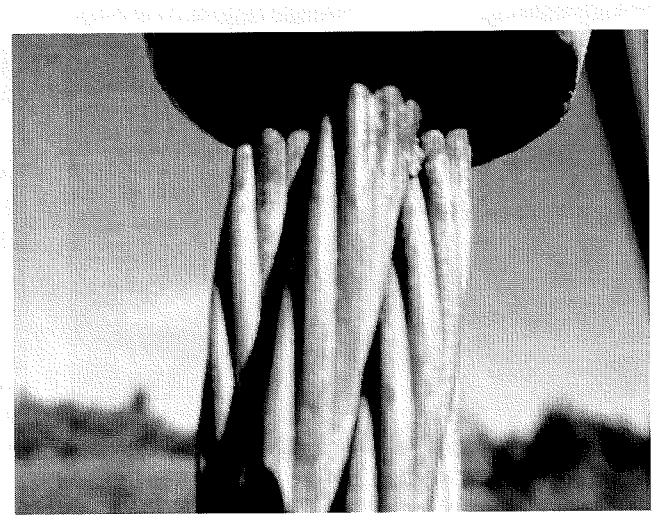


Photo 15 shows an area where the galvanizing has worn away and the underlying substrate has rusted.

The cable blocks and clamps have some tightly adherent superficial rust. The condition varies from location to location with some surfaces covered in rust and others free of rust.

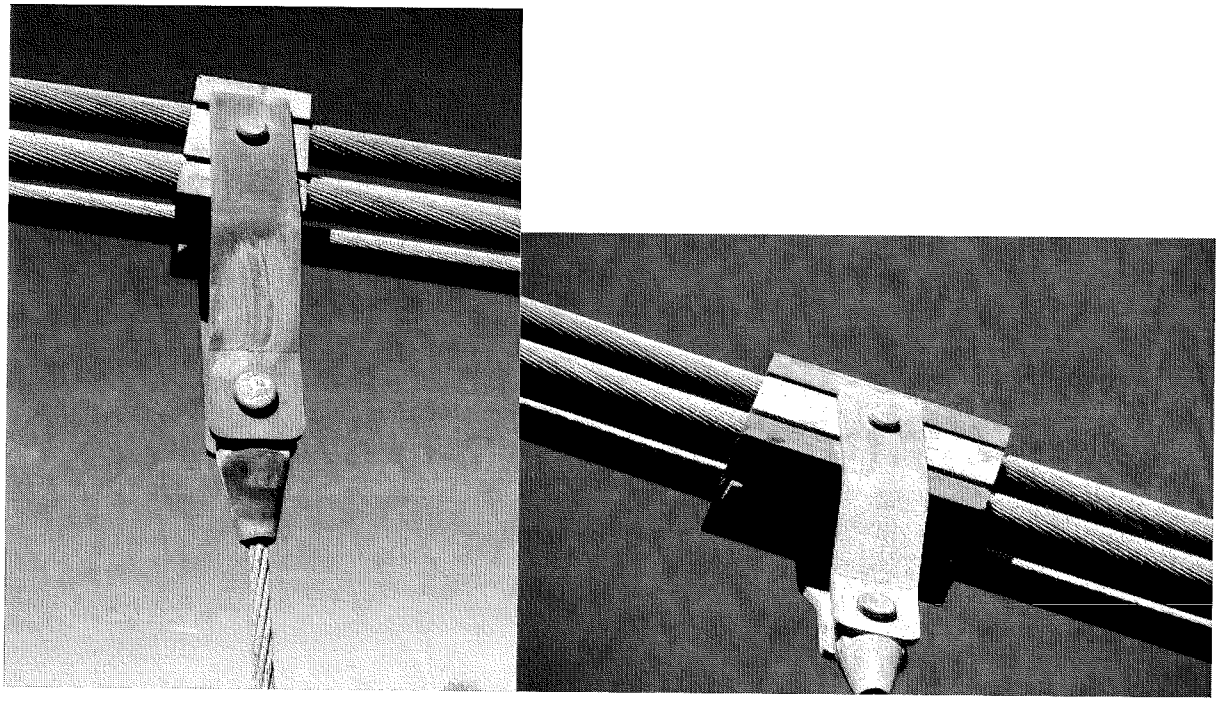


Photo 16 shows two examples of the rust that was observed on the cable clamps and blocks.

There is galvanized conduit that runs along the top chord. The conduit is tightly fastened to the chord with painted steel clips. There was no evidence of any rust (except for some white rust on the conduit) or degradation on the conduit or clips (Photo 17).

There is an aluminum handrail that ran along the length of the bridge. Again, no degradation was observed on these surfaces (Photo 18).

Photo 17 shows a section of the conduit that runs the length of the bridge.

Photo 18 shows a general view of the aluminum handrail that runs along the bridge.

DISCUSSION AND RECOMMENDATIONS

There are a number of areas regarding the remediation of the Guy Wet Pedestrian Bridge that need to be discussed so that a detailed and well planned remediation project can be accomplished. These include identifying (1) recommendations and challenges for painting the currently coated structural steel surfaces, (2) options for painting the galvanized steel cables, blocks, sockets and clamps, (3) risks to the environment and the public and (4) developing a sound opinion of probable cost. Each is discussed separately below.

Recommendations and Challenges for Painting the Structural Steel

While KTA did not observe the significant paint loss that was reported in the Alta Vista Solutions 2011 report, the bridge surfaces are in need of remediation. There is the start of pinpoint rusting on many of the structural steel surfaces that comprise the bridge superstructure. Spot rusting is also starting on the tower surfaces and pack rusting, an accelerated form of corrosion, is observed at the joints between the floor beams and the concrete deck. In addition, the existing paint is severely faded and has patches of other colors causing the appearance to be unsatisfactory.

It is KTA's opinion that there is only one option for remediation of the painted bridge surfaces – complete removal and replacement of the existing coating. The bridge is not a candidate for overcoating since:

1. The primer is powdery and would likely not withstand the stresses of the addition of new coats of paint. When new paint is applied to older friable coatings, the stresses imparted during curing and during temperature cycling can cause the underlying coating to separate. Delamination will ultimately occur.

2. There is tightly adherent rust and mill scale present on the surface of the steel. While not a problem at the present time, mill scale can delaminate over time as a result of moisture and thermal expansion. It would not be cost effective to overcoat a bridge with mill scale since significant coating failures could occur in the future.

Similarly the bridge is also not a candidate for spot repair. The pinpoint rusting found on the chords, while overall does not account for a significant part of the surface area, is scattered across all of the surfaces and would require almost complete removal of the coating.

The repainting process should begin with abrasive blasting in accordance with SSPC-SP 10, Near White Blast Cleaning. While SSPC-SP 10 is typically not required for atmospheric service, it is necessary when mill scale is present on the surface of the steel. When a less rigorous surface preparation standard is specified (SSPC-SP 6, Commercial Blast Cleaning) the contractor usually requests additional fees since in order to remove the mill scale, a surface cleanliness equivalent to SSPC-SP 10 is achieved.

The properly prepared surfaces should be coated with a three-coat organic zinc / epoxy / high performance acrylic system. The organic zinc is corrosion inhibitive to prevent corrosion of the substrate. The epoxy serves as a barrier to prevent moisture from reaching the surface and the high performance acrylic has good UV resistance and gloss retention. Previously, polyurethanes were used as the finish coat, but in recent years coating manufacturers have developed high performance acrylics which have better UV resistance and are environmentally more friendly (low VOC). All of the coatings are low VOC and compliant with Northern California air regulations.

The organic zinc is applied at 3 to 6 mils dry film thickness, the epoxy at 4 to 6 mils and the acrylic at 2 to 3 mils. This system, if properly applied, should provide 20 to 25 years of service without the need for significant maintenance.

Consideration should also be given to the application of an anti-graffiti coating in areas where graffiti is common. When this coating is applied, graffiti can be easily removed. It will have little impact on the appearance of the bridge surfaces.

Since there is new steel being installed on the bridge, a shop primer needs to be selected. While an inorganic zinc primer would be the preferred primer, the documentation required to meet the slip critical joint criteria is not readily available when it mates up with an organic zinc primer that is required for use in the field. As such, the specification should require the use of an organic zinc in the shop. Many organic zinc primers meet Class B slip criteria.

Special considerations will have to be included in the specification to address the pack rust that was observed at the joints between the floor beams and concrete deck. Remediation of this condition is achieved by removing as much of the rust as possible with chisels and other sharp tools, flooding the joint with a penetrating epoxy primer, and then caulking the joint to prevent the introduction of moisture after the complete coating system is applied.

The galvanized conduit that runs the length of the bridge will have to be removed in order to provide access to the top of the top chord. If the city desires to paint the conduit, it should be scrubbed with stiff bristle brushes and detergent water and then rinsed to remove the white galvanized salts that are present on the surface. Once the surface has been cleaned, the galvanizing should be treated with a phosphoric acid based etchant, thoroughly rinsed, and then primed with an epoxy and finished with the high performance acrylic.

The aluminum handrail is in good condition and does not require painting at this time. Many times difficulties are encountered when painting aluminum and it is better leaving the surfaces unpainted.

Remediation Options for the Galvanized Steel Cables, Blocks, Clamps and Sockets

As reported above, most of the galvanized steel surfaces are in good condition. Rusting was only observed at the crevices between the cable and the sockets and on some of the blocks and clamps. The rust is superficial and there was no evidence of any appreciable degradation to the cable or other surfaces.

Remediation of the rust can be treated in two ways. The first option would be to spot repair the rusted areas in accordance with SSPC-SP 2, Hand Tool Cleaning. The prepared surfaces could then be spot primed with an epoxy mastic. The epoxy mastic should be over coated with a high performance acrylic that has been tinted to match the color of the cables. The joint between the cable and socket should be caulked to prevent moisture from getting back into the crevice.

The second option would be to coat all of the galvanized steel cable and associated component surfaces. All surface debris, chalk, grease, oil, dirt, mold, mildew, and zinc salts should be removed by water washing and hand scrubbing with stiff bristled non-metallic scrub brushes. If used, pressurized water should not exceed 150 psi. Solvent cleaning and mold/mildew remover should be used as necessary to thoroughly remove grease, oil, and mold/mildew. The water cleaning/scrubbing should be supplemented with hand tools in accordance with SSPC-SP 2, "Hand Tool Cleaning," to removal all loose rust. If required, power tool cleaning in accordance with SSPC-SP 3, "Power Tool Cleaning," can be used, but only if the hand tool cleaning options are ineffective at removing the loose rust.

The properly prepared surfaces should be coated with a three coat VOC-compliant system single package thixotropic, waterborne elastomeric acrylic with a minimum of 200% elongation. The coating material will form a waterproof membrane that maintains excellent adhesion and flexibility throughout its service life. Three coats are applied. The properly prepared surfaces are primed with an acrylic primer and then two coats of elastomeric at 5 to 8 mils per coat.

Risks to the Environment and the Public

It is understood that the existing coating system on the Guy West Pedestrian Bridge has been sampled to determine the presence of toxic metals. Based on a review of the analytical laboratory documentation, it appears that the coating system contains relatively high levels of lead and total chromium, and low levels of cadmium (it should be noted that it does not appear that the samples where total chromium was detected were further analyzed for the presence of hexavalent chromium). Based on these laboratory analyses, when the coating is disturbed (the proposed removal options for the Guy West Pedestrian Bridge are total coating removal via abrasive blast cleaning and minor spot removal via hand tool cleaning and vacuum-shrouded power tool cleaning), there is the potential for lead, cadmium, and total chromium hazards to the environment and the public during the project. The potential for hexavalent chromium hazards is undefined at this time.

Environmental and Public Impacts

Unprotected soil is present adjacent to and beneath the east and west abutments, and along the banks of the American River. There is unprotected water (American River) beneath the bridge.

There are numerous commercial, residential, and academic properties located within 1,000 feet to the east and west of the Guy West Pedestrian Bridge, and pedestrian/bicycle traffic on the

bridge itself as well as on the multi-use trails that run beneath and perpendicular to the bridge along the east and west banks of the American River. It is anticipated that the bridge will remain open during the painting work.

Containment Requirements

Total coating removal via abrasive blast cleaning is considered to have very high emissions potential. Given the relatively high risk to the environment and general public discussed above, and the fact that abrasive blasting is considered to have very high emissions potential, a correspondingly high level of containment is recommended. In accordance with the guidance found in SSPC Guide 6, "Guide for Containing Debris Generated during Paint Removal Operations," the recommended level of containment during abrasive blast cleaning is a SSPC Class 1A containment. A SSPC Class 1A containment incorporates air impermeable walls with rigid or flexible framing, fully sealed joints, airlock or re-sealable entryways, and negative air achieved by forced or natural air flow and exhaust air filtration. The containment will have to be constructed with a tunnel going through the center, above the deck, to permit foot and bicycle traffic. For spot removal of the existing coating system using hand tools or vacuum-shrouded power tools, an SSPC Class 3P containment system should be utilized.

Regulatory Requirements

As mentioned above, results of paint chip sampling indicate the presence of lead, total chromium, and cadmium. While the paint chip samples were not analyzed for hexavalent chromium, it should be assumed that hexavalent chromium is present in the existing coating system until its absence has been confirmed. Therefore, the contractor will be required to comply with the requirements of the associated CalOSHA Construction Standards for these metals (8 CCR 1532.1 for lead, 8 CCR 1532 for cadmium, 8 CCR 1528 for total chromium, and 8 CCR 1532.2 for hexavalent chromium) if the coating is repaired or disturbed.

All waste generated from paint removal activities must be managed in accordance with applicable Federal, state, and local regulations. The Owner is required to obtain a Hazardous Waste Identification Number from the EPA. Hazardous waste generated by a large-quantity generator (more than 2,200 pounds in any one month) can be stored on site for no more than a maximum of 90 days, and must then be transported to a disposal facility licensed to accept hazardous waste.

Recommendations

Based on the proximity and frequency of the public to the work area, ambient air monitoring, area air monitoring, and visible emission assessments are recommended.

Full-time high volume ambient air monitoring for TSP-lead is recommended during all dust producing activities, except during hand tool and vacuum-shrouded power tool cleaning activities. Four monitoring locations are recommended; two to the east of the bridge and two to the west of the bridge.

Closure of the bridge to pedestrian and bicycle traffic during paint removal activities should be considered in order to limit the potential safety and health concerns of the public. If closure of the bridge to pedestrian and bicycle traffic is not feasible, area air monitoring using personal sampling pumps should be conducted at various locations on the bridge during dust producing activities. Likewise, closure (or limited usage) of the riverfront trails should be considered when dust producing activities are being performed on the spans directly above these pathways.

Visible emissions from project activities should be evaluated using 40 CFR 60, Appendix A, Method 22. On abrasive blasting projects, it is common to limit visible emissions from project activities to less than 1% of the workday. However, given the proximity and frequency of the general public to the work area, consideration should be given to disallowing any level of visible emissions from the project.

Opinion of Probable Cost

KTA reviewed the surface area take-off for the bridge structural steel (towers and truss members) produced by Quincy and found it to be accurate. The surface area for the main cables and suspension cables was determined by KTA and is attached in Appendix A. The cost estimate produced by Quincy for the bridge structural steel surface preparation and painting of approximately $1.6 million ($44.46 per square foot) seems quite conservative.

An opinion of probable construction costs for the recommended surface preparation and painting was prepared for informational purposes. The development of these cost opinions involved making various assumptions, based upon experience, as to how a contractor might staff and proceed with this type of work. Crew sizes, production rates, material, and equipment requirements are evaluated, and man-days and project-days are calculated. From this project time estimate, costs associated with labor, materials, and equipment are factored in and the estimate is developed. Overhead and profit are added as a multiplier to the base estimate. For the purposes of this estimate, all labor was considered to be union painters and all equipment was calculated at rental rates. The requirements for environmental protection, worker health and safety, waste disposal, and containment are also included.

It is assumed that pedestrian traffic must be maintained for the duration of the project. The bridge width would be restricted during construction with at least 5 feet of width open for traffic. The cost of maintenance and protection of pedestrian traffic (e.g. warning signs, temporary lighting, etc.) is not included in the costs shown. The costs for maintenance and protection of traffic would need to be added to the overall project costs along with costs for any other required items of rehabilitation work (e.g. steel repairs, concrete repairs, project field office, etc.).

Finally, a variance multiplier is used on the final estimated cost to develop a range of anticipated bid prices. This multiplier allows for the variations in contractor bidding techniques, new technology, and scheduling of the work within the painting season. The cost estimates for the recommended work are included in Appendix B and summarized in Table 1. Appendix A

shows hand calculations for a check of the take-off of the surface area of the bridge superstructure members determined by others, and calculations for the surface area of the cable system components. Appendix B shows spreadsheet calculations of the production time and costs for the necessary items required to complete the recommended painting work.

Table 1 – Opinion of Probable Construction Costs for Painting Related Items

Surface Preparation	Coating System	Work Limits	Paintable Area	Bid Range
Abrasive Blast Cleaning (SP 10)	Zinc Rich Primer / Epoxy / Acrylic	All Bridge Structural Steel	36,440 Square Feet	$782,200 to $946,900
Solvent Cleaning (SP 1), Hand Tool Cleaning (SP 2)	Acrylic Primer followed by Two Coat Acrylic Elastomeric Coating System (e.g. Mathys) Noxyde distributed by Rustoleum Corporation or Thortex Poly-Nox)	Suspension System Cables and Components	6,000 Square Feet	$275,000 to $332,800

The City should allow six months for the recommended painting work shown in Table 1.

KTA-TATOR, INC.
115 Technology Drive
Pittsburgh, PA 15275

INDEX NO. 1

SHEET NO. 1 OF 2

PROJECT Quincy Engineering, Inc. / City of Sacramento CALC. BY: MPR DATE 12/13/13

Guy West Bridge Restoration Project JOB NO. 330790 REV.: 0 DATE 12/2013

CHECK STRUCTURAL STEEL SURFACE AREA

QUINCY DETERMINED AREA OF STRUCTURAL MEMBERS TO TOTAL 36,440 SF

ROUGH CHECK BASED ON WEIGHT OF BRIDGE

– PROVIDED AS-BUILT PLANS SHOW DL = 1400 LB/FT OF BRIDGE

(1400 LB/FT)(744 FT ±) = 521 TONS

DEDUCT 6" LW CONCRETE DECK & HANDRAILS ≈ 320 TONS

STRUCT. STEEL = (200 TONS)(170 SF/TON) ≈ 34,000 SF

USE STEEL AREA = 36,440 SF

MAIN CABLES

BACK STAY LENGTH = 200.5' + 239.5' = 440' EACH

CENTER SPAN LENGTH: SAG = 70' = y K = y/s

SPAN = 600' = s LENGTH = $s(1 + \frac{8}{3}K^2)$

CENTER SPAN LENGTH = 622' EACH

MAIN CABLES = (2)(4 CABLES)(2 1/16"/12)(π)(1062 FT) = 4588 SF

ANCHOR BARS & SOCKETS = (4R)(2')(3.2')(2 SIDES)(4 ANCHORS) + (1SP)(4)(4) = 221 SF

MAIN CABLES = 4809 SF

SUSPENDER CABLES

50 PANELS @ 12' SPACING

SAG = f = 70'

SPAN = L = 600'

$$y = \frac{4fx(L-x)}{L^2}$$

SUSPENDER LENGTH = y + 5'

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INDEX NO. 2

SHEET NO. 2 OF 2

PROJECT Quincy Engineering, Inc. / City of Sacramento CALC. BY: MPR DATE 12/13/13

Guy West Bridge Restoration Project JOB NO. 330790 REV.: 0 DATE 12/2013

x	y	Length (ft)
0	0	5
12	5.488	10.488
24	10.752	15.752
36	15.792	20.792
48	20.608	25.608
60	25.2	30.2
72	29.568	34.568
84	33.712	38.712
96	37.632	42.632
108	41.328	46.328
120	44.8	49.8
132	48.048	53.048
144	51.072	56.072
156	53.872	58.872
168	56.448	61.448
180	58.8	63.8
192	60.928	65.928
204	62.832	67.832
216	64.512	69.512
228	65.968	70.968
240	67.2	72.2
252	68.208	73.208
264	68.992	73.992
276	69.552	74.552
288	69.888	74.888
~~300~~	~~70~~	~~75~~

Σ_{LENGTH} = 1256 FT

SUSPENDER CABLES = (2)(2)(1256FT)(3/4"/12)(π)

SUSPENDER CABLES = 786 SF

ADD 5% FOR CABLE BANDS & SOCKETS

SUSPENDER CABLES = 1035 SF

BRIDGE CABLES TOTAL = 5844 SF

SAY 6000 SF

APPENDIX B

Guy West Bridge Restoration Project

Quincy Engineering, Inc. / City of Sacramento

Given: Total Remove and Replace Existing Coating - TOWERS & BRIDGE TRUSSES

Assumptions : Hazardous Metals Present, Equipment Staged Off of Bridge, Bridge Width Restrictions During Rehab., Crew Works 5 Days / Week, One Rain-out Day / Week, SSPC-SP 10 / Zinc / Epoxy / Urethane System SSPC Guide 6 Class 1A Containments

Total Surface Area =	36,440	sq ft
Longest Containment Length =	300	ft
No. of Spans =	3	
Platform Length =	300	ft
Platform Width =	18	ft
Required Platform Deck Area =	5,400	sq ft
Containment Draft Area =	400	sq ft
Cross Draft =	Yes	Yes or No
Hazardous Metals =	Yes	Yes or No
Recyclable Abrasive =	No	Yes or No

Assume Crew Size

Class	No.	Rate/hr
Foreman	1	$80
Abrasive Blasters	4	$70
Intermediate & Finish Coat Painters	2	$70
Laborer	2	$60

Labor Cost per Day = $4,960 @ Hours / Day = 8

Labor

Mobilize =	2	Days
Platform =	4	Days
Rigging / Containment Moves =	9	Days
Pressure Wash =	0	Days
Blast Clean / Prime =	20	Days
Full Intermediate Coat =	12	Days
Full Finish Coat =	12	Days
Cleanup, Demob, Punch List =	2	Days
Total Production Days =	61	Days
Calendar Months =	3.6	Months

Subtotal Labor = $302,560

Guy West Bridge Restoration Project

Quincy Engineering, Inc. / City of Sacramento

Given: Total Remove and Replace Existing Coating - TOWERS & BRIDGE TRUSSES

Materials

	Rate	Unit	Cost
Full Prime =	$0.51	/sq ft	$18,584
Full Intermediate =	$0.35	/sq ft	$12,754
Full Finish =	$0.36	/sq ft	$13,118
Thinner =	$0.05	/sq ft	$1,822
Blast Media =	$50	/ton	$6,377

Subtotal Materials = $52,656

Equipment

Item	#Months	Qty	Rate	Cost
Blast Machine =	3.6	2	$5,550	$39,498
HEPA Filters for vac =	3.6	2	$260	$1,850
Dust Collector =	3.6	1	$3,400	$12,098
Duct =	NA	375	$25	$9,375
Hoses =	3.6	4	$940	$13,379
Nozzles =	3.6	4	$160	$2,277
Hoods =	NA	4	$250	$1,000
Lighting =	NA	0	$550	$0
Compressors =	3.6	2	$2,000	$14,233
Pumps =	3.6	2	$1,000	$7,117
Lines =	3.6	4	$250	$3,558
Guns =	NA	4	$300	$1,200
Generators =	3.6	2	$600	$4,270
Platform (Roof Decking and Cables) =	NA	5,400	$4	$21,600
Outriggers =	NA	71	$180	$12,780
Tarps =	NA	10,488	$1	$10,488
Tarp Cables =	NA	200	$1	$200
Crane =	0.9	1	$4,800	$4,200
Swing Low Stages for Towers =	3.6	2	$400	$2,847
Pressure Washers =	3.6	0	$700	$0
Pick-up Trucks (w/ fuel) =	3.6	2	$1,000	$7,117
Large Trucks (w/Fuel) =	3.6	1	$1,200	$4,270
Hand Tools =	3.6	14	$10	$498
Power Tools =	3.6	6	$50	$1,068
Office Trailor =	3.6	2	$450	$3,203
Storage Trailor =	3.6	2	$375	$2,669

Subtotal Equipment = $180,794

Guy West Bridge Restoration Project

Quincy Engineering, Inc. / City of Sacramento

Given: Total Remove and Replace Existing Coating - TOWERS & BRIDGE TRUSSES

Health and Safety

Item	# Months	Qty	Rate	Cost
Tyvek Suits =	3.6	9	$50	$1,601
Blood Leads =	NA	18	$100	$1,800
Worker Exposure Monitoring =	3.6	4	$30	$427
Worker Exposure Monitor Analysis =	3.6	4	$26	$370
Wash Trailor =	3.6	2	$450	$2,882
Waste Disposal (Tons) =	NA	132	$300	$39,629
Safety Boat =	3.6	1	$500	$1,779

Subtotal Other Costs = $48,488

Engineering

Item	Hours	Qty	Rate	Cost
Drafting =	32	1	$65	$2,080
Engineering =	24	1	$200	$4,800
Administrative Submital Support =	8	1	$40	$320

Subtotal Engineering = $7,200

Total

Subtotal Job =	$591,698
Overhead (10%) =	$59,170
Subtotal with Overhead=	$650,868
Profit (15%) =	$97,630
Location Factor =	1.1
Total Cost =	**$823,348**
Cost / Sq ft =	$22.59

Expected Bid Range:	**$782,200**	**to**	**$946,900**
	$21.47	to	$25.99

Guy West Bridge Restoration Project

Quincy Engineering, Inc. / City of Sacramento

Given: Total Remove and Replace Existing Coating - TOWERS & BRIDGE TRUSSES

SUMMARY PAGE			ITEM#	
Pay Items (Using High Side of Bid Range)	Price	Unit		
PAINTING EXISTING STRUCTURAL STEEL	$641,352	LS	9070	67.7%
CONTAINMENT	$227,906	LS	9075	24.1%
DISPOSAL OF BRIDGE WASTE	$63,415	LS	9073	6.7%
WORKER HEALTH AND SAFETY	$14,178	LS	9077	1.5%
MAINTENANCE & PROTECTION OF TRAFFIC	$0	LS		0.0%
Check Total	$946,900			

Guy West Bridge Restoration Project

Quincy Engineering, Inc. / City of Sacramento

Main Cables, Backstay Cables, and Suspender Cables
Anchorage Plates, Sockets, and Cable Bands, Clamps, & Hardware

Assumptions : SSPC SP-1, SP-2, Acrylic Primer Followed by Two Coats Noxyde at 7 mils each, Class 3P Containments

Total Surface Area =	6,000	sq ft
Spot Repair Area =	6,000	
Max. Containment Length =	150	ft
No. of Spans =	3	
Containment Length =	150	ft
Containment Width =	5	ft
Required Platform Deck Area =	750	sq ft
Containment Draft Area =	0	sq ft
Cross Draft =	No	Yes or No
Hazardous Metals =	Yes	Yes or No
Recyclable Abrasive =	No	Yes or No

Assume Crew Size

Class	No.	Rate/hr
Foreman	1	$80
Blaster/Painter	4	$70
Laborer	2	$60

Labor Cost per Day = $3,840 @ Hours / Day = 8

Labor

Mobilize =	1	Days
Platform =	0	Days
Rigging / Containment Moves =	6	Days
Hand Solvent Clean / Scrub =	8	Days
Hand Tool Cleaning / Prime =	12	Days
Full Prime Coat =	3	Days
Full Finish Coat =	3	Days
Cleanup, Demob, Punch List =	1	Days
Total Production Days =	34	Days
Calendar Months =	2.0	Months

Subtotal Labor = $128,640

Guy West Bridge Restoration Project

Quincy Engineering, Inc. / City of Sacramento

Main Cables, Backstay Cables, and Suspender Cables
Anchorage Plates, Sockets, and Cable Bands, Clamps, & Hardware

Materials

	Rate	Unit	Cost
Prime =	$0.29	/sq ft	$1,740
Intermediate =	$1.28	/sq ft	$7,680
Finish =	$1.28	/sq ft	$7,680
Thinner =	$0.00	/sq ft	$0

Subtotal Materials = $17,100

Equipment

Item	#Months	Qty	Rate	Cost
Spider Climbers =	2.0	2	$900	$3,518
Compressors =	2.0	0	$2,000	$0
Dust Collector =	2.0	0	$3,400	$0
Lines =	2.0	0	$250	$0
Guns =	NA	0	$300	$0
Generators =	2.0	2	$600	$2,345
Platform (Roof Decking and Cables) =	NA	0	$4	$0
Outriggers =	NA	50	$180	$9,000
Tarps =	NA	22,500	$1	$22,500
Tarp Cables =	NA	1,200	$1	$1,200
Crane =	0.4	1	$4,800	$0
Cables & Picks / ft =	2.0	0	$500	$0
Pressure Washers =	2.0	0	$700	$0
Water Buffalos =	2.0	0	$3,000	$0
JLG =	2.0	0	$3,500	$0
Pick-up Trucks (w/ fuel) =	2.0	2	$1,000	$3,908
Large Trucks (w/Fuel) =	2.0	2	$1,200	$4,690
Hand Tools =	2.0	14	$10	$274
Power Tools =	2.0	0	$50	$0
Office Trailor =	2.0	2	$450	$1,759
Storage Trailor =	2.0	2	$375	$1,466

Subtotal Equipment = $50,659

Guy West Bridge Restoration Project

Quincy Engineering, Inc. / City of Sacramento

Main Cables, Backstay Cables, and Suspender Cables
Anchorage Plates, Sockets, and Cable Bands, Clamps, & Hardware

Health and Safety

Item	# Months	Qty	Rate	Cost
Tyvek Suits =	2	7	$50	$684
Blood Leads =	NA	66	$100	$6,600
Worker Exposure Monitoring =	2	4	$30	$235
Worker Exposure Monitor Analysis =	2	4	$26	$203
Wash Trailor =	2	1	$450	$879
Waste Disposal (Tons) =	NA	0.8	$300	$225
Safety Boat =	2	1	$500	$977
Subtotal Other Costs =				**$9,803**

Engineering

Item	Hours	Qty	Rate	Cost
Drafting =	8	1	$65	$520
Engineering =	6	1	$200	$1,200
Administrative Submital Support =	2	1	$40	$80
Subtotal Engineering =				**$1,800**

Total

Subtotal Job =	$208,002
Overhead (10%) =	$20,800
Subtotal with Overhead =	$228,802
Profit (15%) =	$34,320
Location Factor =	1.1
Total Cost =	**$289,435**
Cost / Total Sq ft =	$48.24
Cost / Corroded Sq ft =	$48.24

Expected Bid Range:	**$275,000**	**to**	**$332,800**
	$45.83	to	$55.47

Guy West Bridge Restoration Project

Quincy Engineering, Inc. / City of Sacramento

Main Cables, Backstay Cables, and Suspender Cables
Anchorage Plates, Sockets, and Cable Bands, Clamps, & Hardware

SUMMARY PAGE			ITEM#	
Pay Items *(Using High Side of Bid Range)*	Price	Unit		
PAINTING EXISTING STRUCTURAL STEEL	$225,086	LS	9071	67.6%
CONTAINMENT	$92,077	LS	9075	27.7%
DISPOSAL OF BRIDGE WASTE	$360	LS	9073	0.1%
WORKER HEALTH AND SAFETY	$15,327	LS	9077	4.6%
MAINTENANCE & PROTECTION OF TRAFFIC	$0	LS		0.0%
Check Total	$332,800			

STRUCTURAL CALCULATIONS

FOR

GUY WEST BRIDGE PAINTING AND REHABILITATION PROJECT

CONDUIT SUPPORT

SACRAMENTO, CA

February 28, 2014

B&B Principal in Charge:	Brian Reil
B&B Project Engineers:	Jason Passalacqua
	Amy Hopkins
B&B Job No.:	2011-191.11

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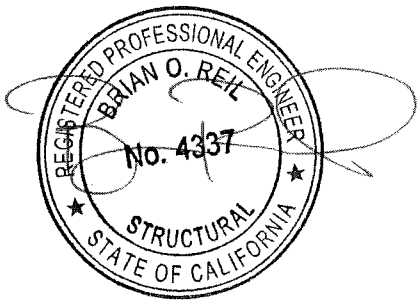
Design Criteria *S1*

Conduit Support Design *S2*



BUEHLER & BUEHLER, STRUCTURAL ENGINEERS, INC.

600 Q St., Suite 200, Sacramento, CA 95811 • 916-443-0303 • 916-443-0313 (Fax)

USGS Design Maps Summary Report

User–Specified Input

Building Code Reference Document ASCE 7-10 Standard
(which utilizes USGS hazard data available in 2008)

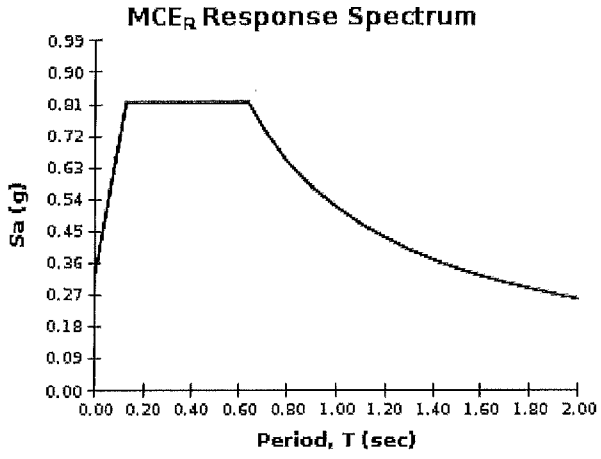
Site Coordinates 38.562°N, 121.42°W

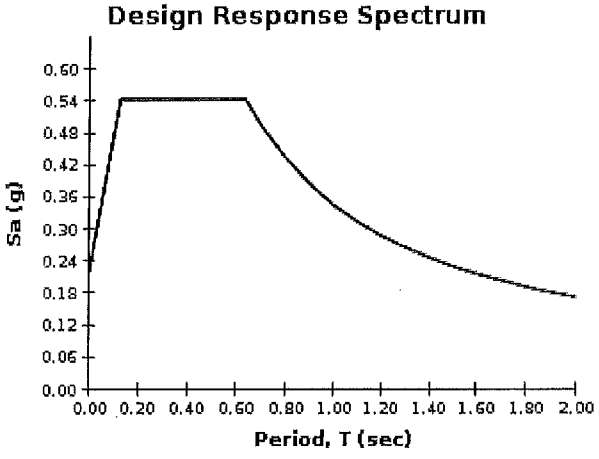
Site Soil Classification Site Class D – "Stiff Soil"

USGS–Provided Output

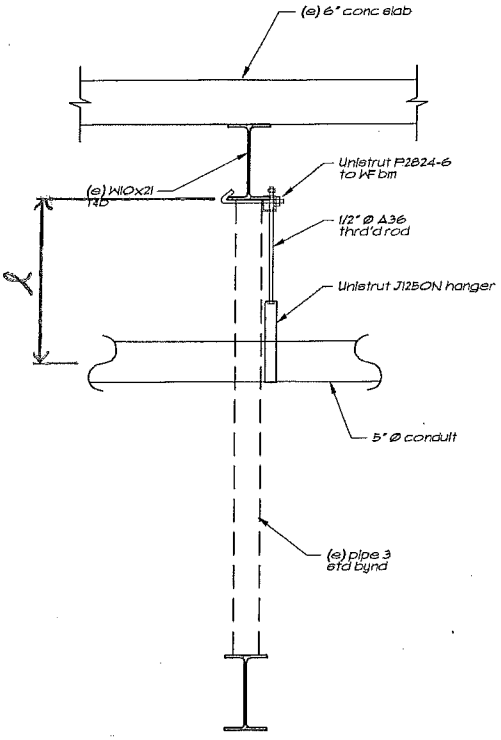
S_S =	0.628 g	S_{MS} =	0.815 g	S_{DS} =	0.543 g
S_1 =	0.281 g	S_{M1} =	0.517 g	S_{D1} =	0.344 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.





CHECK PERMANENT SUPPORT CONDITION



DETERMINE SEISMIC FORCE

$W = (10plf)(36ft) = 360lb$

$$F = \frac{0.4(2.5)(0.543)(1.0)(360lb)}{3.0}\left[1+2\left(\frac{}{}\right)\right]$$

$= 195lb$

→ transverse & longitudinal braces provided @ every 3rd vertical support. Vertical support provided @ each truss (~12'-0" cc)

SIZE MEMBERS

hanging assembly on truss:

$P = (10plf)(12ft) = 120lb$

⇒ USE UNISTRUT P2824-6 BEAM CLAMP ($T_{all} = 500lb$)

⇒ USE ½" Ø A36 THRD'D ROD ($T_{all} = 6.6k$)

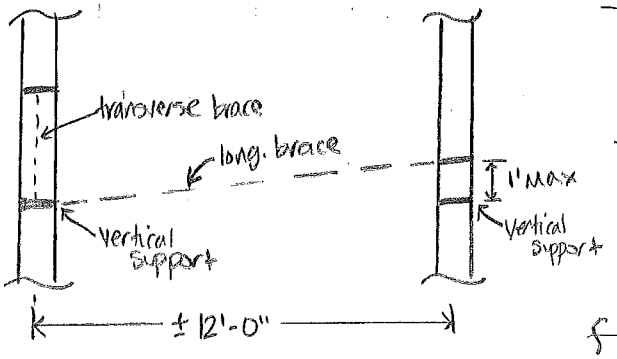
⇒ USE UNISTRUT J1250N HANGER ($T_{all} = 800lb$)

brace assembly every 3rd truss:

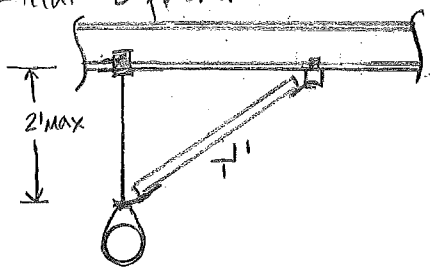
SEE CALCS NEXT PG.

Check Bracing of permanent support condition

Locate braces @ every 3rd Vertical support

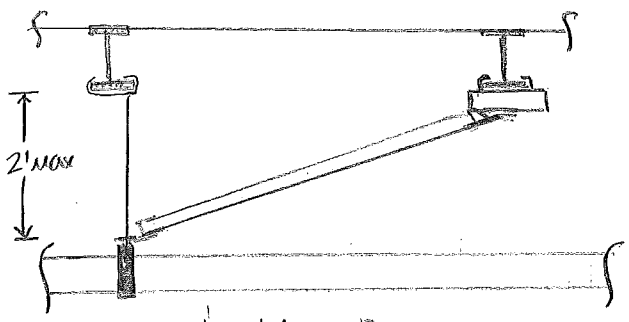


Plan



Transverse brace

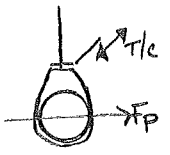
$F_p = 195\#$



Longitudinal Brace

① Check Forces in Transverse brace

ⓐ P1000 brace @ 45° angle - consider 4' max length

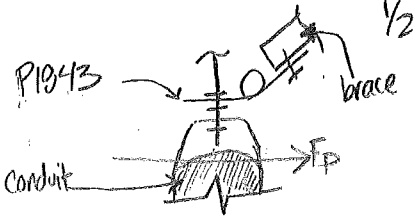


Axial force in brace: $P = \frac{195\#}{\sin 45} = 276\#$

$T_{all} = 4690\#$ per Unistrut - see next pg

$D/C = \frac{276}{4690} = 0.06 \ll 1.0$ ∴ ok

ⓑ Use P1943 - hinged angle bracket on end w/ ½"ϕ bolt w/ Chan. nut typ



Bottom Brace conn

Shear to ½"ϕ bolt: $V = 276\#$

$V_{all} = 1000\#$ for ½"ϕ chan. nut (see next pg)

$D/C = \frac{276}{1000} = 0.28 < 1.0$ ∴ ok

P1000 - Beam Loading

Span In	Max. Allowable Uniform Load Lbs	Defl. at Uniform Load In	Uniform Loading at Deflection Span/180 Lbs	Span/240 Lbs	Span/360 Lbs
24	1,690	0.06	1,690	1,690	1,690
36	1,130	0.13	1,130	1,130	900
48	850	0.22	850	760	500
60	680	0.35	650	480	320
72	560	0.50	450	340	220
84	480	0.68	330	250	160
96	420	0.89	250	190	130
108	380	1.14	200	150	100
120	340	1.40	160	120	80
144	280	2.00	110	80	60
168	240	2.72	80	60	40
192	210	3.55	60	50	NR
216	190	4.58	50	40	NR
240	170	5.62	40	NR	NR

P1001 - Beam Loading

Span In	Max. Allowable Uniform Load Lbs	Defl. at Uniform Load In	Uniform Loading at Deflection Span/180 Lbs	Span/240 Lbs	Span/360 Lbs
24	3,500*	0.02	3,500*	3,500*	3,500*
36	3,190	0.07	3,190	3,190	3,190
48	2,390	0.13	2,390	2,390	2,390
60	1,910	0.20	1,910	1,910	1,620
72	1,600	0.28	1,600	1,600	1,130
84	1,370	0.39	1,370	1,240	830
96	1,200	0.51	1,200	950	630
108	1,060	0.64	1,000	750	500
120	960	0.79	810	610	410
144	800	1.14	560	420	280
168	680	1.53	410	310	210
192	600	2.02	320	240	160
216	530	2.54	250	190	130
240	480	3.16	200	150	100

P1000 - Column Loading

Unbraced Height In	Max. Allowable Load at Slot Face Lbs	Maximum Column Load Applied at C.G. K = 0.65 Lbs	K = 0.80 Lbs	K =1.0 Lbs	K = 1.2 Lbs
24	3,550	10,740	9,890	8,770	7,740
36	3,190	8,910	7,740	6,390	5,310
48	2,770	7,260	6,010	4,690	3,800
60	2,380	5,910	4,690	3,630	2,960
72	2,080	4,840	3,800	2,960	2,400
84	1,860	4,040	3,200	2,480	1,980
96	1,670	3,480	2,750	2,110	1,660
108	1,510	3,050	2,400	1,810	**
120	1,380	2,700	2,110	**	**
144	1,150	2,180	1,660	**	**

P1001 - Column Loading

Unbraced Height In	Max. Allowable Load at Slot Face Lbs	Maximum Column Load Applied at C.G. K = 0.65 Lbs	K = 0.80 Lbs	K =1.0 Lbs	K = 1.2 Lbs
24	6,430	24,280	23,610	22,700	21,820
36	6,290	22,810	21,820	20,650	19,670
48	6,160	21,410	20,300	18,670	16,160
60	6,000	20,210	18,670	15,520	12,390
72	5,620	18,970	16,160	12,390	8,950
84	5,170	16,950	13,630	9,470	6,580
96	4,690	14,890	11,190	7,250	5,040
108	4,170	12,850	8,950	5,730	3,980
120	3,690	10,900	7,250	4,640	**
144	2,930	7,630	5,040	**	**

P1000/P1001 - Elements of Section

Parameter	P1000		P1001	
Area of Section	0.555	In^2	1.111	In^2
Axis 1-1				
Moment of Inertia (I)	0.185	In^4	0.928	In^4
Section Modulus (S)	0.202	In^3	0.571	In^3
Radius of Gyration (r)	0.577	In	0.914	In
Axis 2-2				
Moment of Inertia (I)	0.236	In^4	0.471	In^4
Section Modulus (S)	0.290	In^3	0.580	In^3
Radius of Gyration (r)	0.651	In	0.651	In

Notes:

* Load limited by spot weld shear.

** $KL/r > 200$

NR = Not Recommended.

1. Beam loads are given in *total* uniform load (W Lbs) not uniform load (w lbs/ft or w lbs/in).
2. Beam loads are based on a simple span and assumed to be adequately laterally braced. Unbraced spans can reduce beam load carrying capacity. Refer to Page 62 for reduction factors for unbraced lengths.
3. For pierced channel, multiply beam loads by the following factor:

"KO" Series.....95%	**"T" Series 85%**
"HS" Series 90%	**"SL" Series.....85%**
"H3" Series.....90%	**"DS" Series.....70%**

4. Deduct channel weight from the beam loads.
5. For concentrated midspan point loads, multiply beam loads by 50% and the corresponding deflection by 80%. For other load conditions refer to page 18.
6. All beam loads are for bending about Axis 1-1.

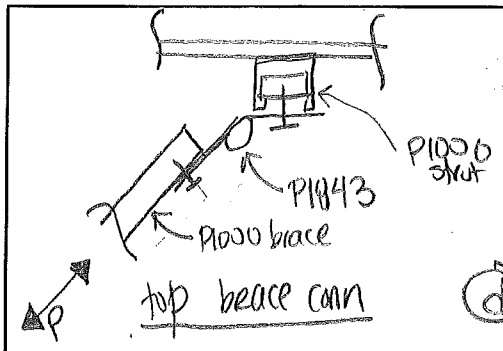
Maximum Allowable Pull-out And Slip Loads

Channel Nut Size-Thread	Gauge	Channel	Allowable Pull-Out Strength Lbs *(kg)*	Resistance to Slip Lbs *(kg)*	Torque Ft-Lbs *(N•m)*
¾" -10	12	P1000 P3000 P5000 P5500	2,500 *1,134*	1,700 *771*	*125 *170*
⅝" -11	12		2,500 *1,134*	1,500 *680*	*100 *135*
½" -13	12		2,000 *907*	1,500 *680*	50 *70*
7/16" -14	12		1,400 *635*	1,000 *454*	35 *50*
⅜" -16	12		1,000 *454*	800 *363*	19 *25*
5/16" -18	12		800 *363*	500 *227*	11 *15*
¼" -20	12		600 *272*	300 *136*	6 *8*
½" -13	12	P3300	1,500 *680*	1,500 *680*	50 *70*
⅜" -16	12		1,000 *454*	800 *363*	19 *25*
5/16" -18	12		800 *363*	500 *227*	11 *15*
¼" -20	12		600 *272*	300 *136*	6 *8*
½" -13	14	P1100 & P4100	1,400 *635*	1,000 *454*	50 *70*
⅜" -16	14		1,000 *454*	750 *340*	19 *25*
5/16" -18	14		800 *363*	400 *181*	11 *15*
¼" -20	14		600 *272*	300 *136*	6 *8*
½" -13	16	P2000 & P4000	1,000 *454*	1,000 *454*	50 *70*
⅜" -16	16		1,000 *454*	750 *340*	19 *25*
5/16" -18	16		800 *363*	400 *181*	11 *15*
¼" -20	16		600 *272*	300 *136*	6 *8*

* May require ⅜" or ½" thick fitting.

Nut design loads include a minimum safety factor of 3.

Note: Refer to the Channel Nut Selection Chart on the following two pages for the part number.



ⓒ Shear in ½"ϕ bolt to brace

V = 276 #
Va = 1000 #

D/C = 0.28 < 1.0

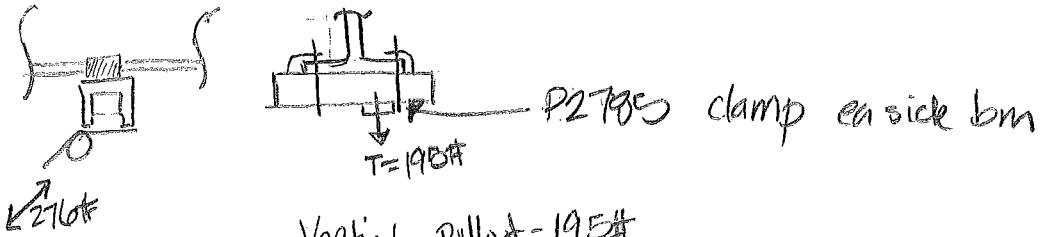
ⓓ Forces in ½"ϕ bolt to strut

V = 276 # sin 45 = 195 #
T = 276 # cos 45 = 195 #

Val = 1000 #
Tal = 2000 #

$D/C = \frac{195}{1000} + \frac{195}{2000} = 0.23 < 1.0$ ∴ ok

ⓔ Check Connection to WF bm



Forces to clamp: Vertical Pullout = 195#
Horiz Slip = 276# sin 45 = 195#

Allowable Forces: Vert pull all = 2000# Per testing (see next sht)
Horiz slip all = 1200#

$D/C = \frac{195}{2000} + \frac{195}{1200} = 0.26 < 1.0$ ∴ clamps ok

ⓕ Check Forces in Longitudinal brace

Brace length approx: $\sqrt{(12')^2 + (2')^2 + (1')^2} = 12.2'$ (horiz dist, Vert height, Horiz skew)

ⓖ Check Brace
Use L 4x4x5/16 for brace

$P = \frac{12.2'}{12'}(195\#) = 199\#$

ϕPn = 10.8k per AISC Manual table 4-12

$D/C = \frac{0.2}{10.8} = 0.02 < 1.0$ ∴ ok

Reorder From NEBS CUSTOM printing service 1-800-868-6327 NEBS, Inc. Peterborough, NH 03458 www.nebs.com Ref. No: G 10900

57

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Metal Products

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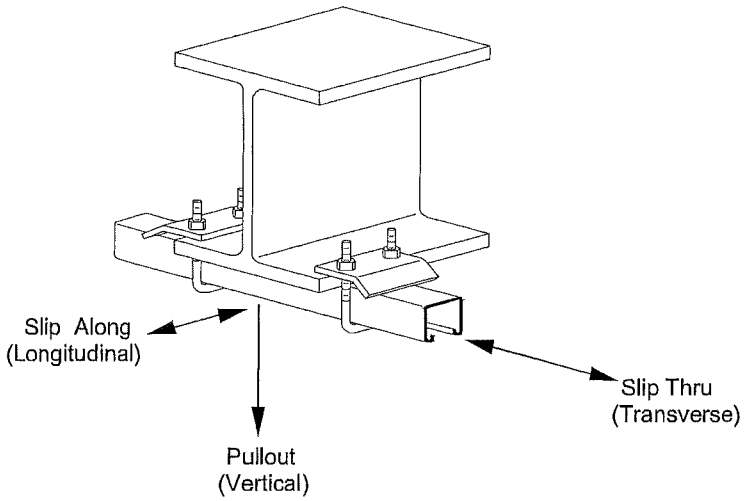
4205 Elizabeth St.
Wayne, Michigan 48184

Tele: 734.727.4000
800.521.7730
Fax: 734.721.4106

www.unistrut.com

DESIGN LOAD REPORT

Part Description : P2785 Beam Clamps
Report Date: : August 18, 2005



Average Ultimate Loads (lbs)			Allowed Loads (lbs)		
Pullout	Slip Along	Slip Thru	Pullout	Slip Along	Slip Thru
11,300	2,900	6,300	2,000	500	1,200

NOTES
1. Ultimate Loads from Test Book #16, Page 34 & Test Report C-121A
2. Average Minimum Safety Factor of 5
3. Allowed Loads are for a 2 clamp installation
4. Must Use Clamps in Pairs

David J. Jeltes, PE
Sales Engineering Manager

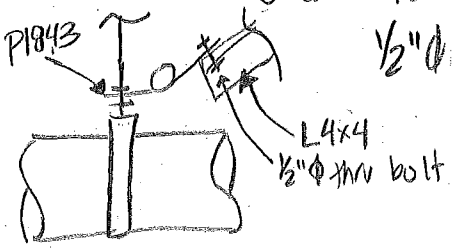
BUEHLER & BUEHLER STRUCTURAL ENGINEERS, INC.

JOB GUY WEST BRIDGE CONDUIT SUPPORT
JOB NO. 2011-0191.00 DATE 1/30/14
CLIENT _____ BY AKH SHEET NO. 58

(b) check connection from hinged angle bracket to brace ( )

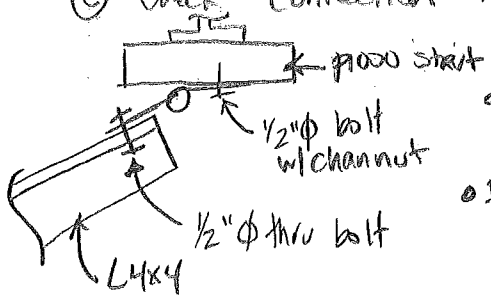
shear to bolt: V= 199#

½"ϕ thru bolt ok by visual inspection



Bottom brace conn

(c) Check connection from brace to P1000 strut



- ½"ϕ thru bolt to brace ok by inspect.
- Forces to ½"ϕ bolt w/ chan nut @ P1000 strut:

$$V = 199\#\left(\frac{12'}{12.2'}\right) = 195\#$$

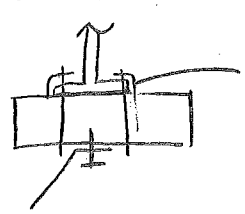
$$T = 199\#\left(\frac{2'}{12.2'}\right) = 33\#$$

$V_a = 1500\#$

$T_a = 2000\#$

$$D/C = \frac{195}{1500} + \frac{33}{2000} = 0.15 < 1.0 \therefore \text{ok}$$

(d) check clamp of P1000 strut to WF bm



P2785 clamp ea side bm

Note brace may be skewed horizontally
∴ horizontal forces may occur in both directions

V= 195#
T= 33#

allowable slip along bm V_{SB} = 500#
slip thru V_{ST} = 1200#
pull out T_A = 2000#

$$D/C = \frac{195}{500} + \frac{195}{1200} + \frac{33}{2000} = 0.57 < 1.0$$

∴ bm clamps ok

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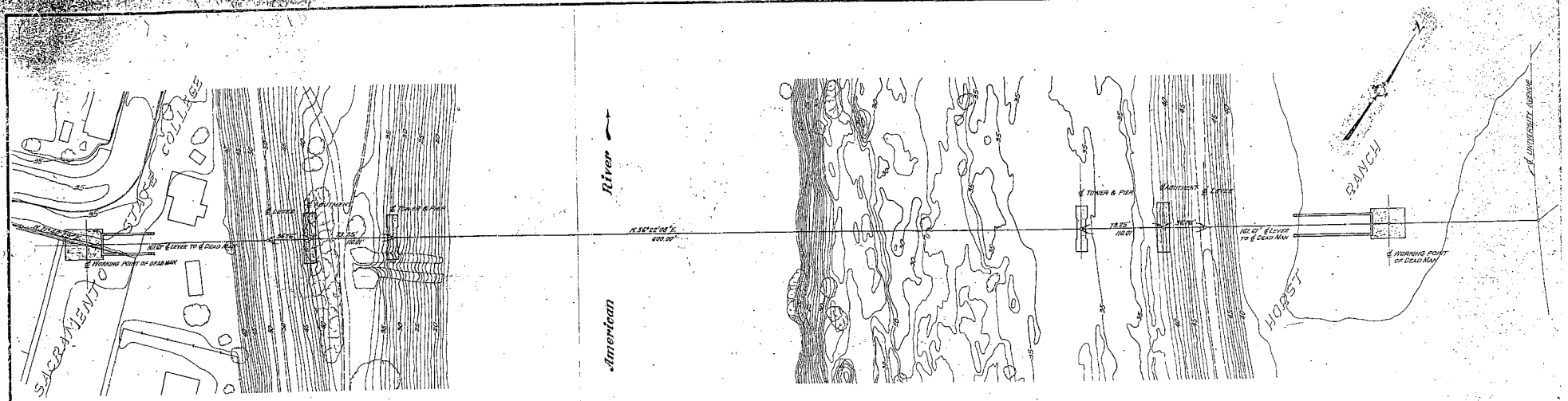
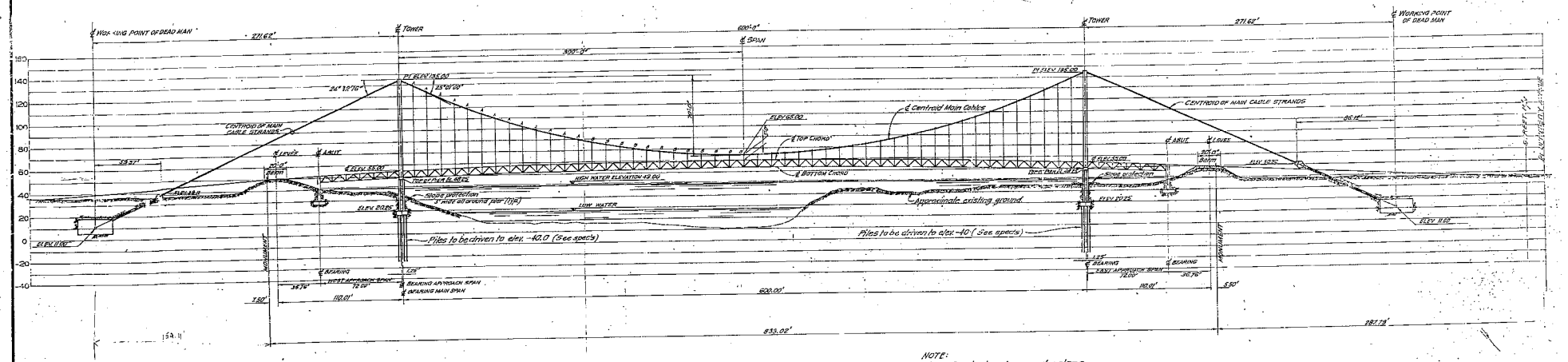
959 of 983



FOUNDATION SITE PLAN

SCALE: 1"=40'



ELEVATION

SCALE: 1"=40'

NOTE: Hand rail not shown

NOTE:
A - Denotes type A suspender clamp
B - Denotes type B suspender clamp

For suspender clamp connection details see sheet no. 28

No.	DATE	BY	DESCRIPTION OF REVISION

PEDESTRIAN BRIDGE

GENERAL BRIDGE ELEVATION AND FOUNDATION PLAN

CAMPUS COMMONS ASSESSMENT DISTRICT

CITY OF SACRAMENTO — CALIFORNIA

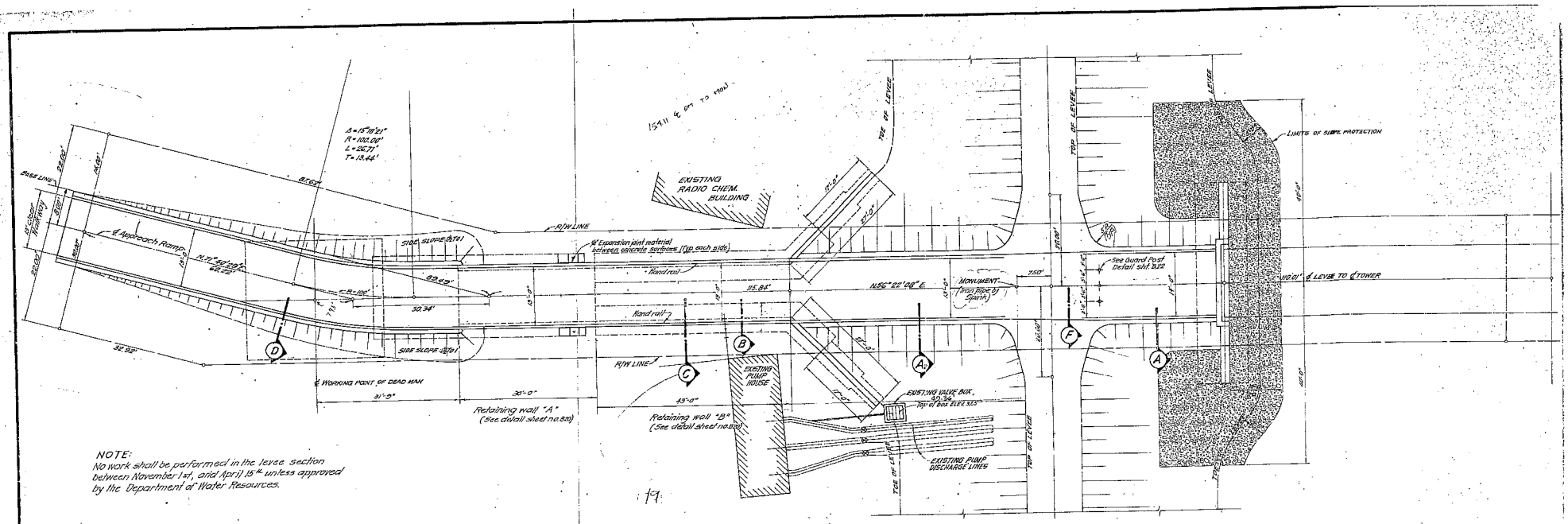
DATE 1955 — SCALE AS SHOWN — JOB No. 1810-24

DRN. BY: JASON — CK'D. BY: T.D.HUNG — CHD. BY: T.D.HUNG

SHEET 81 OF 123 SHEETS

SPINK ENGINEERING COMPANY

ENGINEERS · PLANNERS · SURVEYORS

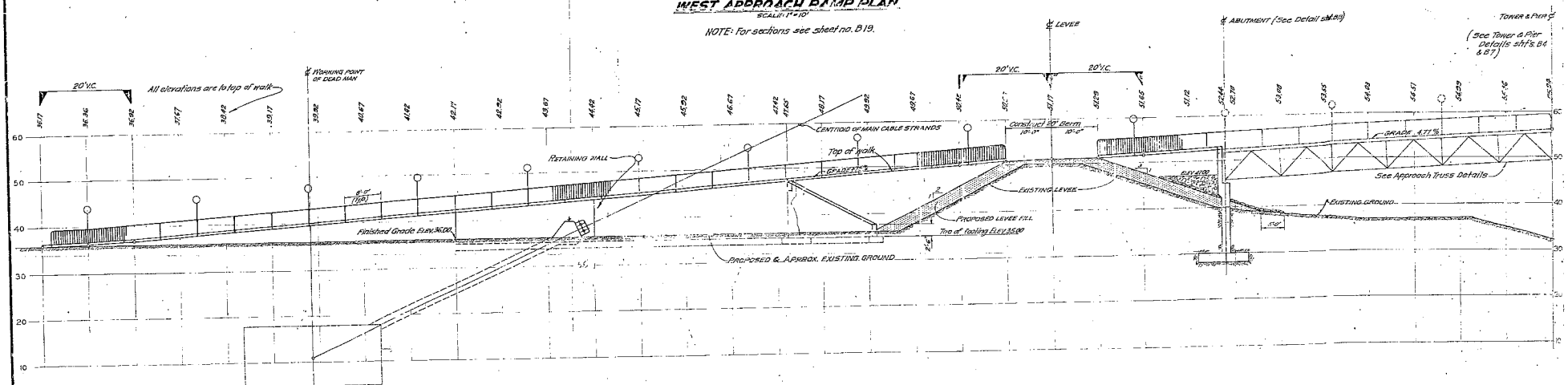


NOTE:
No work shall be performed in the levee section between November 1st, and April 15th unless approved by the Department of Water Resources.

WEST APPROACH RAMP PLAN

SCALE: 1" = 10'

NOTE: For sections see sheet no. B19.



WEST APPROACH RAMP ELEVATION & SECTION

SCALE: 1" = 10' VERT. & HORIZ.

PEDESTRIAN BRIDGE
WEST APPROACH RAMP PLAN AND ELEVATION
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA
OCT. 1965 AS SHOWN
SHEET B2 OF B23

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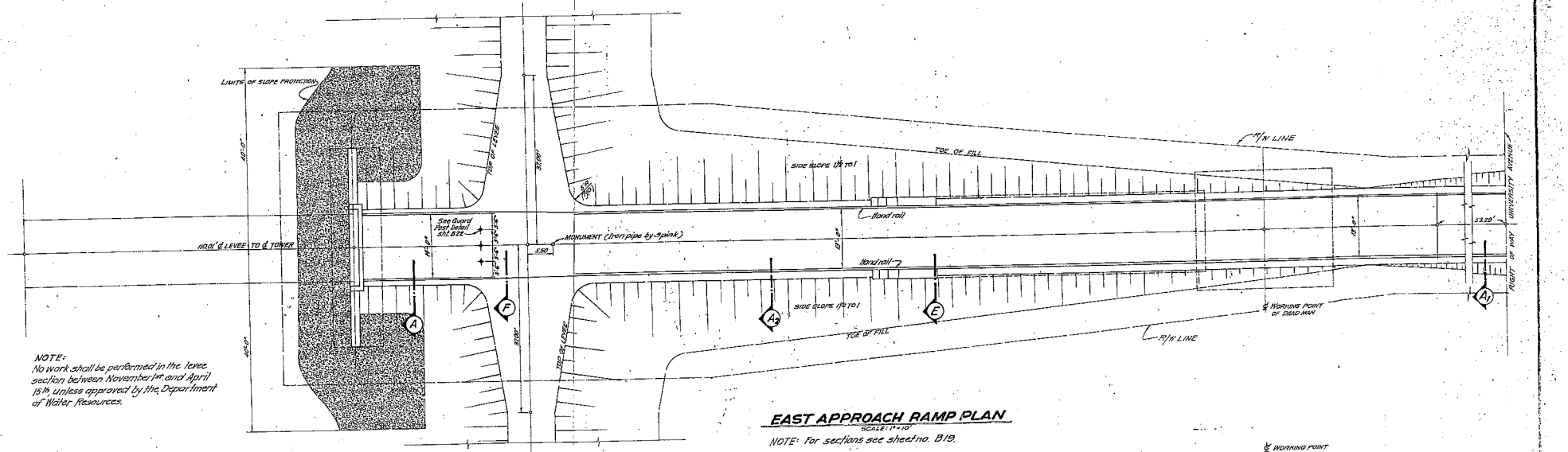
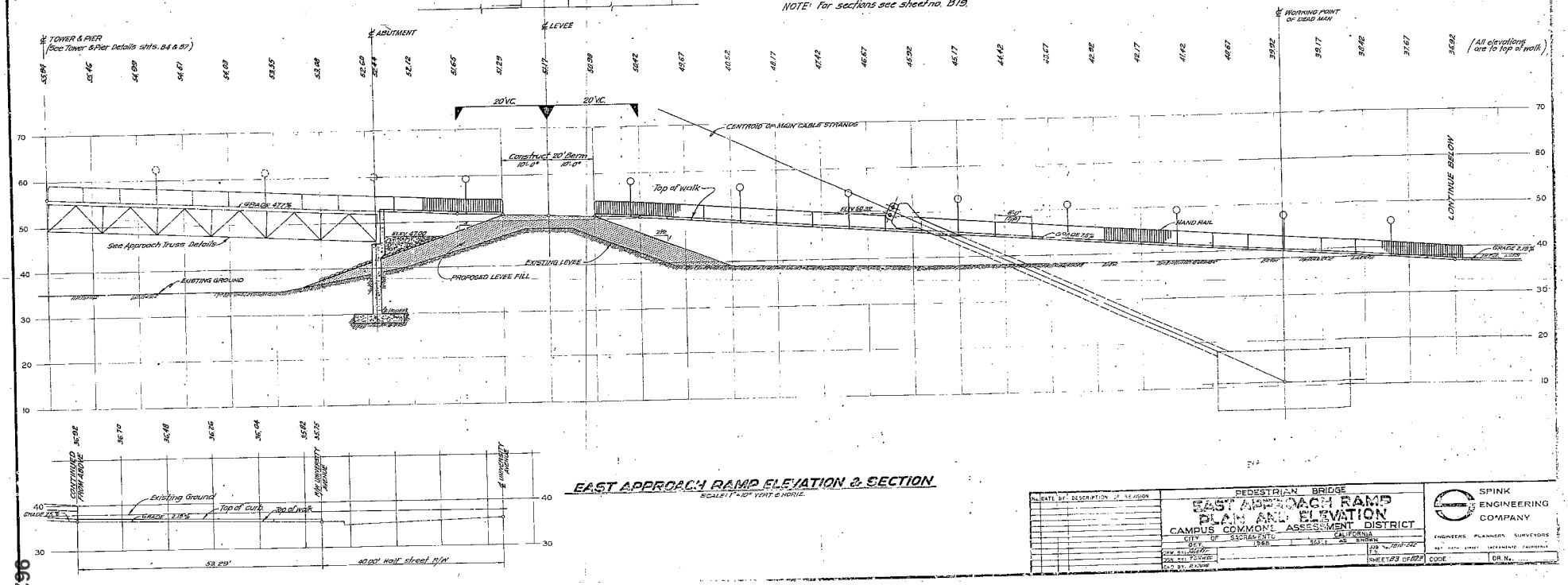


NOTE:
No work shall be performed in the levee section between November 1st and April 15th, unless approved by the Department of Water Resources.

EAST APPROACH RAMP PLAN

SCALE: 1" = 10'

NOTE: For sections see sheet no. B19.



EAST APPROACH RAMP ELEVATION & SECTION

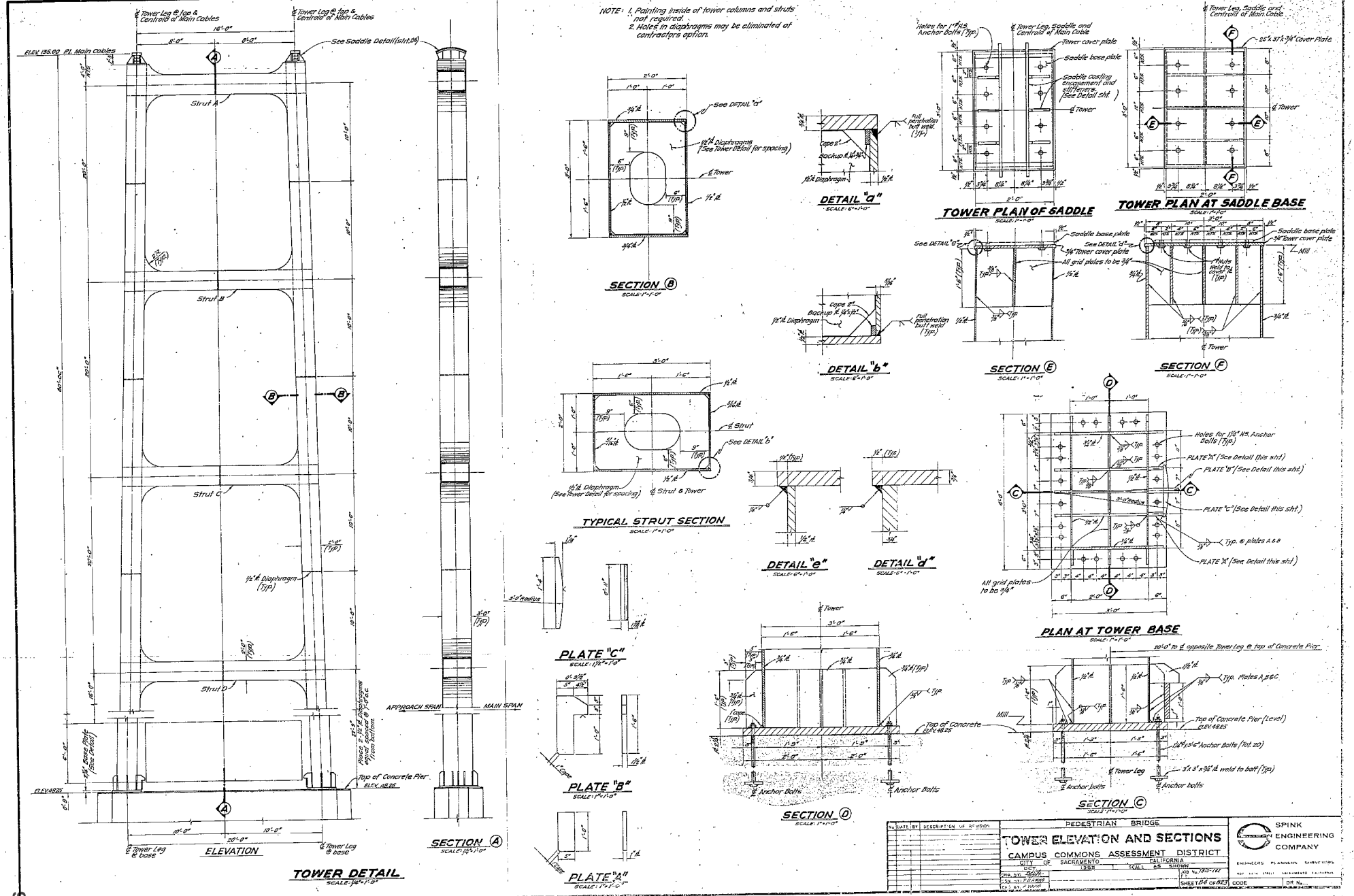
SCALE: 1" = 10' VERT. & HORIZ.

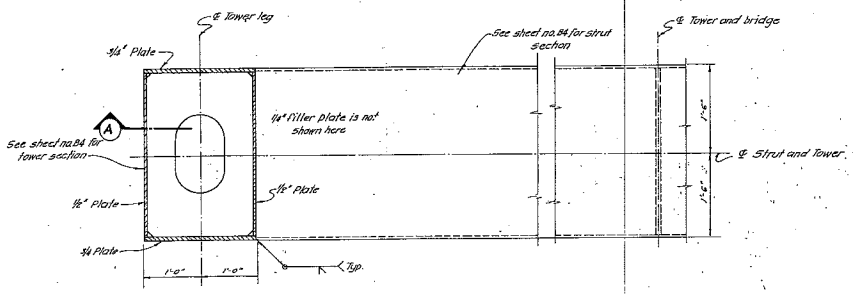
No.	DATE	BY	DESCRIPTION OF REVISION

PEDESTRIAN BRIDGE
EAST APPROACH RAMP
PLAN AND ELEVATION
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA

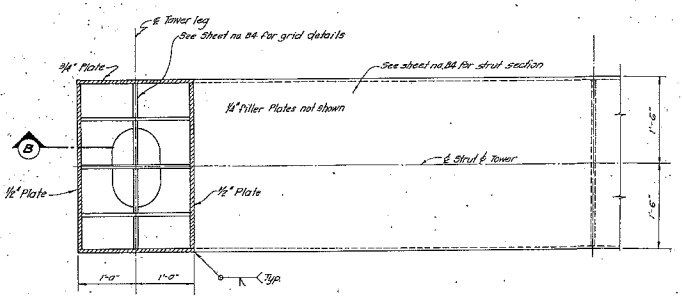
DES. 1988 SCALE AS SHOWN JOB 7818-22
DRN. BY SCOTT
DES. BY TOWNE
CK'D BY R.YOUNG
SHEET 23 OF 102 CODE DR. No.

SPINK ENGINEERING COMPANY
ENGINEERS PLANNERS SURVEYORS
921 10TH STREET SACRAMENTO CALIFORNIA

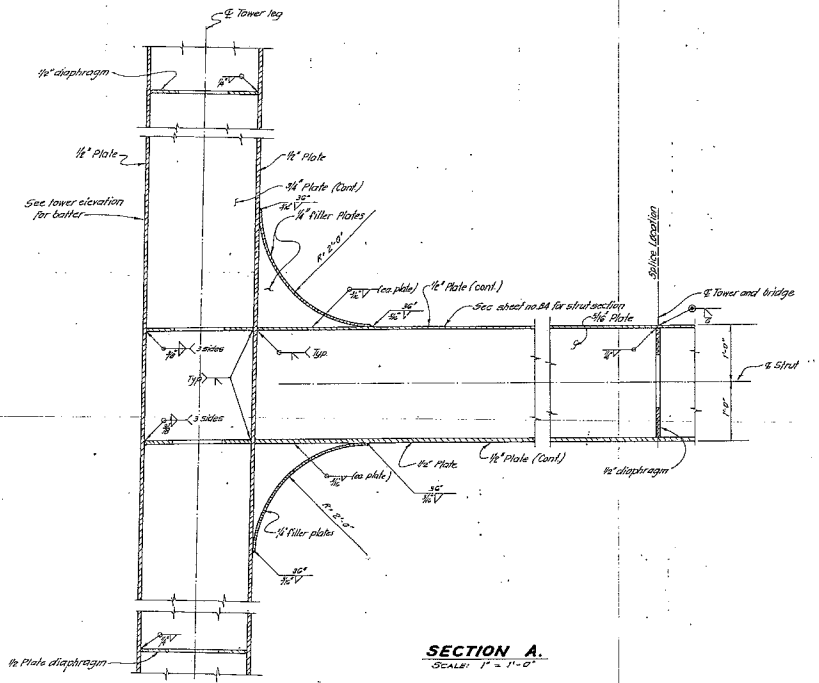

NOTE: 1. Painting inside of tower columns and struts not required.
2. Holes in diaphragms may be eliminated at contractors option.
TOWER DETAIL
SCALE: 1/4"=1'-0"
ELEVATION
SECTION A
SCALE: 1/4"=1'-0"
APPROACH SPAN
MAIN SPAN
Top of Concrete Pier
ELEV. 48.25
SECTION B
SCALE: 1"=1'-0"
TYPICAL STRUT SECTION
SCALE: 1"=1'-0"
PLATE "A"
SCALE: 1"=1'-0"
PLATE "B"
SCALE: 1"=1'-0"
PLATE "C"
SCALE: 1 1/2"=1'-0"
DETAIL "a"
SCALE: 6"=1'-0"
DETAIL "b"
SCALE: 6"=1'-0"
DETAIL "e"
SCALE: 6"=1'-0"
DETAIL "d"
SCALE: 6"=1'-0"
SECTION D
SCALE: 1"=1'-0"
TOWER PLAN OF SADDLE
SCALE: 1"=1'-0"
TOWER PLAN AT SADDLE BASE
SCALE: 1"=1'-0"
SECTION E
SCALE: 1"=1'-0"
SECTION F
SCALE: 1"=1'-0"
PLAN AT TOWER BASE
SCALE: 1"=1'-0"
SECTION C
SCALE: 1"=1'-0"
PEDESTRIAN BRIDGE
TOWER ELEVATION AND SECTIONS
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA
SCALE AS SHOWN
SPINK ENGINEERING COMPANY
ENGINEERS PLANNERS SURVEYORS
SHEET 24 OF 823



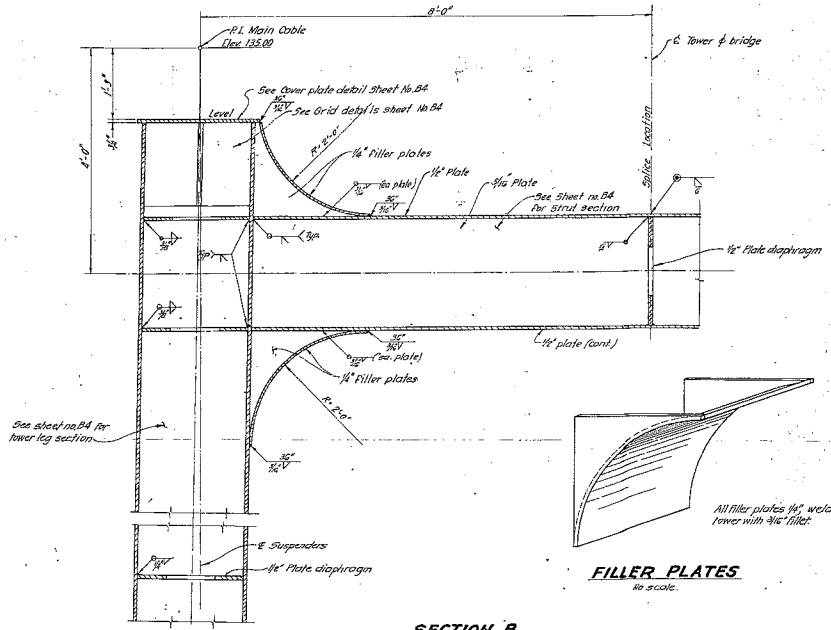
PLAN STRUT B,C,D
SCALE: 1" = 1'-0"



PLAN STRUT A.
SCALE 1" = 1'-0"



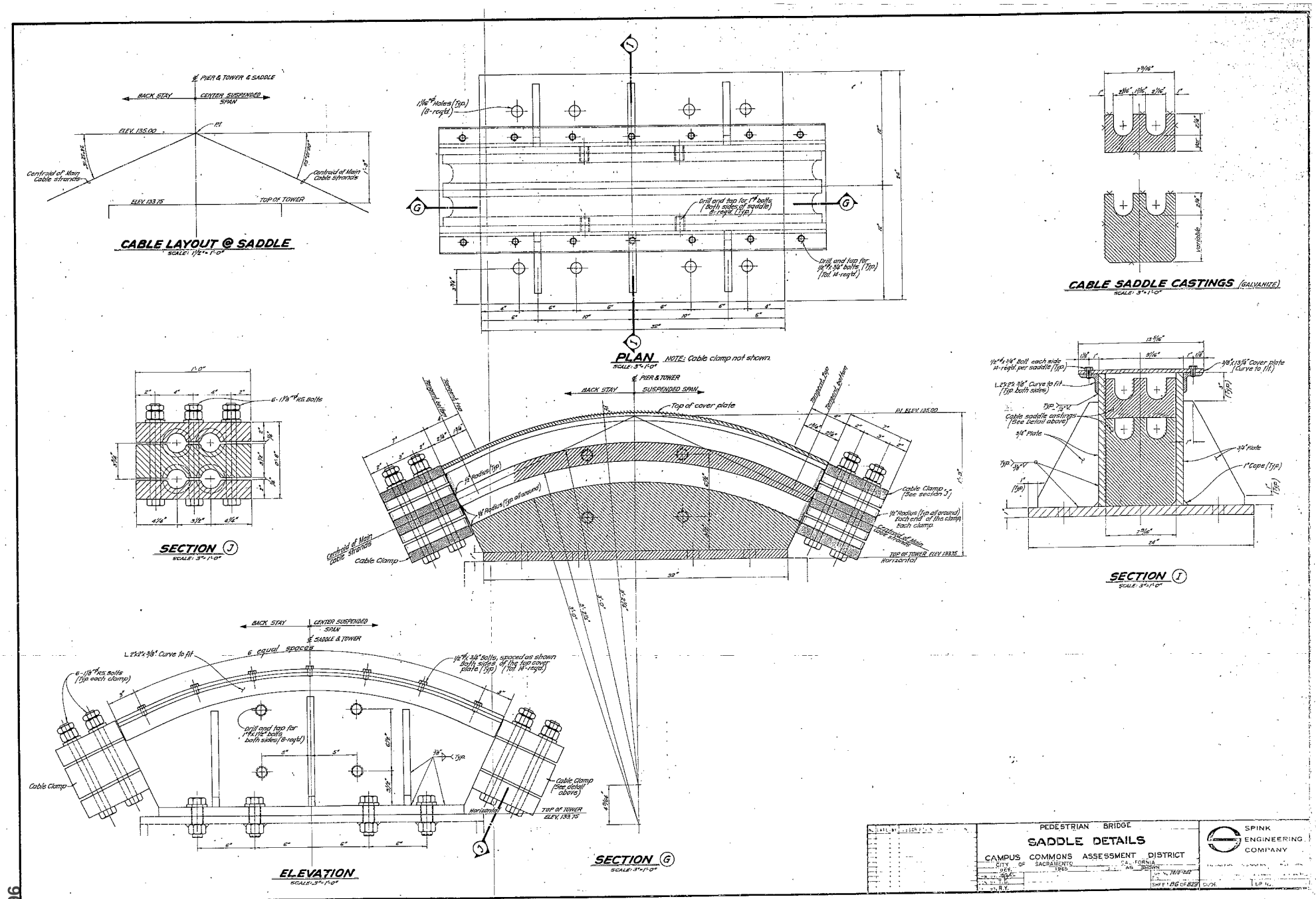
SECTION A.
SCALE: 1" = 1'-0"

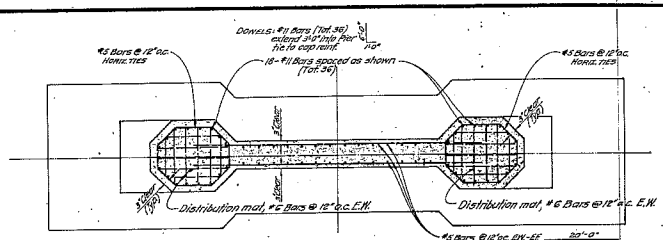


SECTION B.
SCALE: 1"=1'-0"

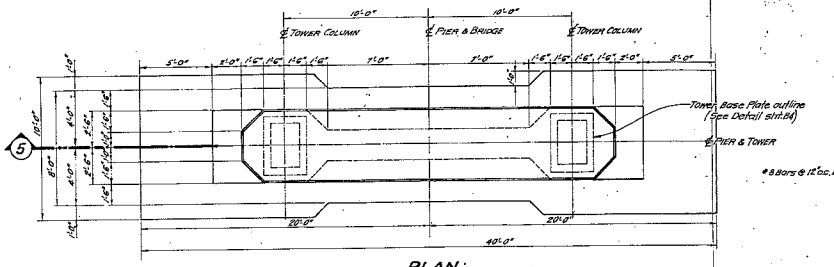
FILLER PLATES
No scale.

	PEDESTRIAN BRIDGE TOWER, STRUTS A,B,C, & D PLAN & SECTION CAMPUS COMMONS ASSESSMENT DISTRICT CITY OF SACRAMENTO CALIFORNIA DES. J. Meece AS SHOWN DR. S.T.D. JOB No. 1018-248 CH. R.V. P.I. SHEET 105 OF 823 CODE DR No.	SPINK ENGINEERING COMPANY

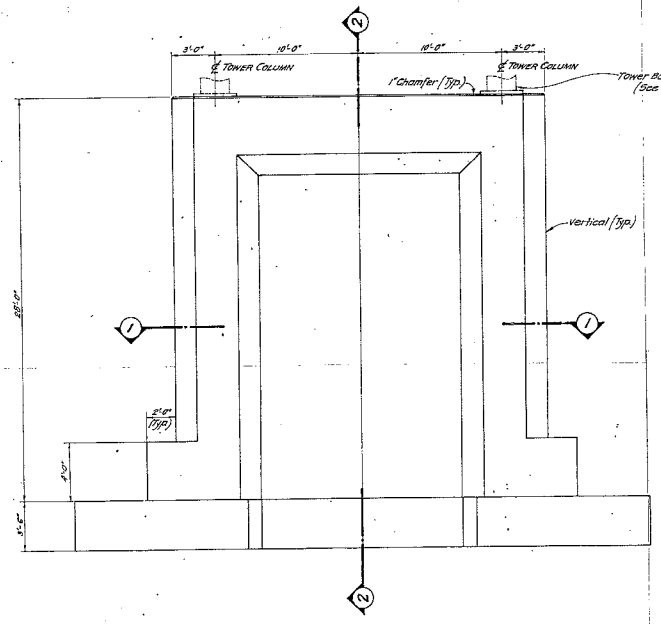

CABLE LAYOUT @ SADDLE
SCALE: 1½" = 1'-0"
℄ PIER & TOWER & SADDLE
BACK STAY
CENTER SUSPENDED SPAN
ELEV. 135.00
P.I.
Centroid of Main Cable strands
ELEV. 133.75
TOP OF TOWER
PLAN
NOTE: Cable clamp not shown.
SCALE: 3" = 1'-0"
1 1/16"φ Holes (Typ.) (8-req'd.)
Drill and tap for 1"φ bolts (Both sides of saddle) 8-req'd. (Typ.)
Drill and tap for 1/2"φ x 3/4" bolts (Typ.) (Tot. 14-req'd.)
CABLE SADDLE CASTINGS (GALVANIZE)
SCALE: 3" = 1'-0"
variable
SECTION J
SCALE: 3" = 1'-0"
6-1 1/8"φ H.S. Bolts
SECTION G
SCALE: 3" = 1'-0"
℄ PIER & TOWER
BACK STAY
SUSPENDED SPAN
Top of cover plate
P.I. ELEV. 135.00
Tangent top
Tangent bottom
1/2" Radius (Typ.)
1/4" Radius (Typ. all around)
Cable Clamp (See section J)
1/2" Radius (Typ. all around) Each end of the clamp. Each clamp.
Centroid of Main Cable strands
Cable Clamp
TOP OF TOWER ELEV. 133.75
Horizontal
SECTION I
SCALE: 3" = 1'-0"
1/2"φ x 3/4" Bolt each side 14-req'd. per saddle (Typ.)
3/8" x 13 3/4" Cover plate (Curve to fit.)
L 2"x2"x3/8" Curve to fit (Typ. both sides)
Cable saddle castings (See Detail above)
3/4" Plate
1" Cope (Typ.)
ELEVATION
SCALE: 3" = 1'-0"
BACK STAY
CENTER SUSPENDED SPAN
℄ SADDLE & TOWER
6 equal spaces
L 2"x2"x3/8" Curve to fit
6-1 1/8"φ H.S. Bolts (Typ. each clamp)
1/2"φ x 3/4" Bolts, spaced as shown Both sides of the top cover plate (Typ.) (Tot. 14-req'd.)
Drill and tap for 1"φ x 1 1/2" bolts both sides (8-req'd.)
Cable Clamp
Cable Clamp (See detail above)
Horizontal
TOP OF TOWER ELEV. 133.75
PEDESTRIAN BRIDGE
SADDLE DETAILS
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO
CALIFORNIA
1965
AS SHOWN
SHEET 86 OF 822
SPINK ENGINEERING COMPANY



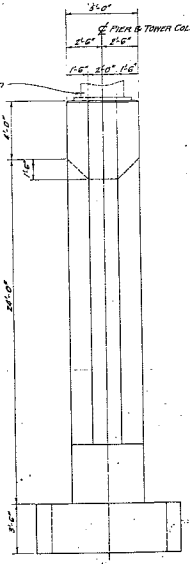
SECTION (1)
SCALE: 1/4"=1'-0"



PLAN

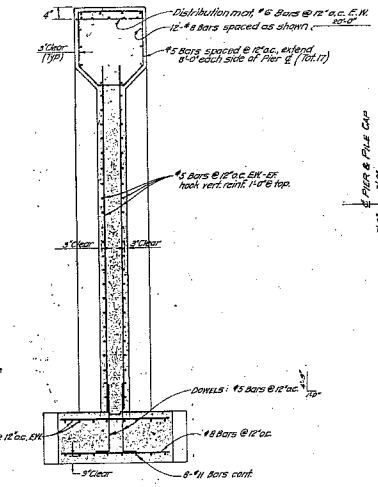


ELEVATION

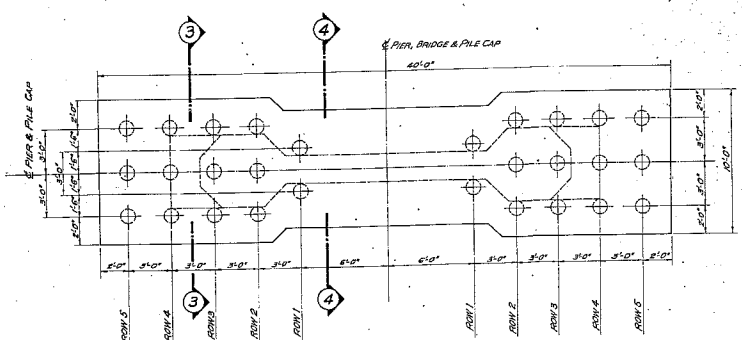


SIDE VIEW

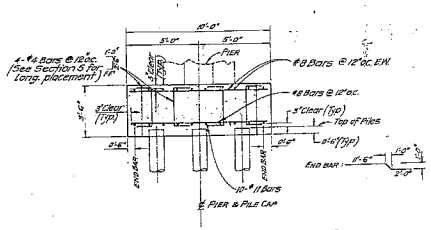
PIER DETAIL
SCALE: 1/4"=1'-0"



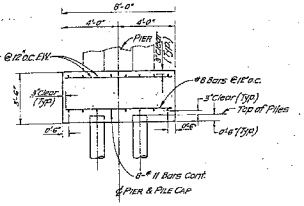
SECTION (2)
SCALE: 1/4"=1'-0"



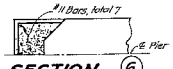
PILE PATTERN
SCALE: 1/4"=1'-0"
(NO. OF PILES - 28 PER PIER)
NOTE: Piles in ROWS 4 & 5 are to be driven @ a 3:1 batter



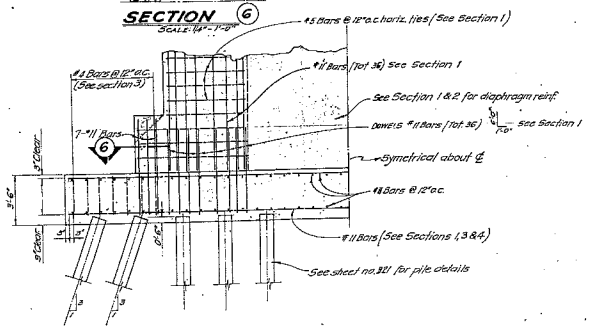
SECTION (3)
SCALE: 1/4"=1'-0"



SECTION (4)
SCALE: 1/4"=1'-0"



SECTION (6)
SCALE: 1/4"=1'-0"



SECTION (5)
SCALE: 1/2"=1'-0"

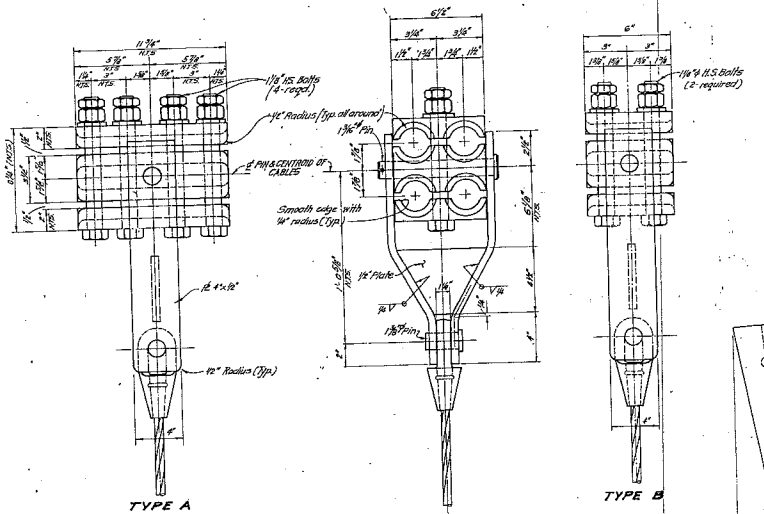
No.	DATE	BY	DESCRIPTION OF REVISION

PEDESTRIAN BRIDGE

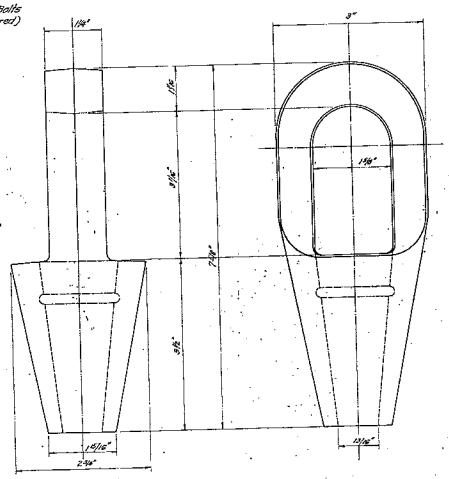
PIER DETAILS AND SECTIONS

CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA
OCT. 1965 SCALE: AS SHOWN
CSH. 311-Austin Job No. 7310-148
SOIL 321-7 Branch F.B.
CHD. BY: P. Hsiung SHEET 87 OF 823 CODE OR No.

SPINK ENGINEERING COMPANY
ENGINEERS PLANNERS SURVEYORS
901 16TH STREET SACRAMENTO CALIFORNIA

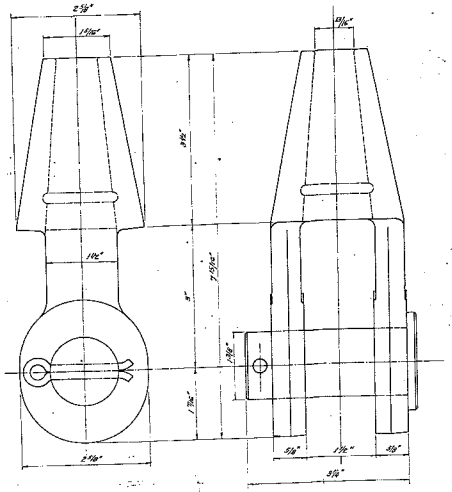


SUSPENDER CLAMP CONNECTION
@ MAIN CABLE
SCALE: 3"=1'-0"

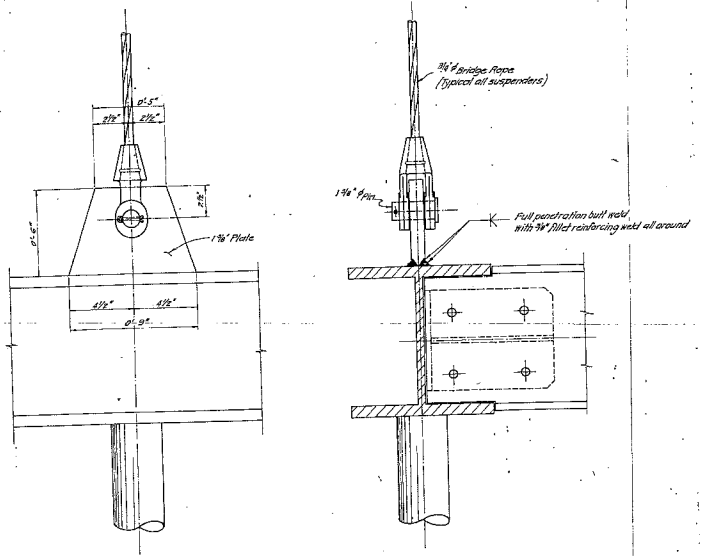


CLOSED WIRE ROPE SOCKET
SCALE: 1"=0'-1"

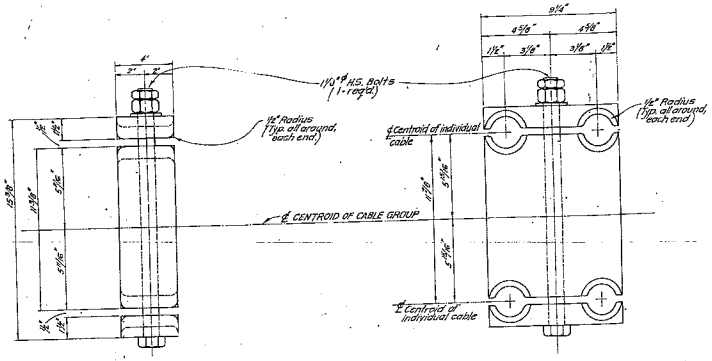
NOTE: Socket details may be modified to suit manufacturer's standards.



OPEN WIRE ROPE SOCKET
SCALE: 1"=0'-1"



SUSPENDER CONNECTION
@ STIFFENING TRUSS
SCALE: 3"=1'-0"



BACK STAY CABLE CLAMP (4-REQ'D.)
SCALE: 3"=1'-0"

NOTE: The back stay cable clamps to be used to clamp 4-2⅛" ⌀ cables together at half way point between towers and end anchors.

No.	DATE	BY	DESCRIPTION OF REVISION

PEDESTRIAN BRIDGE

SUSPENDER DETAILS

CAMPUS COMMONS ASSESSMENT DISTRICT

CITY OF SACRAMENTO CALIFORNIA

DES. SCALE AS SHOWN

DWN. BY: RAJU

CH'K. BY: T.DAVIS

APP'D. BY: R.YOUNG

DATE 1969

JOB No. 7818-E&C

I.F.B.

SHEET 28 OF 28

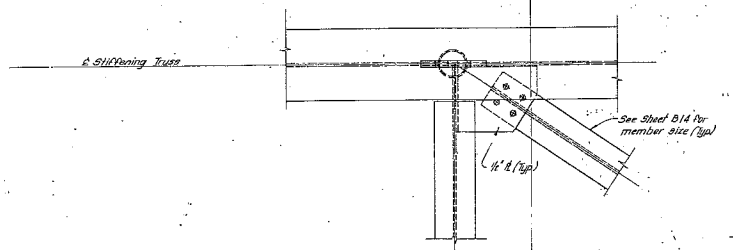
CODE

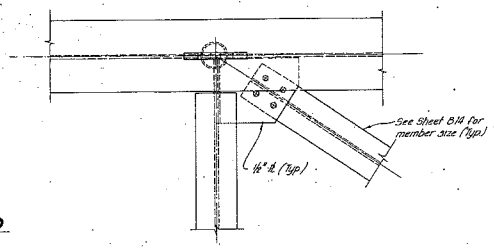
DR No.

SPINK ENGINEERING COMPANY

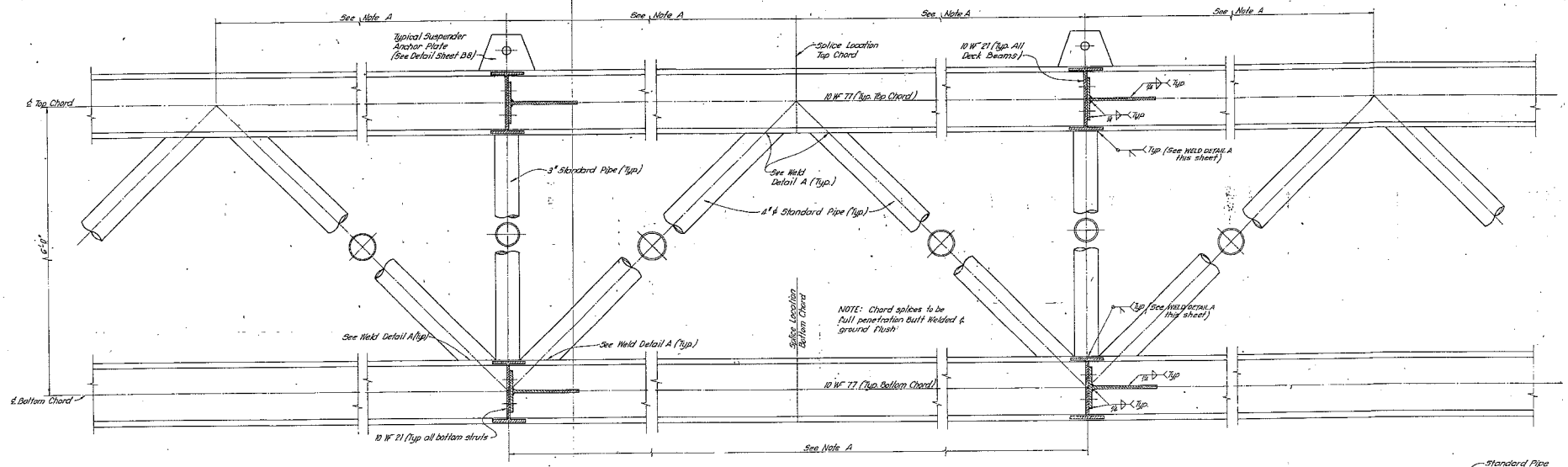
ENGINEERS PLANNERS SURVEYORS

1821 20th STREET SACRAMENTO CALIFORNIA



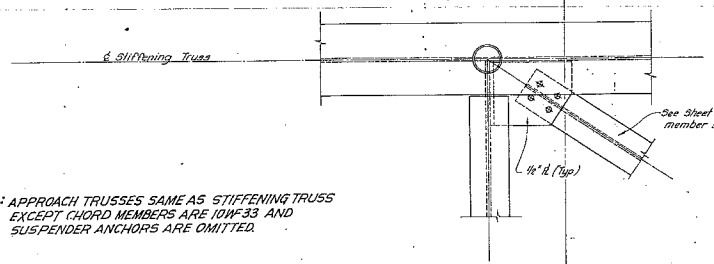


PLAN TOP CHORD
Scale: 1½"=1'-0"



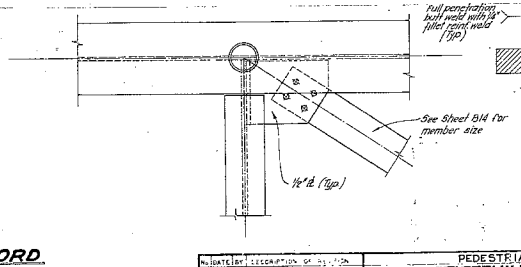
NOTE A SEE SHEET Nº B14 FOR EXACT DIMENSION

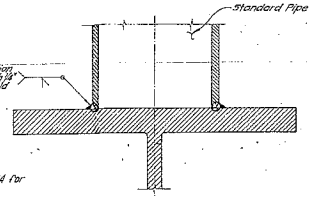
ELEVATION
Scale: 1½"=1'-0"



NOTE: APPROACH TRUSSES SAME AS STIFFENING TRUSS EXCEPT CHORD MEMBERS ARE 10WF33 AND SUSPENDER ANCHORS ARE OMITTED.

PLAN BOTTOM CHORD
Scale: 1½"=1'-0"



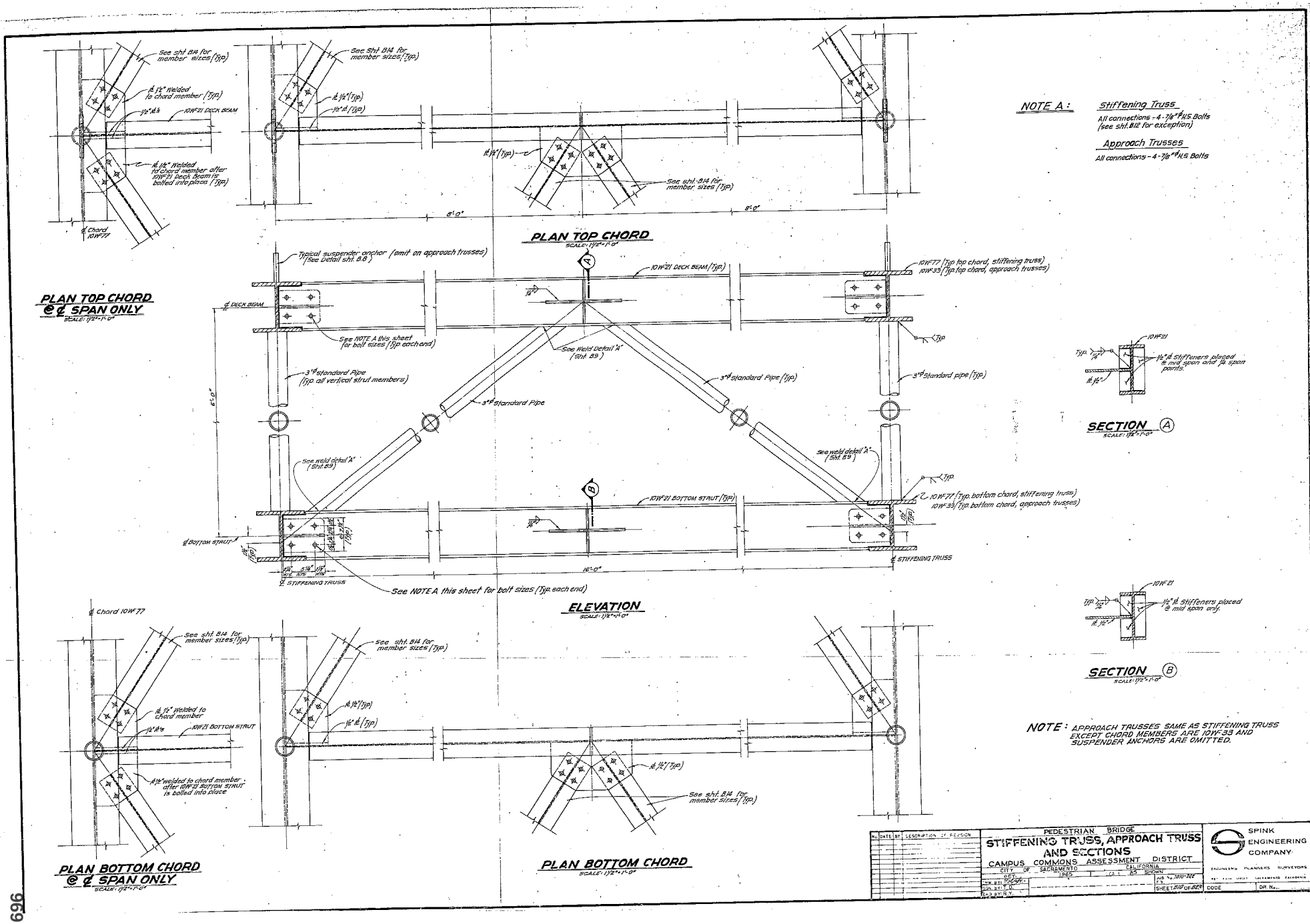


WELD DETAIL A
Scale: 6"=1'-0"

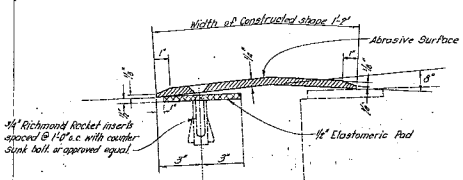
PEDESTRIAN BRIDGE
STIFFENING TRUSS & APPROACH TRUSS PANEL
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA

SPINK ENGINEERING COMPANY

SHEET 139 OF 823

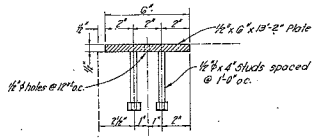


PLAN TOP CHORD
SCALE: 1 1/2" = 1'-0"
PLAN TOP CHORD @ ℄ SPAN ONLY
SCALE: 1 1/2" = 1'-0"
See sht. B14 for member sizes (Typ.)
℄ 1/2" Welded to chord member (Typ.)
10WF21 DECK BEAM
℄ 1/2" Welded to chord member after 10WF21 Deck Beam is bolted into place (Typ.)
℄ Chord 10WF77
8'-0"
Typical suspender anchor (omit on approach trusses) (See Detail sht. B.8)
10WF21 DECK BEAM (Typ.)
10WF77 (Typ. top chord, stiffening truss)
10WF33 (Typ. top chord, approach trusses)
℄ DECK BEAM
See NOTE A this sheet for bolt sizes (Typ. each end)
See Weld Detail "A" (Sht. B9)
3"ϕ Standard Pipe (Typ. all vertical strut members)
3"ϕ Standard Pipe (Typ.)
3"ϕ Standard pipe (Typ.)
3"ϕ Standard Pipe
6'-0"
See weld detail "A" (Sht. B9)
10WF21 BOTTOM STRUT (Typ.)
10WF77 (Typ. bottom chord, stiffening truss)
10WF33 (Typ. bottom chord, approach trusses)
℄ BOTTOM STRUT
℄ STIFFENING TRUSS
16'-0"
See NOTE A this sheet for bolt sizes (Typ. each end)
ELEVATION
SCALE: 1 1/2" = 1'-0"
NOTE A:
Stiffening Truss
All connections - 4-7/8"ϕ H.S. Bolts (see sht. B12 for exception)
Approach Trusses
All connections - 4-7/8"ϕ H.S. Bolts
10WF21
1/2" ℄ Stiffeners placed @ mid span and 1/4 span points.
SECTION (A)
SCALE: 1 1/2" = 1'-0"
1/2" ℄ Stiffeners placed @ mid span only.
SECTION (B)
SCALE: 1 1/2" = 1'-0"
NOTE: APPROACH TRUSSES SAME AS STIFFENING TRUSS EXCEPT CHORD MEMBERS ARE 10WF33 AND SUSPENDER ANCHORS ARE OMITTED.
℄ Chord 10WF77
10WF21 BOTTOM STRUT
℄ 1/2" welded to chord member after 10WF21 BOTTOM STRUT is bolted into place
PLAN BOTTOM CHORD @ ℄ SPAN ONLY
SCALE: 1 1/2" = 1'-0"
PLAN BOTTOM CHORD
SCALE: 1 1/2" = 1'-0"
PEDESTRIAN BRIDGE
STIFFENING TRUSS, APPROACH TRUSS AND SECTIONS
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA
OCT. 1965 AS SHOWN
SHEET B10 OF B23
SPINK ENGINEERING COMPANY
ENGINEERS PLANNERS SURVEYORS



COVER PLATE DETAIL

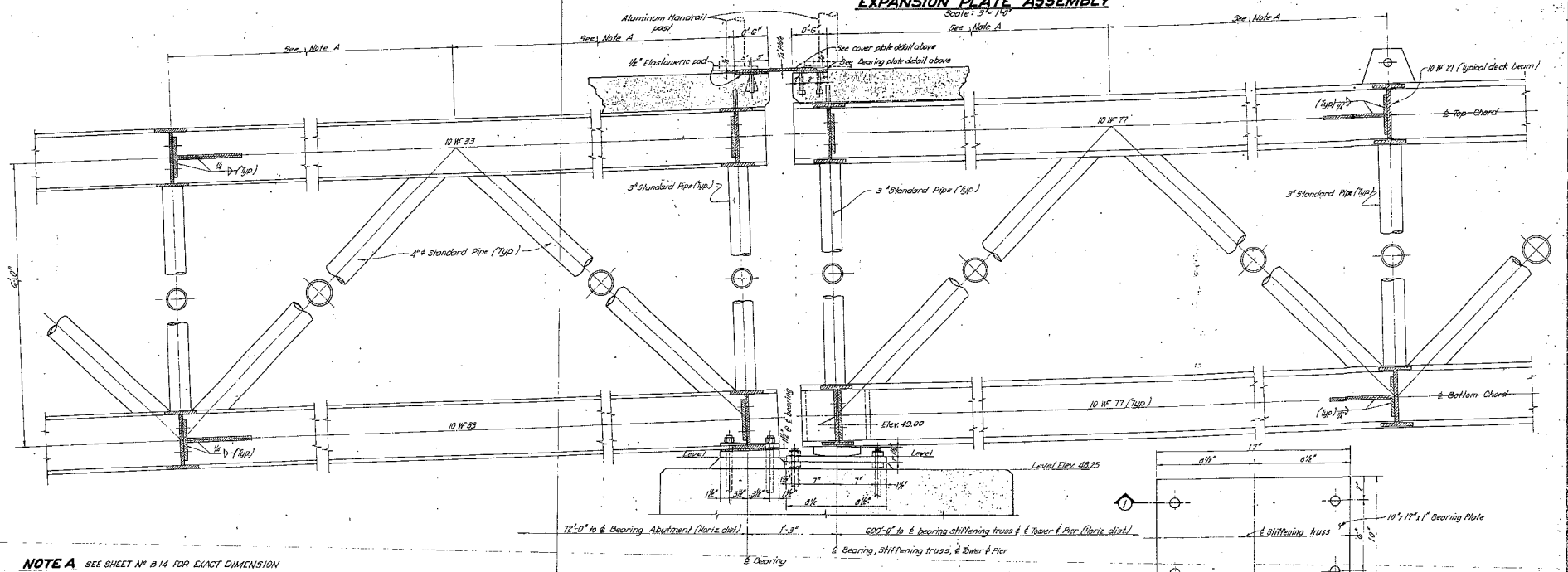
PLATE SHOWN IN CONSTRUCTED POSITION (LENGTH 13'-2")



BEARING PLATE DETAIL

EXPANSION PLATE ASSEMBLY

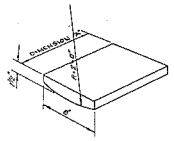
Scale: 3"=1'-0"



NOTE A SEE SHEET No B 14 FOR EXACT DIMENSION

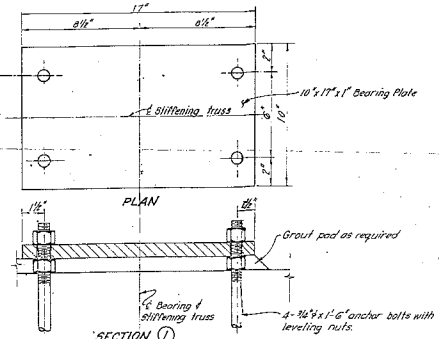
ELEVATION AND SECTION

Scale: 1 1/2" = 1'-0"



CHORD MEMBER SIZE	DIMENSION 'A'
10 W 33	0'-8"
10 W 77	0'-10 1/2"

TYPICAL ROCKER PLATES DETAIL



STIFFENING TRUSS BEARING PLATE DETAIL

SCALE: 3"=1'-0"

NO.	DATE	BY	DESCRIPTION OF REVISION

PEDESTRIAN BRIDGE

STIFFENING & APPROACH TRUSS END PANELS & EXPANSION PLATE ASSEMBLY

CAMPUS COMMONS ASSESSMENT DISTRICT

CITY OF SACRAMENTO CALIFORNIA

DATE 1965 SCALE AS SHOWN

CHK. BY: C.F.

DES. BY: T. STAMEO

DR. BY: R. HOLLIS

JOB No. 1805-22E

P.S.

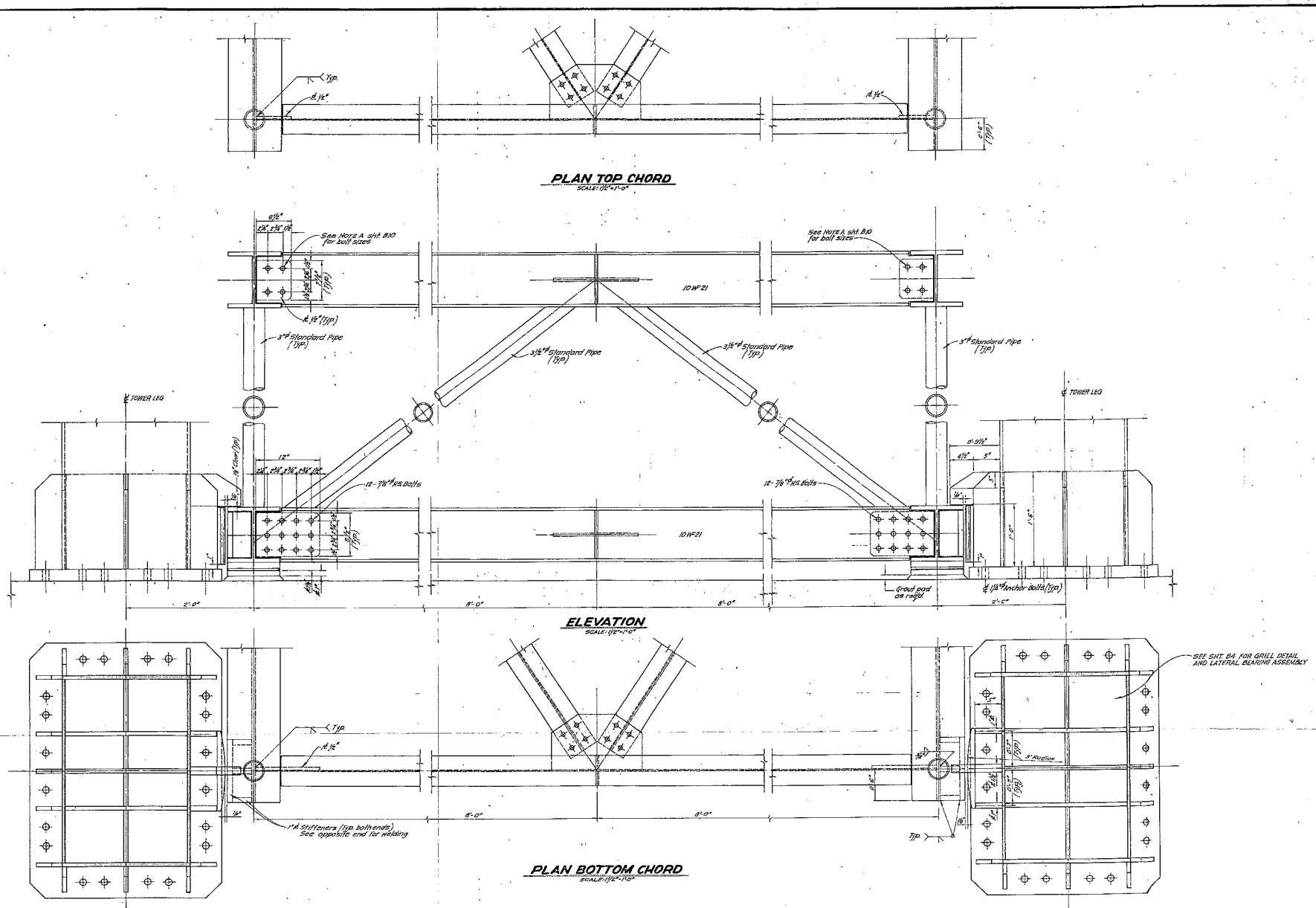
SHEET 511 OF 823 SHEETS

CODE DR No.

SPINK ENGINEERING COMPANY

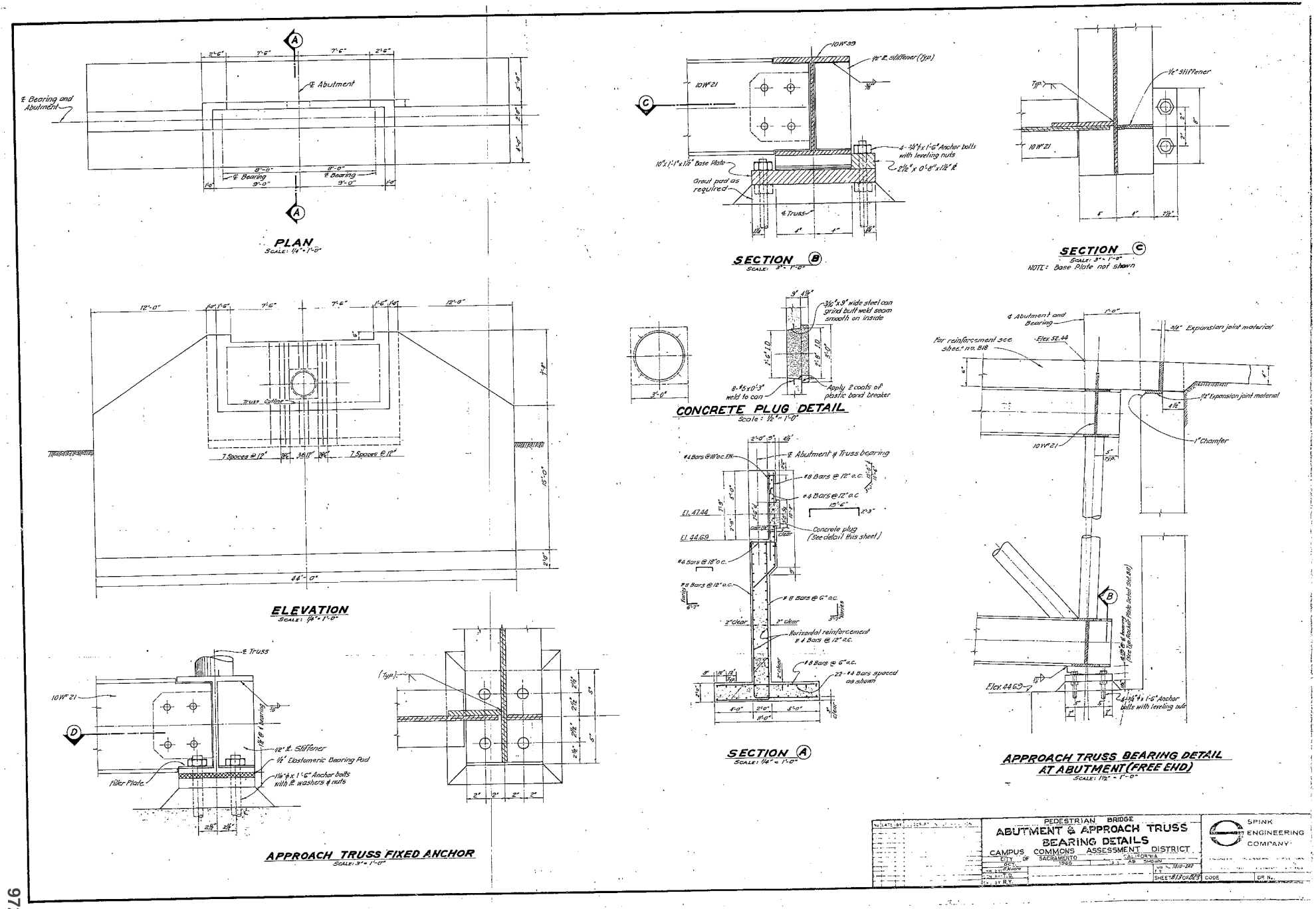
ENGINEERS PLANNERS SURVEYORS

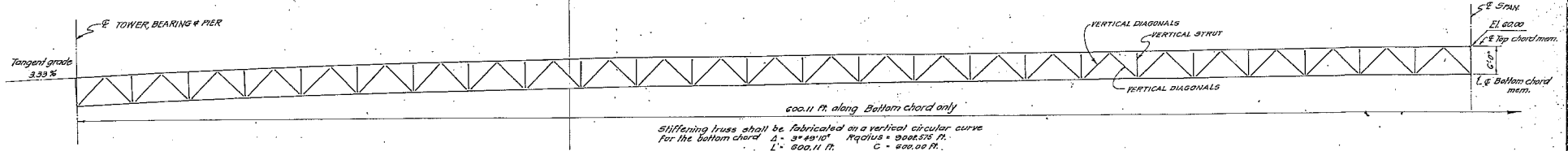
1331 H STREET SACRAMENTO, CALIFORNIA



PEDESTRIAN BRIDGE
STIFFENING TRUSS END ELEVATION AND BEARING ANCHOR
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO
1985
AS SHOWN
SHEET B12 of B23

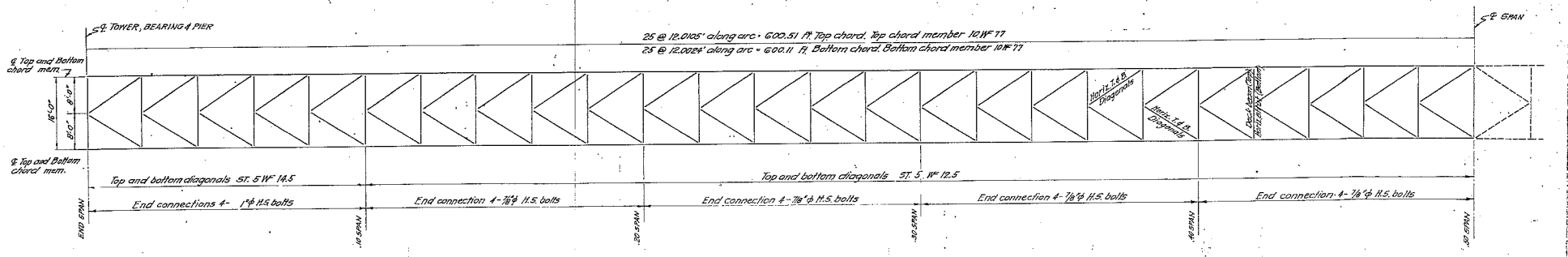
SPINK ENGINEERING COMPANY


PLAN
SCALE: 1/4" = 1'-0"
℄ Bearing and Abutment
℄ Abutment
℄ Bearing
SECTION (B)
SCALE: 3" = 1'-0"
10WF39
1/2" PL stiffener (Typ.)
10WF21
4-3/4"φ x 1'-6" Anchor bolts with leveling nuts
2 1/2" x 0'-8" x 1 1/2" PL
10" x 1'-1" x 1 1/2" Base Plate
Grout pad as required
℄ Truss
SECTION (C)
SCALE: 3" = 1'-0"
NOTE: Base Plate not shown
1/2" Stiffener
Typ.
ELEVATION
SCALE: 1/4" = 1'-0"
Truss Cutline
7 Spaces @ 12"
44'-0"
CONCRETE PLUG DETAIL
Scale: 1/2" = 1'-0"
3/16" x 9" wide steel can grind butt weld seam smooth on inside
8-#5 x 0'-3" weld to can
Apply 2 coats of plastic bond breaker
SECTION (A)
SCALE: 1/4" = 1'-0"
℄ Abutment & Truss bearing
#4 Bars @ 18" o.c. EW.
#8 Bars @ 12" o.c.
#4 Bars @ 12" o.c.
El. 47.44
El. 44.69
Concrete plug (See detail this sheet)
#4 Bars @ 18" o.c.
#8 Bars @ 12" o.c.
#8 Bars @ 6" o.c.
Horizontal reinforcement #4 Bars @ 12" o.c.
22-#4 Bars spaced as shown
APPROACH TRUSS BEARING DETAIL AT ABUTMENT (FREE END)
SCALE: 1 1/2" = 1'-0"
℄ Abutment and Bearing
For reinforcement see sheet no. B18
Elev. 52.44
3/4" Expansion joint material
1/2" Expansion joint material
1" Chamfer
10WF21
Elev. 44.69
4-3/4"φ x 1'-6" Anchor bolts with leveling nuts
APPROACH TRUSS FIXED ANCHOR
SCALE: 3" = 1'-0"
℄ Truss
10WF21
1/2" PL Stiffener
1/2" Elastomeric Bearing Pad
1 1/4"φ x 1'-6" Anchor bolts with PL washers & nuts
Filler Plate
PEDESTRIAN BRIDGE
ABUTMENT & APPROACH TRUSS BEARING DETAILS
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO
CALIFORNIA
OCT. 1966
AS SHOWN
SHEET 813 OF 823
SPINK ENGINEERING COMPANY
CODE
DR No.



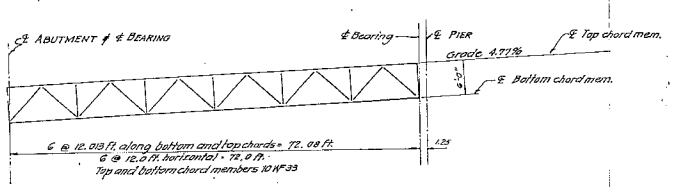
Stiffening truss shall be fabricated on a vertical circular curve for the bottom chord Δ = 3°48'10" Radius = 9008.58 Ft. L = 600.11 ft. C = 600.00 Ft.

VERTICAL STIFFENING TRUSS

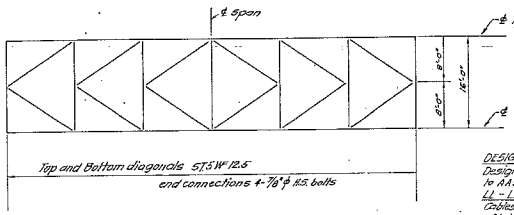


TOP AND BOTTOM LATERAL BRACING SYSTEMS

NOTE: All bolts to be high strength A.S.T.M. 325



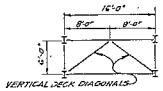
EAST AND WEST APPROACH VERTICAL TRUSS



DESIGN LOADS FOR MAIN CHORD MEMBERS OF STIFFENING TRUSS

POSITION	GROUP II (DL+LL±T)	GROUP III (DL±W±T)	GROUP IV DLLL±T+W/2
END	0	0	0
.1 SPAN	230	152	306
.2 SPAN	266	249	391
.3 SPAN	250	340	420
.4 SPAN	200	398	399
.5 SPAN	171	421	381

All loads in kips



TYPICAL SECTION OF STIFFENING AND APPROACH TRUSS

STIFFENING TRUSS

MEMBER	SIZE
Top chord	10 WF 77 #
Bottom chord	10 WF 77 #
Deck beam	10 WF 21
Horiz. bottom strut	10 WF 21
Horiz. top diagonals	See lateral bracing system
Horiz. bottom diagonals	See lateral bracing system
Vertical strut	3"ϕ Std. pipe
Vertical diagonals	4"ϕ Std. pipe
Vert. deck beam diag.	3"ϕ Std. pipe *

* Exception, end system @ end of span, see sheet no. B12.

APPROACH TRUSSES

MEMBER	SIZE
Top chord	10 WF 33
Bottom chord	10 WF 33
Deck beam	10 WF 21
Horiz. bottom strut	10 WF 21
Horiz. top diagonals	See lateral bracing system
Horiz. bottom diagonals	See lateral bracing system
Vertical strut	3"ϕ Std. pipe
Vertical diagonals	4"ϕ Std. pipe
Vert. deck beam diag.	3"ϕ Std. pipe

LOADING COMBINATIONS AND PERCENTAGE OF BASIC ALLOWABLE UNIT STRESSES

GROUP	LOADING COMBINATION	DECK	STIFFENING TRUSS	LATERAL SYSTEM
I	DL+LL+T	100%		
II	DL+LL±T	100%	100%	
III	DL+W±T	133⅓%	133⅓%	
IV	DL+LL±T+W/2	133⅓%	133⅓%	
V	DL+W	125%	125%	125%

NOTE: Group I applied to suspenders and deck only. Group V same as group III except 3/4 allowable stress = 125%, no increase allowed for diagonal lateral system.

Miscellaneous
All horizontal, vertical dimensions and elevations are based on the bridge being under full dead load and at the normal temperature of 68°F. ℄ refers to the intersection of tangents of ℄ cable under full dead load in the completed structure at 68°F.

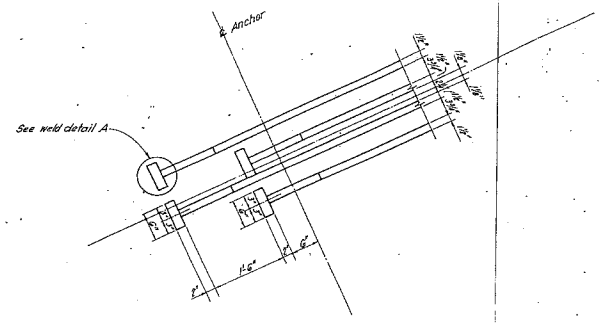
DESIGN:
Design loads and unit stress to conform to AASHO dated 1957
LL = Live Load:
Cables and stiffening truss 640 Lbs. per foot of bridge. Floor system and suspenders 85 lbs. per sq. foot.
DL = Dead Load:
1400 Lbs. per foot of bridge.
T = Temperature:
68°F. normal, with rise and fall of 50°F.
W = Wind:
Cables and lateral systems - 300 Lbs. per foot of bridge
STRUCTURAL STEEL:
All structural steel to be A-36 unless otherwise noted in plans or specifications.
CABLES:
Maximum tension in each main cable at tower 708 kips (DL+LL+T) Each main cable to consist of four (4) 2½ inch cables. Each individual 2½ inch cable to have ultimate strength of 2571 Tons.
SUSPENDER ROPES:
Tension in suspender rope DL+LL - 16 Kips. Each suspender rope to be ¾ inch and have ultimate strength of 26 Tons.

TOP AND BOTTOM LATERAL BRACING SYSTEMS

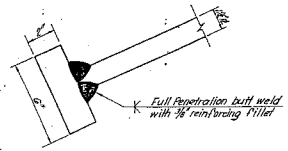
PEDESTRIAN BRIDGE
STIFFENING TRUSS AND APPROACH TRUSS LAYOUT
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA
DES. 1968 DR. AS SHOWN TR. 7616-L&L
SHEET 184 OF 822 SHEETS CODE UP No.

SPINK ENGINEERING COMPANY

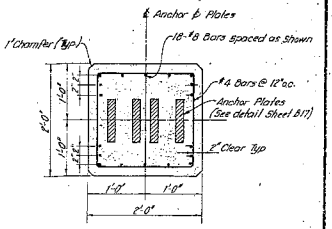
DEAD MAN PLAN
Scale: 1/4"=1'-0"
SECTIONS 1,2 & 3 SEE SHEET NO. B16
SECTIONS 4 & 5 SEE SHEET NO. B20
℄ Centroid Main Cable Strands
16'-0"
Place 1/4" Expansion joint material between concrete surfaces (Typ. each side)
26'-0"
13'-0"
6'-6"
2'-0"
GENERAL NOTES:
1. Face "f-f" of Deadman is to be poured against undisturbed natural ground.
℄ Working Point of Deadman
59.37'
31'-9" Approach Fill
30'-0" Retaining Wall A
2.625
Retaining Wall B
Top of Walk
24°32'16"
℄ Centroid Main Cables Elev. 38.11
Existing and Proposed Ground Line
Retaining Wall A
WEST DEAD MAN 212.25' To ℄ Pier & Tower
EAST DEAD MAN 185.40' To ℄ Pier & Tower
Place against compacted ground (Typ.)
30'-0"
15'-0"
Elev. 18.00 (Top)
Elev. 11.00
Elev. 5.00 (Bottom)
Face "f-f" (See General Notes)
NOTE: THIS SHEET DRAWN FOR WEST DEAD MAN ANCHORAGE. EAST DEAD MAN ANCHORAGE SAME EXCEPT RETAINING WALLS ARE OMITTED AND THE ℄ CENTROID MAIN CABLES ELEVATION TO BE 50.32
DEAD MAN ELEVATION
Scale: 1/4"=1'-0"
PEDESTRIAN BRIDGE
EAST AND WEST DEAD MAN
PLAN AND ELEVATION
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA
OCT. 1965
AS SHOWN
SHEET B15 OF B23
SPINK ENGINEERING COMPANY



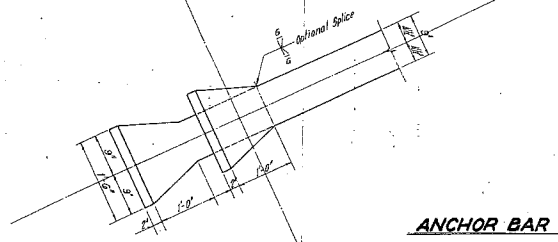
PLAN
Scale: 1"=1'-0"



TYPICAL WELD DETAIL A
Scale: 3"=1'-0"

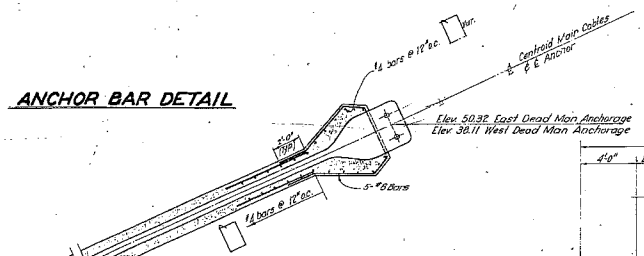


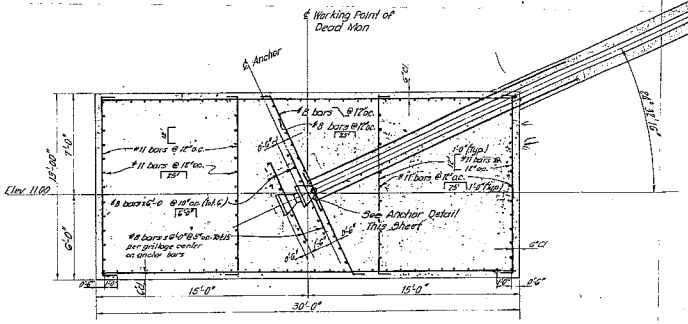
SECTION (3)
Scale: 1"=1'-0"



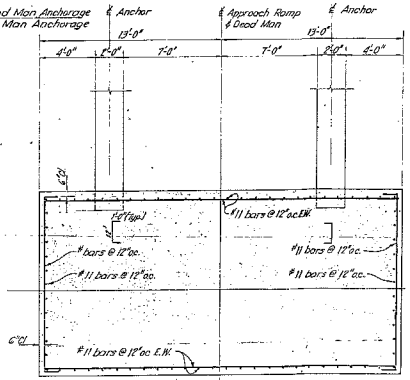
ELEVATION
Scale: 1"=1'-0"

ANCHOR BAR DETAIL





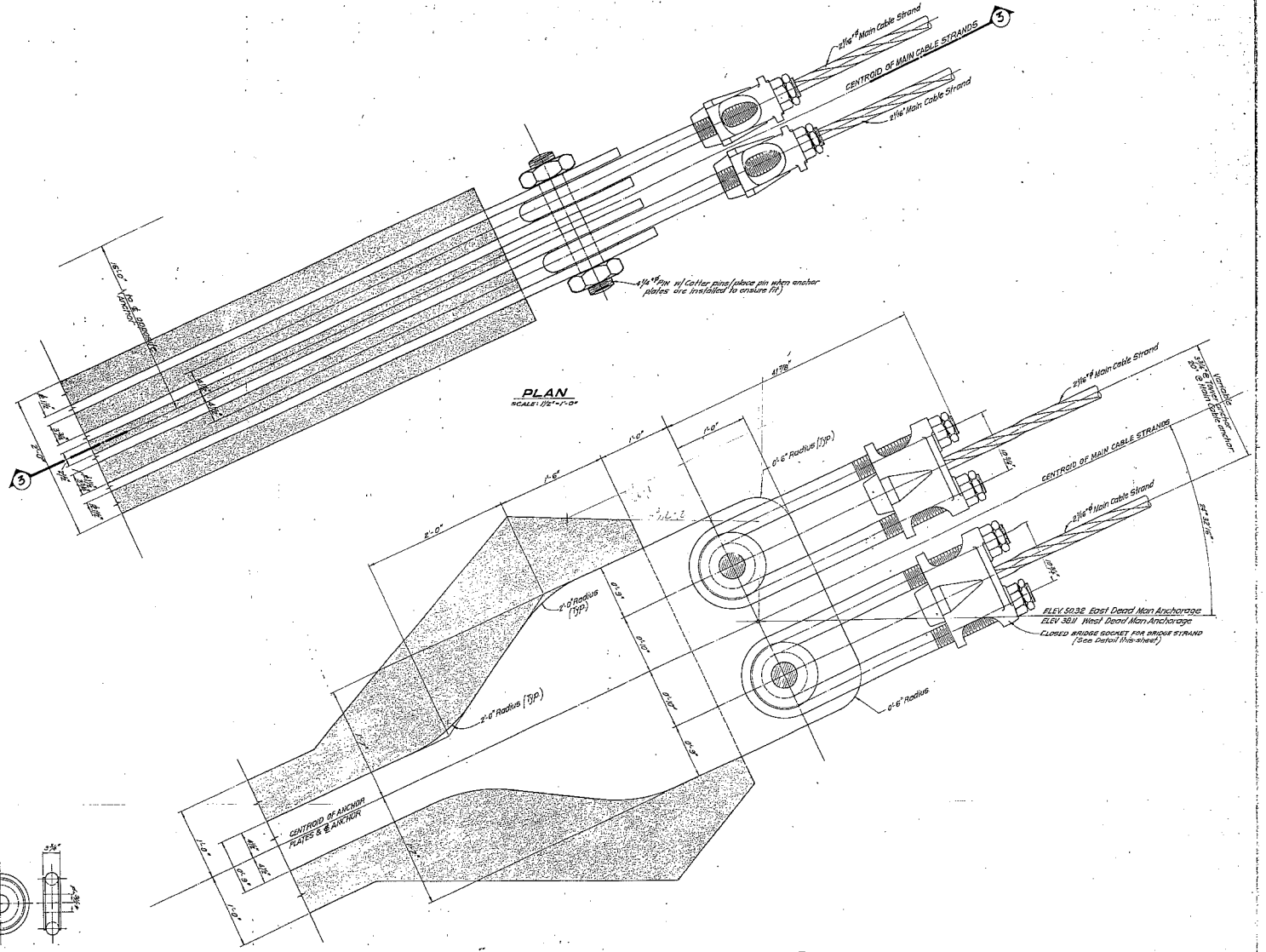
SECTION (2)
Scale: 1/4"=1'-0"

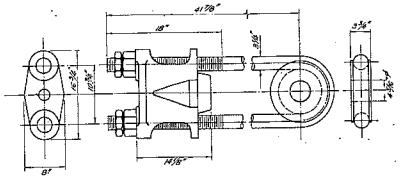


SECTION (1)
Scale: 1/4"=1'-0"

PEDESTRIAN BRIDGE
EAST AND WEST DEAD MAN
SECTIONS & DETAILS
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA
OCT. 1965 AS SHOWN

SPINK ENGINEERING COMPANY





CLOSED BRIDGE SOCKET FOR BRIDGE STRAND
SCALE: NONE

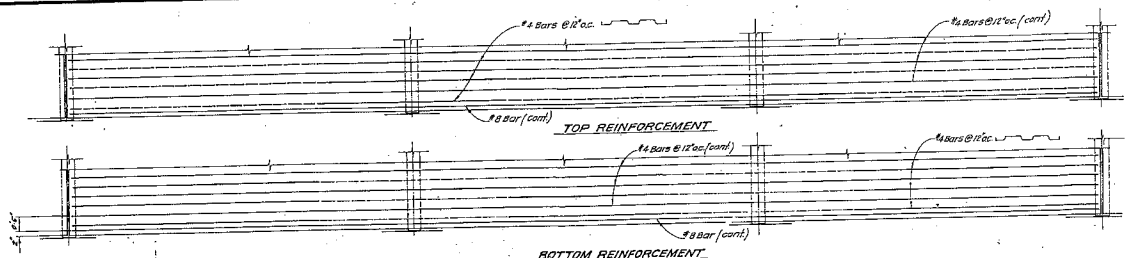
SECTION 3
SCALE: 1 1/2"=1'-0"

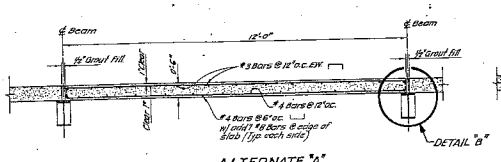
MAIN CABLE ANCHOR DETAILS
SCALE: AS SHOWN

No.	DATE	BY	DESCRIPTION OF REVISION

PEDESTRIAN BRIDGE
MAIN CABLE ANCHORAGE DETAILS
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA
OCT. 1969 SCALE AS SHOWN
DWN BY: [illegible]
CHK BY: T. ORANGO
CHK BY: P. FOUNG
JOB No. 7810-112
F.S.
SHEET 817 OF 823

SPINK ENGINEERING COMPANY
ENGINEERS PLANNERS SURVEYORS
CODE
DR No.

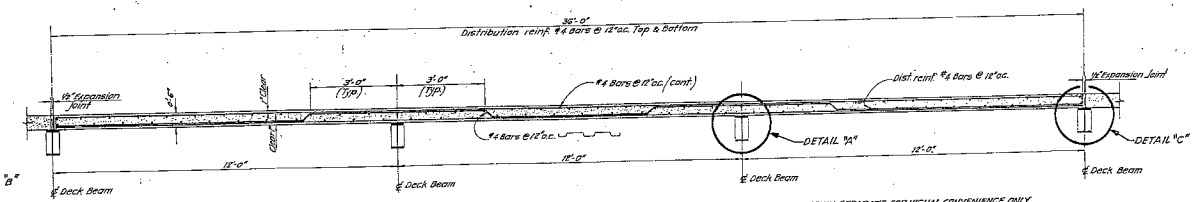




ALTERNATE "A"

PRECAST SIMPLE SPAN CONCRETE DECK SECTION

SCALE: 1/2"=1'-0"

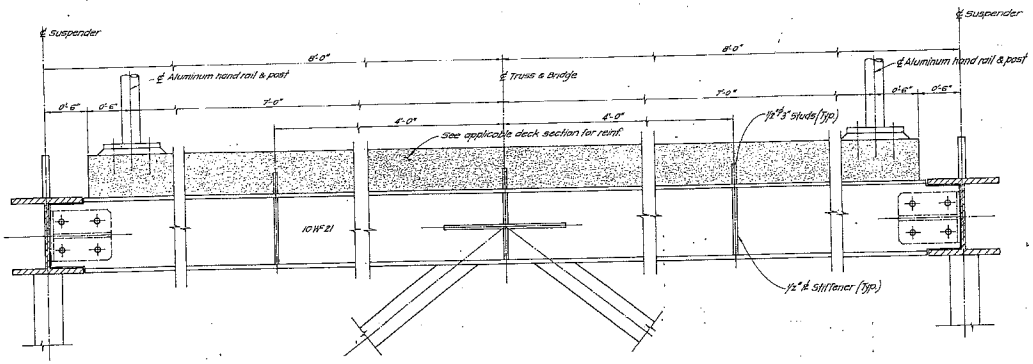


ALTERNATE "B"

CAST IN PLACE CONCRETE DECK SECTION

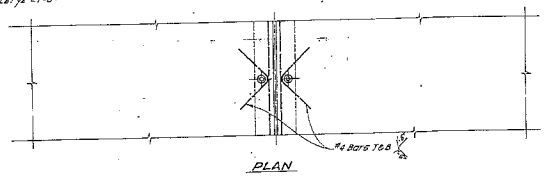
SCALE: 1/2"=1'-0"

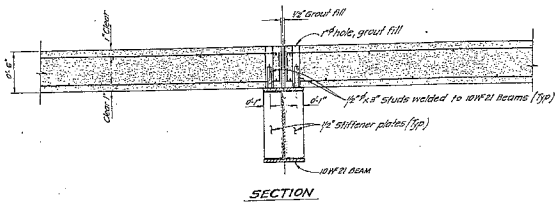
NOTE: BARS SHOWN SEPARATE FOR VISUAL CONVENIENCE ONLY



TYPICAL DECK SECTION

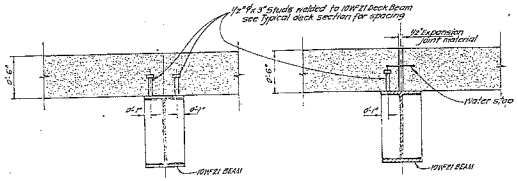
SCALE: 1/2"=1'-0"





DETAIL "B"

SCALE: 1 1/2"=1'-0"



GENERAL NOTES:

1. The concrete bridge deck shall be light weight concrete having a wet weight of 125 LBS per cubic foot and shall have a 28 day compressive strength of 3000 psi.
2. See bridge railing details for add'l reinforcement required in deck slab under railing posts.

PEDESTRIAN BRIDGE

TYPICAL BRIDGE DECK SECTIONS

CAMPUS COMMONS ASSESSMENT DISTRICT

CITY OF SACRAMENTO CALIFORNIA

DESIGNED: R.C.T. DRAWN: M.A.D.H. CHECKED: E.DAVIS APPROVED: K.YOUNG

SCALE: 1/2"=1'-0" AS SHOWN

JOB NO. 7810-242

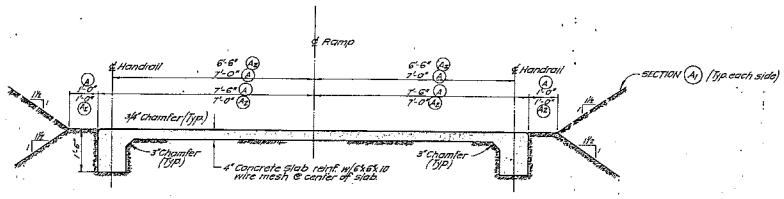
SHEET 8 OF 8 SHEETS

CODE

DR. No.

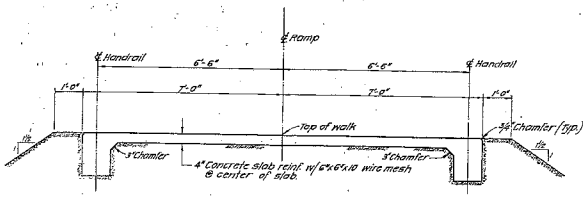
SPINK ENGINEERING COMPANY

ENGINEERS PLANNERS SURVEYORS

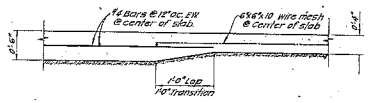


SECTION A, A1 & A2
SCALE: 1/2"=1'-0"

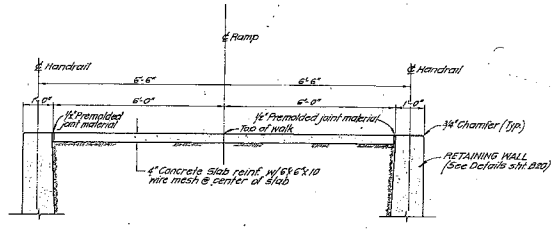
NOTE: SECTION A1 IS SAME AS SECTION A2 EXCEPT NO HANDRAIL IS REQ'D. AND SIDE SLOPE IS REVERSED.



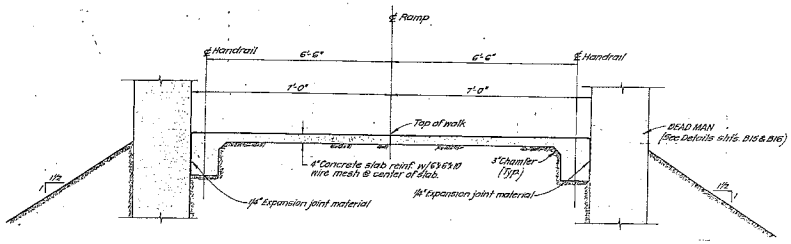
SECTION D
SCALE: 1/2"=1'-0"



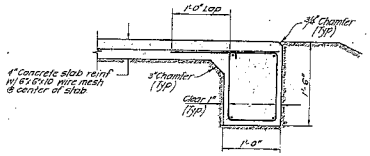
6" THICK TO 4" THICK SLAB TRANSITION
SCALE: 1"=1'-0"



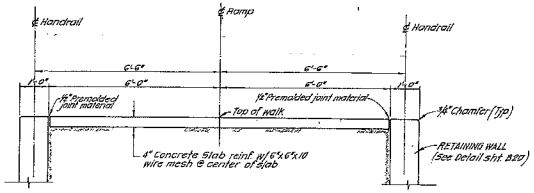
SECTION B
SCALE: 1/2"=1'-0"



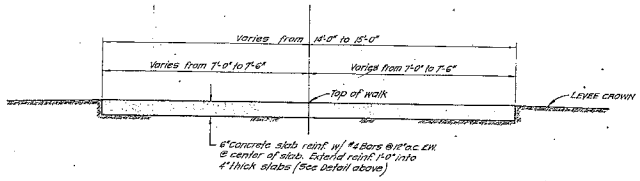
SECTION E
SCALE: 1/2"=1'-0"



SLAB FOOTING DETAIL
SCALE: 1"=1'-0"



SECTION C
SCALE: 1/2"=1'-0"



SECTION F
SCALE: 1/2"=1'-0"

No	DATE	BY	DESCRIPTION OF REVISION

PEDESTRIAN BRIDGE

APPROACH RAMP WALK DETAILS AND SECTIONS

CAMPUS COMMONS ASSESSMENT DISTRICT

CITY OF SACRAMENTO CALIFORNIA

DES. BY: P.Fratello
DRN. BY: T.Bates
CHD. BY: R.E.Young

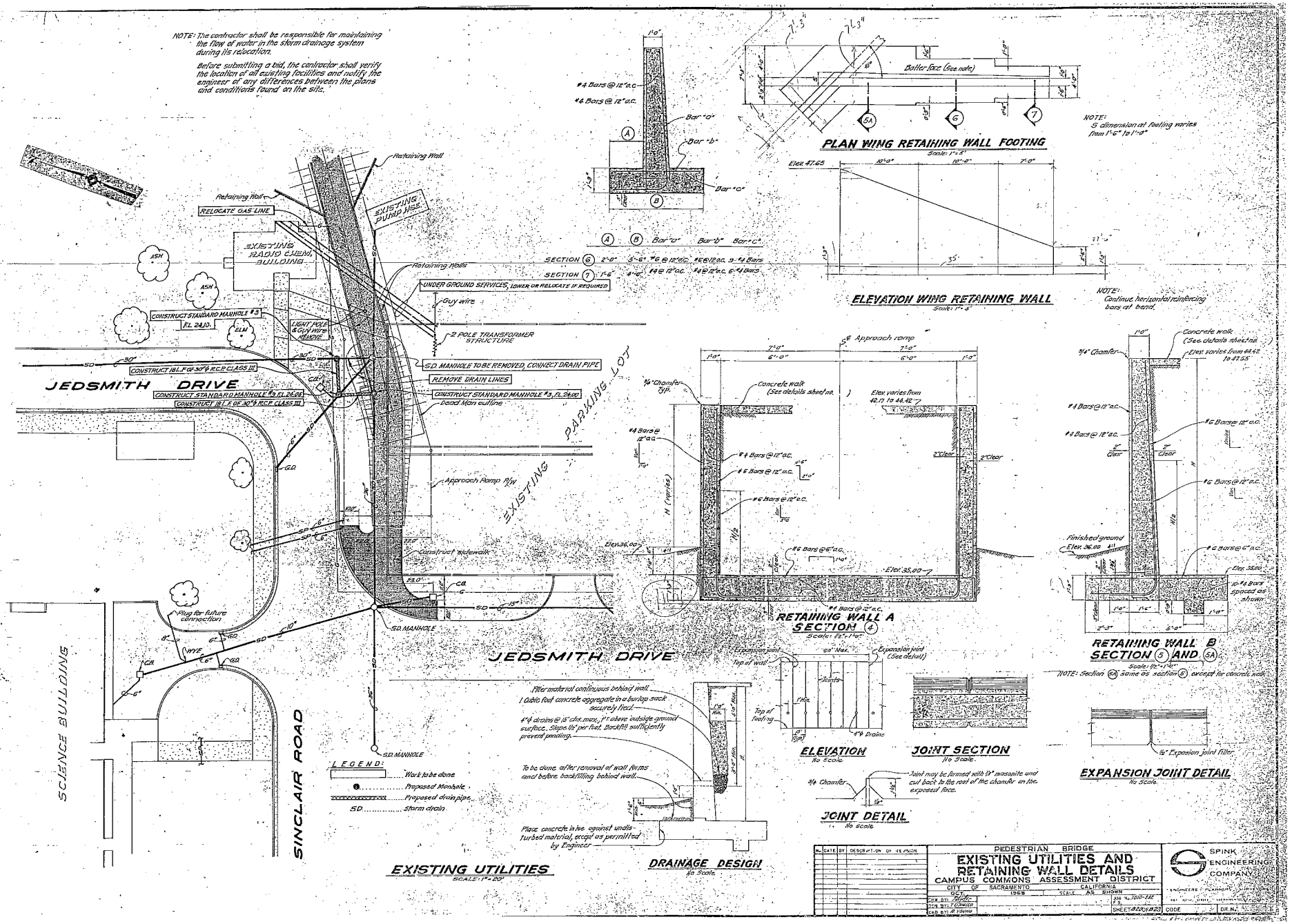
1985 SCALE AS SHOWN

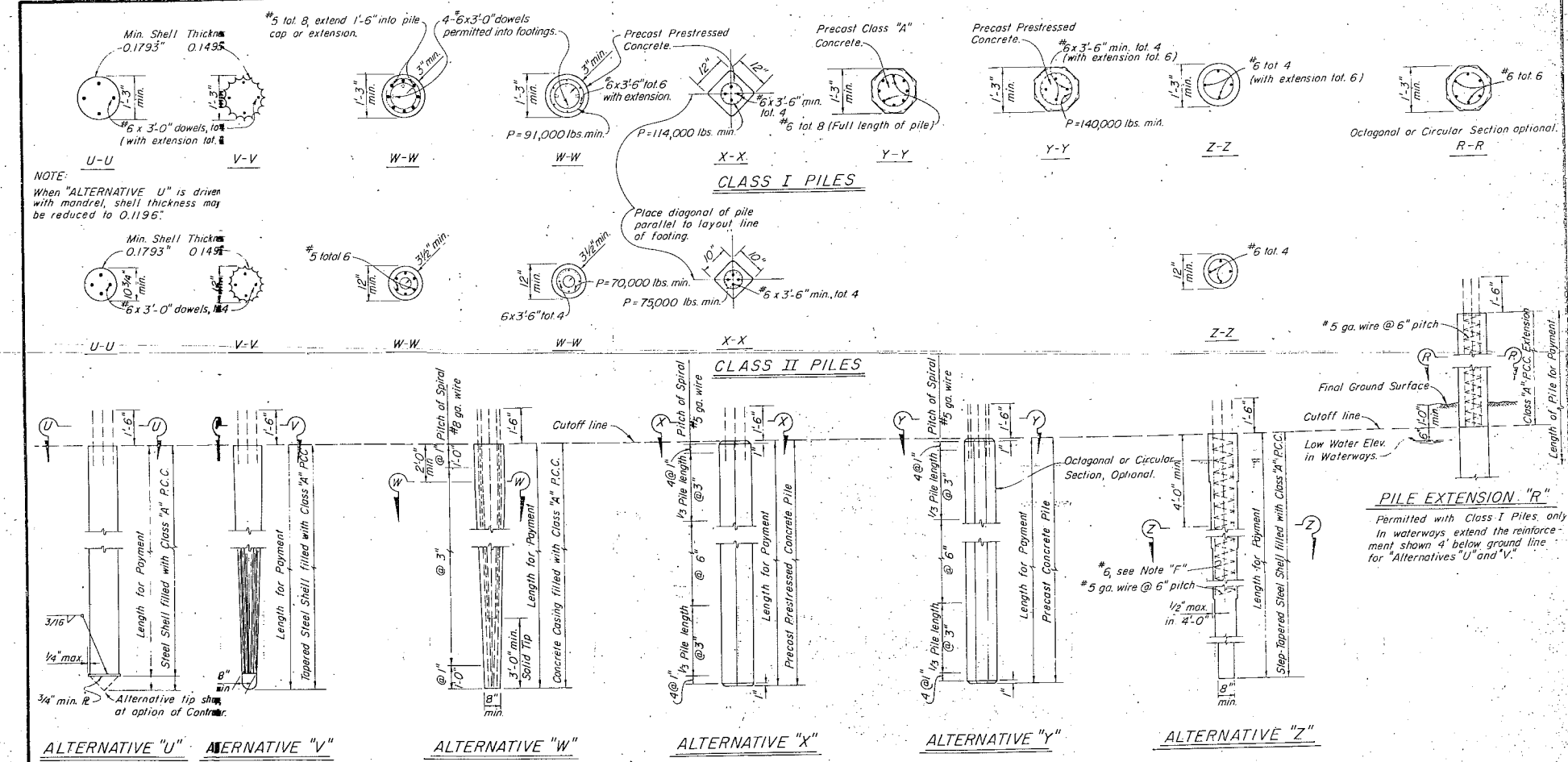
JOB NO. 7810-005

SHEET 818 OF 823 CODE DR. No.

SPINK ENGINEERING COMPANY

ENGINEERS PLANNERS SURVEYORS


NOTE: The contractor shall be responsible for maintaining the flow of water in the storm drainage system during its relocation.
Before submitting a bid, the contractor shall verify the location of all existing facilities and notify the engineer of any differences between the plans and conditions found on the site.
PLAN WING RETAINING WALL FOOTING
Scale: 1"=5'
Batter face (See note)
NOTE: S dimension at footing varies from 1'-6" to 1'-0"
ELEVATION WING RETAINING WALL
Scale: 1"=5'
NOTE: Continue horizontal reinforcing bars at bend.
SECTION 6 2'-0" 5'-6" #6 @ 12" o.c. #6 @ 12" o.c. 9-#4 Bars
SECTION 7 1'-6" 4'-0" #4 @ 12" o.c. #4 @ 12" o.c. 6-#4 Bars
Retaining Wall
RELOCATE GAS LINE
EXISTING PUMP HSE.
EXISTING RADIO CHEM. BUILDING
Retaining Walls
UNDER GROUND SERVICES, LOWER OR RELOCATE IF REQUIRED
Guy wire
2 POLE TRANSFORMER STRUCTURE
CONSTRUCT STANDARD MANHOLE #3 FL 24.10
LIGHT POLE & GUY WIRE REMOVE
S.D. MANHOLE TO BE REMOVED, CONNECT DRAIN PIPE
REMOVE DRAIN LINES
CONSTRUCT STANDARD MANHOLE #3 FL 24.00
Dead Man outline
CONSTRUCT 18 L.F. OF 30"φ R.C.P. CLASS III
CONSTRUCT STANDARD MANHOLE #3 FL 24.05
CONSTRUCT 18 L.F. OF 30"φ R.C.P. CLASS III
JEDSMITH DRIVE
EXISTING PARKING LOT
Approach Ramp R/W
Construct sidewalk
S.D. MANHOLE
Plug for future connection
JEDSMITH DRIVE
SCIENCE BUILDING
SINCLAIR ROAD
LEGEND:
Work to be done
Proposed Manhole
Proposed drain pipe
SD Storm drain
EXISTING UTILITIES
SCALE: 1"=20'
Filter material continuous behind wall.
1 Cubic foot concrete aggregate in a burlap sack securely tied.
4"φ drains @ 15' ctrs. max., 1" above outside ground surface. Slope 1/2" per foot. Backfill sufficiently prevent ponding.
To be done after removal of wall forms and before backfilling behind wall.
Place concrete in toe against undisturbed material, except as permitted by Engineer
DRAINAGE DESIGN
No Scale
Approach ramp
Concrete walk (See details sheet no.)
Elev. varies from 42.17 to 44.42
RETAINING WALL A SECTION 4
Scale: 1/2"=1'-0"
Elev. 36.00
Elev. 35.00
RETAINING WALL B SECTION 5 AND 5A
Scale: 1/2"=1'-0"
NOTE: Section 5A same as section 5 except for concrete walk
Finished ground Elev. 36.00
Elev. 35.00
10-#4 Bars spaced as shown
ELEVATION
No Scale
JOINT SECTION
No Scale
Expansion joint (See detail)
Top of wall
Top of footing
4"φ Drains
JOINT DETAIL
No Scale
Joint may be formed with 1/2" masonite and cut back to the root of the chamfer on the exposed face.
EXPANSION JOINT DETAIL
No Scale
1/2" Expansion joint filler
PEDESTRIAN BRIDGE
EXISTING UTILITIES AND RETAINING WALL DETAILS
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA
OCT. 1968 SCALE AS SHOWN
SPINK ENGINEERING COMPANY
ENGINEERS PLANNERS SURVEYORS
SHEET 4 OF 23
CODE
DR. No.



PILE NOTES:

Alternatives "U" and "Y" may be driven full length or may be extended.

All exposed piles or pile extensions shall be consistent in cross-section throughout the project.

PRECAST PRESTRESSED PILES:

P = Prestressing Force (After losses)

Concrete Stress: f'c a 28 days = 6,000 p.s.i. (Alternative "X")
4,500 p.s.i. (Alternative "Y")
5,000 p.s.i. (Alternative "W").

Alternative "Y" may not extend above ground line nor be used with pile extension "R".

NOTE F: In Alternative "Z" the No. 6 bars shall extend a minimum of 12' below the lowest of the following:

1. Bottom of footing.
2. Top of final ground surface.
3. Top of original ground surface when piles are driven through fills.

Unless indicated to the contrary all piles shall be Class I piles. Class I piles may be substituted for Class II piles.

A 10" minimum diameter pipe extension (thickness = 0.1793" min.) may be used at the tip of Alternatives "V" or "Z" when taper is 30' or more in length.

All dowels or bars extending into slab or footing having a depth less than 2'-0" shall be hooked.

DESIGN LOADING = 40 TONS

No.	DATE	BY	DESCRIPTION OF REVISION

PEDESTRIAN BRIDGE

CONCRETE PILE DETAILS

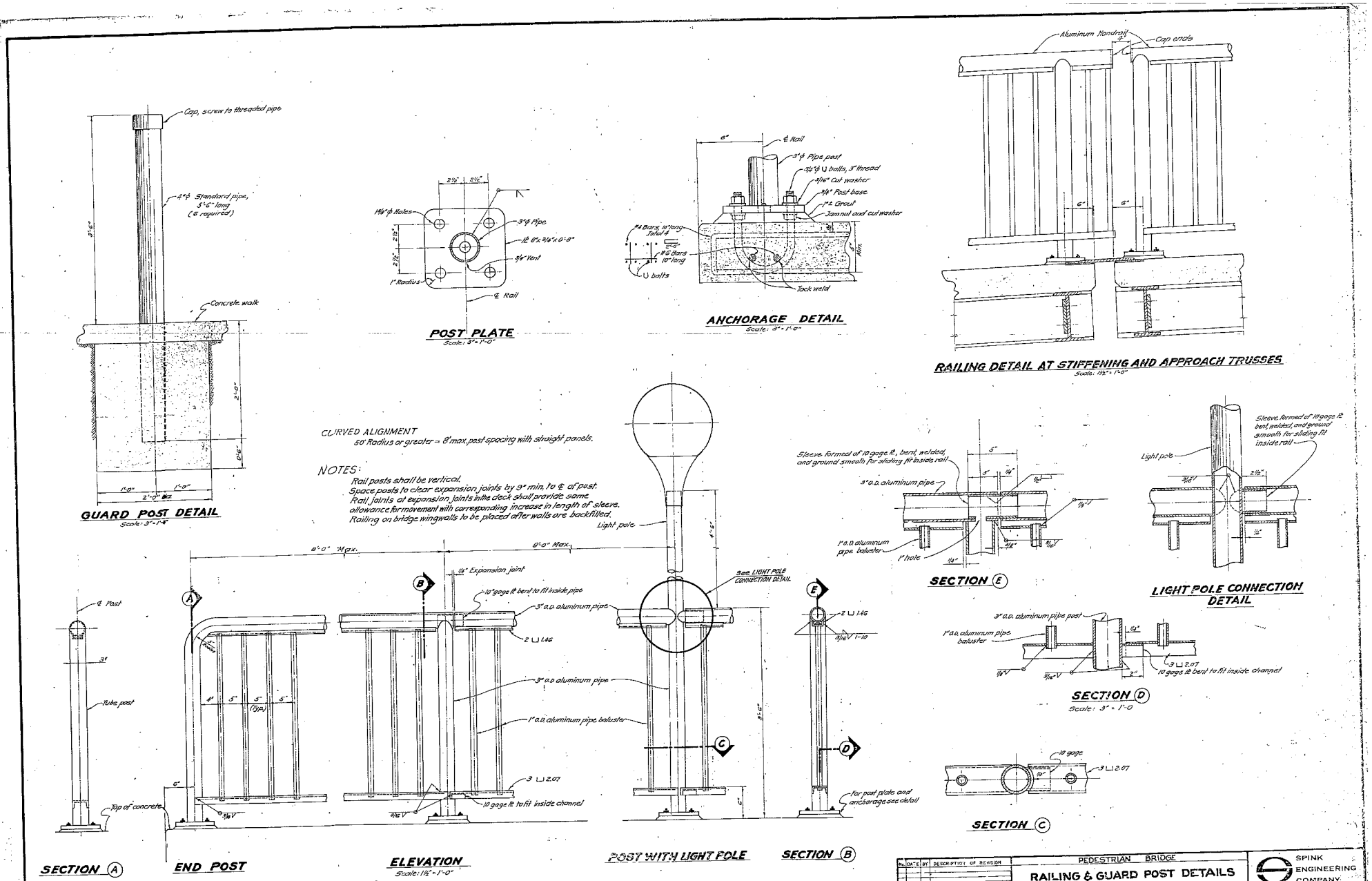
CAMPUS COMMONS ASSESSMENT DISTRICT
CITY OF SACRAMENTO CALIFORNIA
OCT. 1965 SCALE AS SHOWN

DRN. BY:
DSN. BY:
CKD. BY: R. YOUNG

JOB No. 1810-242
F.9
SHEET 82 OF 82

SPINK ENGINEERING COMPANY
ENGINEERS · PLANNERS · SURVEYORS
BEST TITLE STREET · SACRAMENTO · CALIFORNIA

CODE
DR No.



No.	DATE	BY	DESCRIPTION OF REVISION

PEDESTRIAN BRIDGE

RAILING & GUARD POST DETAILS

CAMPUS COMMONS ASSESSMENT DISTRICT

CITY OF SACRAMENTO CALIFORNIA

DATE 1960 SCALE AS SHOWN

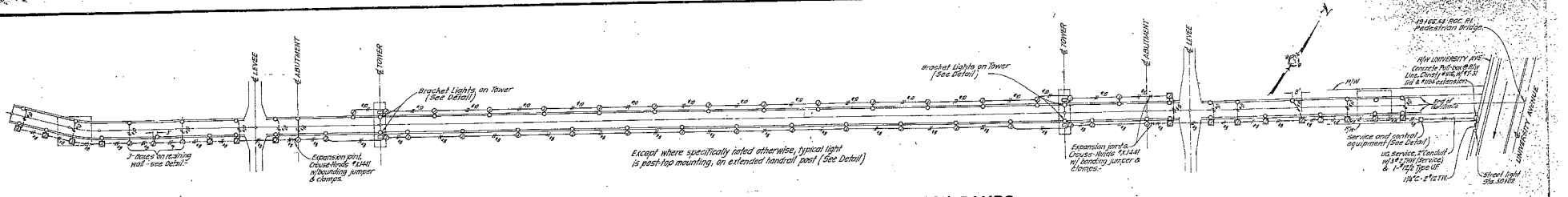
DRW. BY: B. Moore
DSN. BY: T.G.
CKD. BY: R.Y.

JOB No. 7810-202
F.S.
SHEET 822 OF 823

SPINK ENGINEERING COMPANY

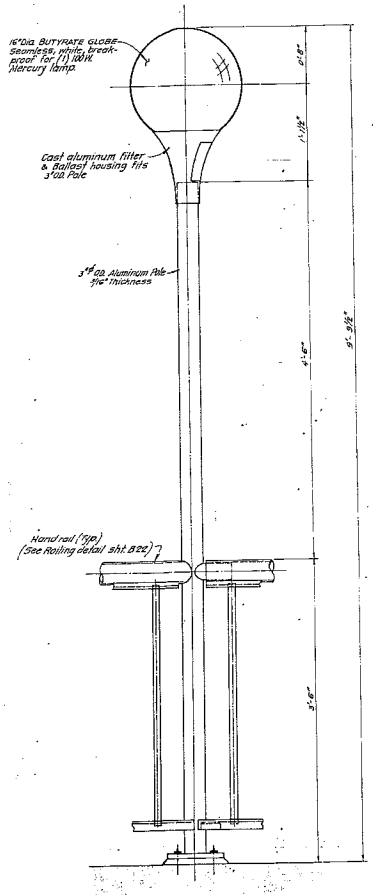
ENGINEERS · PLANNERS · SURVEYORS

CODE DR. No.



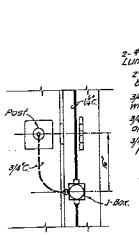
LIGHTING PLAN - FOOTBRIDGE AND APPROACH RAMPS

SCALE: 1"=40'



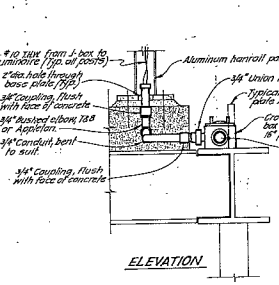
ELECTROLIER DETAIL

SCALE: 1/2"=1'-0"



PLAN VIEW

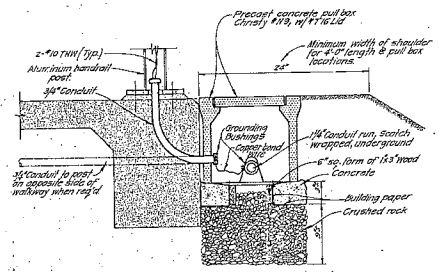
Scale 3/4"=1'-0"



ELEVATION

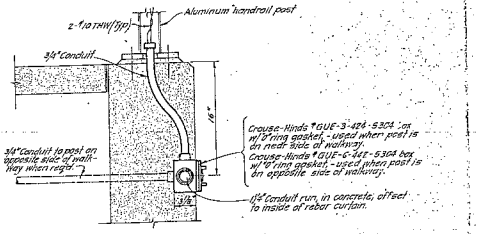
DETAIL - TYPICAL CONDUIT & JUNCTION BOX FOR ALL POSTS ON CONCRETE DECK

SCALE: 1/2"=1'-0"



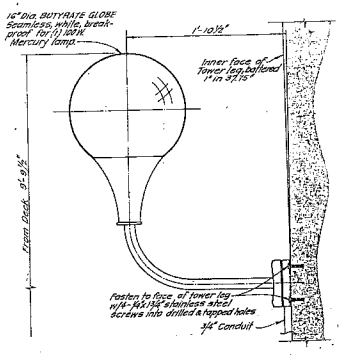
DETAIL - TYPICAL CONDUIT & JUNCTION BOX FOR ALL POSTS ON SLAB - ON - GRADE

SCALE: 1/2"=1'-0"



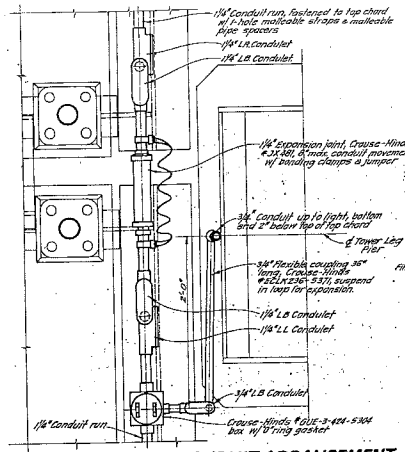
DETAIL - TYPICAL CONDUIT & JUNCTION BOX FOR ALL POSTS ON CONCRETE RETAINING WALLS

SCALE: 1/2"=1'-0"



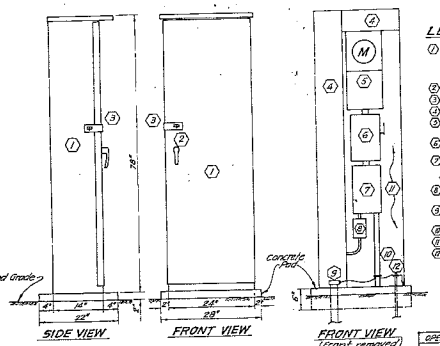
DETAIL - BRACKET LIGHT MOUNTED ON TOWER LEG

SCALE: 1/2"=1'-0"



DETAIL - TYPICAL CONDUIT ARRANGEMENT AT TOWER

SCALE: 1/2"=1'-0"

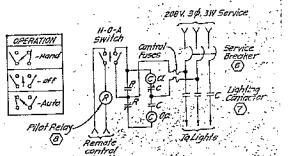


DETAIL - SERVICE & LIGHT CONTROL EQUIPMENT

SCALE: 3/4"=1'-0"

LEGEND:

1. NEMA 4 raintight enclosure, 16ga. steel, smooth, unpierced sidesite sheets (heads of same to bolt permitted), fastened to base with 4-1/2" anchor bolts.
2. 3-point vault handle latch
3. - double-ended hasp for 2 padlocks.
4. - Available underground service entrance gutters.
5. - Meter safety socket box for 120V, 3 Phase, 3 wire service, Square D #7046 MA or equal.
6. - Service Breaker - 400A, 3P, I Frame, Square D #LJ, I-line or equal.
7. - Lighting contactor, 30A, 3P, mechanically-held, w/240V. coil, control circuit fuses, and "hand-off-Automatic" switch in cover, Square D class 8903 type MG-II.
8. - Pilot relay, 10A, SPDT, 115V. 60 cycles, Square D Class 8501, Type GO-10.
9. - Incoming 2" underground service conduit with insulated grounding bushing.
10. - Bridge lighting feeder 1" conduit with 3 #3 THW.
11. - Full sized back board of 3/4" thick plywood, painted.
12. - 3/4"x8' Copperweld ground rod, driven to 9'-0" below grade.



ELEMENTARY DIAGRAM

NO SCALE

No.	DATE	BY	DESCRIPTION OF REVISION

PEDESTRIAN BRIDGE

ELECTRICAL

CAMPUS COMMONS ASSESSMENT DISTRICT

CITY OF SACRAMENTO CALIFORNIA

1985

SCALE: AS SHOWN

DES. BY: R.E.

DRN. BY: G.M.

CHD. BY: G.M.

SPINK ENGINEERING COMPANY

ENGINEERS - PLANNERS - SURVEYORS

SHEET E15 OF E24

CODE NO. DR. NO.